



PLANNING COMMISSION REGULAR SESSION AGENDA
Monday, July 26, 2021 - 7:00 PM
City Hall, Council Chambers, 169 SW Coast Hwy, Newport, OR 97365

The meeting location is accessible to persons with disabilities. A request for an interpreter for the DEAF AND HARD OF HEARING, or for other accommodations for persons with disabilities, should be made at least 48 hours in advance of the meeting to Peggy Hawker, City Recorder at 541.574.0613, or p.hawker@newportoregon.gov.

The meeting will be live-streamed at <https://newportoregon.gov>, and broadcast on Charter Channel 190.

Anyone wishing to provide written public comment should send the comment to publiccomment@newportoregon.gov. The e-mail must be received at least four hours prior to the scheduled meeting.

The agenda may be amended during the meeting to add or delete items, change the order of agenda items, or discuss any other business deemed necessary at the time of the meeting

1. CALL TO ORDER AND ROLL CALL

Jim Patrick, Bill Branigan, Lee Hardy, Bob Berman, Jim Hanselman, Gary East, and Braulio Escobar.

2. APPROVAL OF MINUTES

2.A Approval of the Planning Commission Work Session Meeting Minutes of July 12, 2021.
[Draft PC Work Session Minutes 07-12-2021](#)

2.B Approval of the Planning Commission Regular Session Meeting Minutes of July 12, 2021.
[Draft PC Reg Session Minutes 07-12-2021](#)

3. CITIZENS/PUBLIC COMMENT

A Public Comment Roster is available immediately inside the Council Chambers. Anyone who would like to address the Planning Commission on any matter not on the agenda

will be given the opportunity after signing the Roster. Each speaker should limit comments to three minutes. The normal disposition of these items will be at the next scheduled Planning Commission meeting.

4.ACTION ITEMS

5.PUBLIC HEARINGS

5.A (Continuation) File No. 1-Z-21: Food Truck and Food Cart Amendments.

Memorandum

Amendments to NMC Chapter 4.10, dated 7-22-21

Amendments to NMC Chapter 14, dated 7-22-21

Amendments to NMC Chapter 11.05 and 12.15 (as presented at the 7-12-21 public hearing)

Map of the Bayfront and Nye Beach Parking Districts

Letter from the Taphouse at Nye Creek, dated 7-9-21

Newport News-Times article, dated 7-14-21

Letter from Donald G, Lighthouse Associates, LLC, dated 7-14-21 (with attachments)

Newport News-Times, Views on the News, dated 7-21-21

Additional Testimony - Janet Webster

Additional Testimony - LCSD

6.NEW BUSINESS

7.UNFINISHED BUSINESS

8.DIRECTOR COMMENTS

9.ADJOURNMENT

Draft MINUTES
City of Newport Planning Commission
Work Session
Newport City Hall Council Chambers
July 12, 2021
6:00 p.m.

Planning Commissioners Present: Bob Berman, Jim Hanselman, Lee Hardy, Braulio Escobar, Gary East, and Bill Branigan.

Planning Commissioners Absent: Jim Patrick (*excused*).

PC Citizens Advisory Committee Members Absent: Greg Sutton and Dustin Capri (*all excused*).

City Staff Present: Community Development Director (CDD), Derrick Tokos; and Executive Assistant, Sherri Marineau.

1. **Call to Order.** Vice Chair Branigan called the Planning Commission work session to order at 6:00 p.m.

2. **New Business.**

A. **Newport Transportation System Plan Update - Transportation Standards (Tech Memo #10).** Tokos reviewed the Transportation System Plan (TSP) tech memo, and covered the street functional clarification of roadways first. Berman asked if a portion of Harney Street was categorized for freight on the memo. Tokos explained that this was in the context that the Harney Street connection was made. (Harney and 36th Streets could only be a freight route if Harney Street was connected to the south. Without the connection, there wasn't anything to justify freight on the route.

Tokos covered street x-sections next. Branigan asked if they were going to recommend that the streets they designate as collectors adhere to the examples of street sections. He noted that most of the streets didn't meet these requirements. Tokos explained they would see a significant difference between major collector preferred and major collector acceptable standards. Where there was already a street width without these components where they would have to do the improvements. Branigan asked about major collector acceptable that didn't have sidewalks. Tokos explained these would be rectified through redevelopment of some sort of city project. Berman asked if someone on an empty lot would be required to have sidewalks even though there weren't sidewalks by them. Tokos reported there would be updated development standards which included how they went about determining what level of public improvement was required for infill development. As the code was written, in cases where an entire block didn't have sidewalks they would require a non remonstrance agreement. In instances where a home was going in on a block where other sidewalks existed, they were required to fill them in. Tokos reported that they would set up the framework on how decisions could be made in terms of traffic calming, and give it a clear process.

Tokos reviewed mobility standards. He described a failed intersection as one where it took multiple light intervals to get through the intersection. Hardy didn't think it was right to say that this was a failed intersection. She thought it was an indication of too much traffic and the intersection wasn't failing. Tokos noted they would have an opportunity to discuss whether or not the city needed to adjust its thresholds for traffic through traffic studies. What they would be doing was evaluating new development in a particular location and if there was a need for some improvement to the intersection and street in conjunction with the development. Hardy asked if they were considering bypasses. Tokos reported they weren't a part of the packet. This would be more of a regional discussion. Hardy thought it needed to be on the table to consider. Tokos conveyed that it wasn't a part of the TSP work at that point. He explained the history of the what had been considered for bypasses for Newport, with Moore Drive being the only logical freight route.

Tokos explained the guidelines for block spacing and noted that access management would be considered. They

would also have some recommendations relative to EV charging stations based on the legislation from HB 2180 that required that new development of multifamily units of five or more, and all commercial developments, to have electrical services in place to provide EV charging and that they provide conduit into the parking areas. Tokos believed that they would have to do this for 20 percent of their parking. This would go into effect on July 1, 2022. East asked if this allowed companies like Electrify America or Telsa to come in and put their own systems in. Tokos explained this was infrastructure on the individual private properties to support EV charging. Charging stations were becoming a reality and something they had to consider. The bill didn't require developers to put the charging stations in, but that they have the power supply and the conduit into the parking area so that it could be done without a major renovation to the building.

Tokos reviewed some of the renovation projects and the fiscally constrained project list. He reported the projects had roughly \$50 million available over a 20 year period. Tokos reviewed the Harney Street extension findings and noted that they were able to get the costs down by \$10 million but it was hard to get costs lower because of terrain. The consultants thought there was enough merit to keep it on the list in case there were some Federal funds that came in to fund it, but not list it on the fiscally constrained. Hanselman noted that the consultants indicated there were 25,000 vehicles that went northbound on US 101 per day. He thought that the possibility of a reduction of 5,000 vehicles for \$60 million wasn't very many when they were talking about 25,000 vehicles going north and likely the same amount going south. Berman pointed out that of the 5,000 vehicles a lot of them would be heavy use trucks. This would help with traffic improvement if they were diverted. Escobar asked if the Harney Street would open up some of the land for development that was cost prohibitive. Tokos thought it could and reminded that many of the 5,000 vehicles were local as well. (26:52) Escobar thought that it seemed cost prohibitive at that point. Hanselman asked if any of this would pencil out for affordable housing. Tokos thought this was unlikely and might not pencil out for developers because of their costs for onsite work and offsite improvements. Tokos thought that if this project landed between \$45-60 million the individual property owners would look to withdraw the 80 acres and try to do a house or two there. Tokos reported they had tried to develop the properties in the past but they couldn't make it work.

Tokos reviewed the Oceanview to Nye Street extension. He reported the TSP Committee's view was that there may be value for this but it could fall off based on where they landed on the fiscally constrained numbers. Also, the Committee's preference was for the full street option. Tokos explained that once they saw the actual cost of this they would compare it to other projects and see where it fell. Berman noted that the extension might cause other issues such as how to get traffic on and off the extension, and how it might cause more traffic to use Oceanview Drive.

Tokos reviewed the three US 101 couplet options. He reported that the TSP Committee thought the short couplet was the best approach. Tokos then reviewed the US 20/US 101 options. The TSP Committee thought the additional southbound turn lane was best. Hardy asked what they would do with the businesses that would be required to move. Tokos explained if they were effecting the property so much that the building would have to be removed they would have to purchase the property at fair market value. If they could do a right-of-way take and the business was still functional, this became a different appraisal. Hardy thought there was a tradeoff between the actual effective impact of modifying the street versus the expense and inconvenience to the business owner by forcing them to close or modify their business. Tokos explained that anytime they pursued condemnation they looking at the interest of the broader public and whomever you were impacting for business. They would be obligated to pay fair market value. Hardy had concerns about making a business closed down and them not being about to relocate in town. She thought this would be a loss of excess of fair market value. Tokos thought they could talk about that when they got to that point. In the context of Urban Renewal they could help pay for business relocation type factors. They could also look at modifications for the business as well. Hardy thought it was tacky to force businesses to relocate this way.

Tokos reviewed the US 20 two-way concepts next and explained the thought process for bike and pedestrian lanes. The TSP Committee thought they should stick with two-way traffic on the US 20 alignment and the preference was to look to accommodate bicyclists on NE 1st Street because it was a more logical place for them. Tokos thought they potentially might be looking at if they should rezone some of the C-3 heavy commercial north of US 20 into a more of a multi-family.

Tokos reviewed the Moore Drive, Harney Street and US 20 intersection considerations. The TSP Committee recommended going with a traffic signal with a left-turn pocket option.

Tokos reviewed the schedule moving forward. The consultants would be putting numbers to the different options, especially the ones that were favorable. They would be looking to launch an online outreach starting at the end of July and then an in person workshop during the second or third week of August. A final Project Advisory Committee meeting would happen in September where they would look at the TSP closer to its finished form. Then they would start to work this into the adoption process in November and December. Escobar asked if the numbers for the projects would be better known for the outreach. Tokos confirmed they would have more numbers for people to consider and weigh. Berman asked if the other projects would be included. Tokos reported they would all be included with costs.

Berman pointed out that the maps showed the city limits outside of the Urban Growth Boundary whenever they showed the coast line, and needed to be fixed. There was also graphics that were mislabeled or missing that needed to be looked at.

B. Final Scope of Work for HB 2003 Compliant Housing Capacity Analysis and Housing Production Strategy. Tokos reported the grant budget was \$105,000 and the City would have to match up to 25 percent. The State ended up getting more funding for this grant program than they asked for. Tokos thought Newport would have the grant funded but the match amount was yet to be determined. He reported Newport was a high priority for HB 2003 work. Tokos noted that the Task 5 piece was not required and was likely where they would land. They would be looking to say that to help inform infrastructure investments they would take a hard look at properties with moderate infrastructure needs and figure out, based on land values in these areas, the infrastructure costs to get them fully serviced, the construction costs to build the units we need, and to see if they would likely land in prices affordable for folks in our community. This will help Newport the State asked us down the road why we didn't meet certain benchmarks for the housing production strategy.

3. Unfinished Business.

A. Updated Planning Commission Work Program. Tokos pointed the major change on the work program was to flip the review of the Tech Memos for the TSP. He also noted that there would be a public hearing for the Wilder Development in August.

4. Adjourn. The meeting adjourned at 7:50 p.m.

Respectfully submitted,

Sherri Marineau,
Executive Assistant

Draft MINUTES
City of Newport Planning Commission
Regular Session
Newport City Hall Council Chambers
July 12, 2021

Planning Commissioners Present: Bob Berman, Jim Hanselman, Lee Hardy, Braulio Escobar, Gary East, and Bill Branigan.

Planning Commissioners Absent: Jim Patrick (excused).

City Staff Present: Community Development Director (CDD), Derrick Tokos; and Executive Assistant, Sherri Marineau.

1. **Call to Order & Roll Call.** Vice Chair Branigan called the meeting to order in the City Hall Council Chambers at 7:00 p.m. On roll call, Commissioners Hanselman, Branigan, Berman, Hardy, Escobar, and East were present.

2. **Approval of Minutes.**

A. **Approval of the Planning Commission Work Session Meeting Minutes of May 24, 2021.**

MOTION was made by Commissioner Berman, seconded by Commissioner Escobar to approve the Planning Commission Work Session Meeting Minutes of May 24, 2021 with minor corrections. The motion carried unanimously in a voice vote.

B. **Approval of the Planning Commission Regular Session Meeting Minutes of May 24, 2021.**

MOTION was made by Commissioner Berman, seconded by Commissioner Escobar to approve the Planning Commission Regular Session Meeting Minutes of May 24, 2021 as written. The motion carried unanimously in a voice vote.

C. **Approval of the Planning Commission Work Session Meeting Minutes of June 14, 2021.**

MOTION was made by Commissioner Berman, seconded by Commissioner Escobar to approve the Planning Commission Work Session Meeting Minutes of June 14, 2021 with minor corrections. The motion carried unanimously in a voice vote.

3. **Citizen/Public Comment.** None were heard.

4. **Public Hearings.** At 7:05 p.m. Vice Chair Branigan opened the public hearing portion of the meeting.

Vice Chair Branigan read the statement of rights and relevance. He asked the Commissioners for declarations of conflicts of interest, ex parte contacts, bias, or site visits. None were heard. Branigan called for objections to any member of the Planning Commission or the Commission as a whole hearing this matter; and none were heard.

A. **File 1-Z-21.**

Tokos acknowledged the comments that came in after the staff report was posted that were received from Bonnie Hendren, Janet Webster, Victor Mettle, Front Street Marine LLC, and the attorneys representing the Lincoln County School District.

Tokos reviewed the staff report and made a request that the Commission discuss the policy options after public testimony was taken. He also noted that they could choose to continue the hearing.

Berman asked for more precision when referring to residential areas in the draft. He asked if residential areas was limited to the “R” type zones, and if this would be clarified. Tokos confirmed that he changed the draft to read “residential zoned areas” and these were the R-1, R-2, R-3 and R-4 zones. Any reference to residential areas would be changed to residential zoned areas. Berman noted Chapter 4.10.010 didn’t have this change. Tokos would make sure all instances were changed in the draft.

Berman conveyed that he was not comfortable with a lottery if renewal applications exceed for the authorized spot. He thought it wasn’t fair that someone could get established in a spot and then lose the spot due to a random lottery. Tokos noted this applied to the five licenses at the Nye Beach turnaround and the Bayfront by the Hatfield pump station. Business licenses for these were issued on an annual basis and they didn’t proposing to change this. Tokos noted that the spots weren’t the vendor’s property and they weren’t entitled to those locations, except for the season they applied and obtained an endorsement for them. Berman asked if vendors didn’t renew in time could someone else come in and take the spot. Tokos explained that the business license renewed but the fixed based endorsement didn’t. If someone else put their name in for the space for the next year they would get the spot. Language could be added to address this. Tokos reported that this hadn’t been a significant issue that they had observed, and there wasn’t anyone who had locked up licenses for multiple years. Berman didn’t think it was fair to have someone who was already established not be able to be there through no fault of their own. Hanselman agreed with Berman. He thought they could put in a renewal period for the business license holders. If they didn’t do this, someone else could get the spot that someone was already established at. Escobar asked how they would feel about limiting a holders ability to hold or transfer a license. Berman thought this should be the same as short-term rental licenses. They would get to continue to use it, and when they stopped using it, it would go to someone else. Escobar suggested the licenses not be transferable.

Proponents: Susannah Montague addressed the Commission. She explained that she planned to open a fixed stand to serve fish and chips. Montague reported that she had already been approved by Lincoln County and she wanted to be open in Newport. She saw an influx of business in Newport and didn’t think food carts would create competition. Montague also noted that she wasn’t interested in being in front of a school, in Nye Beach or the Bayfront. Branigan asked where she planned to locate. Montague hoped to be located in the Deco District.

Nathan Wallner, owner of the Tsunami Training Center addressed the Commission. He reported that they had a lot they wanted to set up food carts on, and there were vendors who already wanted to set up at this location. Wallner noted the location was close to the Szabos Steakhouse. There were a lot of surfers that frequented this location and a new housing development being built close to it that they could serve. Wallner thought that the food carts could add to the value of the city. Berman asked if they went through the County process to get approved yet. Wallner reported they hadn’t. Berman asked if the lots were residential. Wallner explained they were commercial lots.

Opponents: Mike Franklin, owner of the Chowder Bowl addressed the Commission. He explained that over the last year restaurants had been dealing with COVID restrictions, higher costs, and it was hard to hire enough employees. Franklin had nothing against food pods but didn’t agree that carts should be allowed without them having to pay for the infrastructure to operate. He noted the Nye Beach turnaround area needed additional trash cans. Franklin didn’t agree with taking out the half mile restriction and 15 minute rule. The lack of parking was a problem and food carts would affect the amount of parking spaces there was. Enforcement was also already a problem, with overnight parking happening in the area. Franklin felt that enforcement of a food truck would be up to a complaint driven response by business owners and he didn’t think that was fair as a business owner.

Franklin explained that the Nye Beach turnaround was often used for family picnics. He thought the hum of generators, smoke, and blocking of the views would be horrible for Nye Beach. This area was better suited to ice cream and jewelry vendors. Franklin didn't think there was room for food carts there.

Franklin questions who would pay for the increase in trash disposal at the turnaround, and he thought that food trucks should pay for this. He noted that if they were to put in pods, all of this would be handled and money would be coming into the city. The impact on brick and mortar restaurants were dependent on summer business. Franklin thought that a food truck outside his business would directly affect the community and employees of his business. He listed the reasons why they city shouldn't change the code and felt the current code still served the original intent.

Escobar noted that most of Franklin's complaints were about trucks in Nye Beach. He asked if Franklin had concerns about other areas in the city. Franklin thought this wouldn't work if it wasn't done properly, there wasn't infrastructure, and the city wasn't handling things. He thought pods were a better way to handle it.

Benedict Linsenmeyer, attorney representing the Lincoln County School District (LCSD) and Kim Cusick with the LCSD addressed the Commission. Linsenmeyer reported that the LCSD was against allowing the part of the proposed changes to allow food carts within 500 feet of secondary schools. They wanted to see them be excluded from 500 feet regardless of they were on public or private property. Linsenmeyer explained that the school food program currently used in Newport allowed free meals to children K-12, but it was participation based program. This meant that if students went to food carts instead of school lunches, it could lead to drops in participation and the School District may become ineligible for the food program. This could further the inequality for the already disadvantaged children that relied on the one set meal a day at school. Linsenmeyer thought this was reason enough to show that food carts were contrary to the general welfare of the community. They believed that food carts and pods should be precluded from being within 500 feet regardless of if they are on public or private property.

Escobar pointed out that the Cub Cave restaurant was across from the high school. He asked how the felt about this business versus a food cart. Cusick reported that this location consistently took away from their food program. She thought the building had been sold and they didn't think the new owners would use it in this manner. Escobar noted that he saw a lot of students around town getting food and asked if they had a closed campus. Cusick reported that they didn't currently have a closed campus but they were considering closing it to 9th and 10th graders next year. Escobar asked if they would be opened a food cart or a brick and mortar restaurant on 3rd Street. Cusick confirmed they were against both. Linsenmeyer added that food carts were different from a brick and mortar restaurant and attractive for everyone in general. Because they already had a problem with children leaving campus for other food sources, they don't want to make this more of a problem than it already was. The changes could very easily push them over the edge of losing the food program.

Hanselman asked how many students qualified for free meals. Cusick reported 100 percent of the students qualified under the community eligibility program, based on poverty rates. If participation dipped below a certain level, they could lose their services or they would have to return to a free and reduced program. Currently every student received free breakfasts and lunches. Berman asked what the current participation counts were for the program. Cusick didn't have the counts to report at that time. Berman asked what percentage level they would have to fall under before the program went away. Cusick reported that if a certain school fell below a certain percentage they would need to reduce staff and return to the free and reduced meal pattern instead. She offered to provide the numbers to the Commission if needed. Branigan asked for the details to be provided. Escobar asked them to also provide what the level of participation for the high school was, and what the level of the threshold was.

Berman asked why the LCSD thought the food carts would be less healthy. Cusick explained that there were very strict guidelines for meals through the Healthy Meal Act to insure that students were receiving

healthier meals. Berman asked if they had any comparative data on food carts as to whether or not they meet that same criteria. Cusick could provide those materials.

Hanselman asked what the history was for the open campus and the possibility of that being curtailed. Cusick reported that the Kindergarten through 8th grades had closed campuses. 9th grade and above were currently open campuses but they were considering closing them due to the level of truancy.

Greg Morrow, owner of the Tap House in Nye Beach addressed the Commission. He stated that he agreed with what Mike Franklin said. Morrow noted that when the parking was full at the Nye Beach turnaround his restaurant typically got the overflow. He described the garbage in the area as phenomenal and noted how a past hotdog vendor who was located in the turnaround created a lot of garbage. Morrow was concerned about parking enforcement for food carts and thought that if the changes were approved, the city would see the holes in the guidelines. He was in favor of pods and thought there were some small spots in Newport for these. Morrow pointed out that there were a lot of restaurants that were closed or closing, and many were struggling at that time.

Janell Guplen, owner of Clearwater Restaurant and the Barge Inn addressed the Commission. She wanted to see the hearing continued to get additional information, and to further the conversation and get it right for the small businesses that wanted to get into the restaurant community and the city. Many of the small restaurants have invested their time and energy into weathering COVID. Guplen reported she just recently purchased the Cub Cave as well. She thought that having to face the chance to have a food cart across the street from their businesses was hard. Guplen liked food pods and she felt there were other options for food trucks to be on public lots instead of in front of restaurants.

Escobar asked if there was a food truck that parked in front of the fish plant on the Bayfront. Scott Gulpen addressed the Commission and noted that there was a food truck that parked randomly on the Bayfront, but not in front of their restaurant. They didn't want trucks to be able to park within a certain feet from a restaurant. Gulpen noted they were also planning on reopening the Cub Cave under the current permitted use. Escobar asked if their concerns was about food trucks as opposed to a food pods. Guplen pointed out that pods had to be regulated with bathrooms, sewer and parking. They opposed the change of the current structure of the code.

Rebuttal: Montague pointed out that the current requirements to have a food cart in Lincoln County required them to have a plan for trash and a bathroom.

Rebuttal: Franklin explained that the reason he was in favor of pods was because the food trucks on the Bayfront only went to high traffic areas. If food trucks were going to act like a brick and mortar restaurant and stay in one spot every day, they should have the same requirements as a brick and mortar restaurant and be located on a pod site.

Rebuttal: Scott Gulpen reported that he had owned a food cart before and in order to have a plan for your food truck, all you needed to do was designate a restroom, which could be a public bathroom, and provide trash cans. He knew the food cart of the Bayfront relied on public bathrooms and private trashcans and they didn't provide either.

Branigan concluded the testimony portion of the hearing for the evening at 8:20 p.m.

Tokos reviewed the issues raised and asked for a Commission discussion on the policies to prepare updates for the continued hearing.

The Commission discussed Chapter 4.10.35 policy options 1(A) and 1(B). Hardy stated that she didn't like either option. She wanted restrictions in front of schools and felt that given the short lived investments of food carts and the marginal income, she thought they were wasting their time. There was general consensus to provide both options in the draft.

The Commission discussed Chapter 4.10.35 policy options 4(A) and 4(B), and the general consensus was to provide option 4(B) only.

The Commission discussed Chapter 4.10.040 policy options A(1) and A(2). East didn't want to see this changed for Nye Beach but for Bayfront. Berman thought instead of having the designated areas being the same, they could ask the City Council to designate push cart areas and food truck areas. This way the Council could decide the given areas each type could be located at. Hardy agreed with Berman. Escobar wasn't in favor of food carts at the Nye Beach turnaround. He also felt it would be a disservice to have a food truck at the pump station. Escobar was in favor of Berman's suggestion. Tokos would reframe the language such that the Council by resolution would have to designate which locations are appropriate for food trucks and fixed based vending on properties, and which locations should be reserved for carts. Berman reminded that the Commission could also make a recommendation on the two current locations. Tokos confirmed this could be done, but noted it wouldn't be included in the language and would have to be done by motion.

The Commission discussed Chapter 14.09.050 policy options A(1) and A(2). Tokos asked if the Commission wanted to add language to restrict food pods only to the Bayfront or Nye Beach. The Commission was in general consensus to have the additional language added.

The Commission discussed Chapter 14.09.050 policy options B(1), B(2) and B(3). The general consensus was to keep all three policy options.

Berman requested there be a work session before a continued hearing to review draft policies and to ask question before it was presented at the hearing for additional public testimony.

MOTION was made by Commissioner Escobar, seconded by Commissioner East to continue the hearing for File 1-Z-21 to the July 26, 2021 Planning Commission regular session meeting. The motion carried unanimously in a voice vote.

5. **New Business.** None were heard.
6. **Unfinished Business.** None were heard.
7. **Action Items.** None were heard.
8. **Director Comments.** None were heard.
9. **Adjournment.** Having no further business, the meeting adjourned at 8:40 p.m.

Respectfully submitted,

Sherri Marineau
Executive Assistant

Memorandum

To: Planning Commission

From: Derrick I. Tokos, AICP, Community Development Director 

Date: July 22, 2021

Re: File No. 1-Z-21, Amendments to the City of Newport Municipal Code Related to the Operation of Food Trucks and Food Carts

On July 12, 2021, the Newport Planning Commission held a public hearing to consider amendments to Newport Municipal Code Section 4.10, Vending on Public Property; Section 11.05, Building Codes; Section 12.15, System Development Charges; and Chapter 14, Zoning Standards, related to the operation of food trucks and food carts (collectively, "mobile food units") in the City of Newport. After taking testimony, the Commission elected to continue the public hearing to July 26, 2021 and asked that staff revise the proposed amendments in response to feedback they received.

Attached are updated versions of NMC Chapters 4.10 and 14 with the changes the Commission requested. Explanations for each change are included in the staff analysis that is incorporated into the documents. There are a number of policy options, and it is important that the Commission be clear about which options it is selecting when it ultimately makes a recommendation.

There is one change that staff is requesting the Commission accept that was not discussed at the initial hearing. It relates to the procedure for approving a mobile food unit pod. Given the level of investment attributed to such projects, it would be appropriate to treat them like a more permanent (i.e. non-transient) use. Land use decisions for such uses do not expire once implemented. It would be a Type I process since the approval standards are clear and objective (ref: NMC 14.09.060(H)).

Correspondence received after the July 12, 2021 public hearing is enclosed. The Commission will have an opportunity to review and discuss the revisions at the 6:00pm work session prior to the 7:00 pm public hearing on July 26, 2021. That work session is an opportunity for Commission members to ask questions of staff and to request minor revisions, if needed. It is not a forum where public testimony will be accepted nor will there be any deliberation.

The Planning Commission is charged with making a recommendation to the City Council as to whether or not the amendments are necessary and further the general welfare of the community (NMC 14.36.010). The Council will make a final decision at a subsequent hearing.

Attachments

Amendments to NMC Chapter 4.10, dated 7/22/21
 Amendments to NMC Chapter 14, dated 7/22/21
 Amendments to NMC Chapter 11.05 and 12.15 (as presented at the 7/12/21 public hearing)
 Map of the Bayfront and Nye Beach Parking Districts
 Letter from the Taphouse at Nye Creek, dated 7/9/21
 Newport News-Times article, dated 7/14/21
 Letter from Donald G. Lighthouse Associates, LLC, dated 7/14/21 (with attachments)
 Newport News-Times, Views on the News, dated 7/21/21

July 22, 2021 Revisions to NMC Chapter 4.10, Vending on Public Property

(Unless otherwise specified, new language is shown in double underline, and text to be removed is depicted with ~~strikethrough~~. Staff comments, in *italics*, are for context and are not a part of the revisions.)

CHAPTER 4.10 VENDING ON PUBLIC PROPERTY

4.10.005 Findings and Purpose

- A. The primary purpose of the public streets and sidewalks is for use by vehicular and pedestrian traffic.
- B. Unrestricted vending on public streets, sidewalks and other public places would interfere with the primary use of those public areas. However, vending on the public streets and sidewalks and upon certain public property that is limited to times and locations that minimize interference with public use promotes the public interest by contributing to an active and attractive pedestrian environment.
- C. The purpose of this chapter is to preserve the ability to use streets, sidewalks and other public places for their primary purposes while allowing limited vending in those areas to protect the public health, safety, and welfare.

4.10.010 Definitions

The following definitions apply within this chapter.

Business Vending Area. Public property determined by the City Council by resolution to be areas where vendors may sell or offer to sell food, beverages, merchandise or services from a stand.

Stand. Any table, showcase, bench, rack, pushcart, or wagon or other vehicle used for the displaying, storing or transporting of articles offered for sale by a vendor, or otherwise used in connection with any activities of a vendor. Stand does not include any item carried by a vendor and not placed on the ground or pavement for use or display.

Mobile Stand. A stand that is moved from place to place and that is engaged in vending from a single location in the public right of way for no more than 15 minutes in residential zoned areas or up to 2 hours at a time elsewhere in the city.

Fixed standStand. A stand at which vending occurs for more than 15 minutes in residential zoned areas or more than 2 hours at a time in a single location elsewhere in the city. Even

if a stand is easily movable, it is a fixed stand if it remains in place for more than 15 minutes in a residential zoned area or 2 hours elsewhere in the city in the course of a vending activity. For purposes of the definitions of “~~mixed-mobile~~ stand” and “fixed stand,” single location includes 100 feet in all directions.

Vending. The activity of selling or offering for sale any food, beverage, merchandise or service on public property, streets or sidewalks from a stand, from the person or otherwise.

Vendor. Any person engaged in the activity of vending, whether directly or indirectly.

Staff: The City last amended this section with Ordinance No. 2112, an ordinance that was adopted in May of 2017. That ordinance included a sunset clause that required further City Council action, a step that did not occur, meaning the changes were revoked as of January 1, 2018. Ordinance No. 2112 changed the transition point from mobile to fixed stands from 15 minutes to 30 minutes to better accommodate food trucks. The proposed change extends that timeframe further to two (2) hours. A two (2) hour transition point aligns with Oregon Health Authority regulations that require access to an accessible restroom within 500-feet of the food truck. An endorsement for mobile vending authorizes a user to lawfully park for short periods of time on public streets throughout the city. Introducing a restroom verification requirement isn't something that could be reasonably accomplished in this context. Retaining the 15-min. transition point for residential zoned areas effectively limits vending in those areas to traditional, transient operators such as ice cream sales. The reference to “residential areas” has been clarified to read “residential zoned areas” at the request of the Commission (5/24/21 work session).

4.10.015 Vending On Public Property

- A. It shall be unlawful to engage in any vending activity upon any street, sidewalk, or other public property of the city except as specifically allowed by a vending endorsement on a business license or an exemption allowed by Subsections B. or C. of this section.
- B. Vending on any city-owned or city-administered property other than rights of way or business vending areas is prohibited without a Special Event Permit issued pursuant

~~to NMC Chapter 9.80 written agreement with the city.~~ Any vending ~~by written agreement with the city~~ authorized by a Special Event Permit is exempt from the prohibition on vending stated in Subsection A. of this section.

- C. Vending on sidewalks by persons under 13 years of age with the permission of the adjacent property owner is exempt from the provisions of this chapter, provided that the vending activity cannot block the sidewalk. The sole remedy under this section shall be the relocation of the activity so that the sidewalk is not blocked.

Staff: Private activities conducted on public property other than rights-of-way or business vending areas require a Special Event Permit. That clarification was made with Ord. No. 2170. This section of the code is being amended to direct persons to the Special Event permitting process.

4.10.020 Application

An application for a business license with a vending endorsement shall contain the following additional information:

- A. The names, residence and business addresses and residence and business telephone numbers of each person who may be engaged in operating such business or stand.
- B. A description of the type of food, beverage, merchandise or service to be sold or offered for sale as part of the vending operation.
- C. The location(s) where any stand(s) will be located.
- D. A description and photograph or drawing of any stand to be used in the operation of the business. The requirement for a drawing or photograph may be waived for stands operated on sidewalks adjacent to the place of business of the license holder.
- E. Proof of liability insurance covering personal injury and property damage, with coverage limits of at least ~~\$500,000~~2,000,000, naming the city as an additional insured.

Staff: Insurance requirement is updated to align with current City practice. This was noted in the regulatory concept memo distributed at the 4/12/21 work session.

4.10.025 Vending Locations

- A. Fixed stands are permitted only within:
1. Business vending area locations, or
 2. The sidewalk area immediately adjacent to the applicant's place of business and the standards of Section 4.10.035 are met. Stands authorized under this agreement must be operated by the operator of the adjacent business.
- B. The vending endorsement for a fixed stand shall specify the location where the fixed stand may be located and is valid only for that location.
- C. The Council may, by resolution, limit the number of fixed stands at each business vending area. ~~If the applications~~ Applications for a vending endorsement for fixed stands in a business vending area ~~exceed the maximum number of fixed stands, endorsements shall be awarded by lot from the applications received by May 31 for the period beginning July 1, shall be issued on a first come, first served basis with preference being given to vendor(s) that possessed a vending endorsement to operate at the business vending area the previous fiscal year.~~
- Staff: This change was requested by Commission members at the 7/12/21 public hearing. The rationale is that a vendor that invested time, energy and resources into a fixed stand at a business vending area should not be at risk of losing the vending opportunity every time their license is up for renewal.*
- D. Vending other than from fixed stands are not specific to a location but are subject to the restrictions in Section 4.10.035(A).
- E. Vending endorsements for stands at business vending area locations are limited to one stand. Vending endorsements for areas adjacent to a permanent place of business may include more than one stand.

4.10.030 Fees

- A. ~~An endorsement application surcharge of \$10.00 or such other amount as may be established by Council resolution shall be~~ A surcharge shall be added to the business license application fee if a vendor's endorsement is applied for to recover the city's administrative costs for processing vending endorsement applications. An entity exempt from payment of the business license fee is exempt from payment of the endorsement application surcharge.
- B. An additional fee ~~of \$50.00 per calendar month of operation~~ shall be charged for each fixed stand in a business vending areas and for each mobile stand. The endorsement shall list the months that the stand may operate. Endorsements may be amended to add months, but no refunds shall be given if the licensee does not exercise all rights under the endorsement.
- C. An additional fee ~~of \$50.00 per calendar month, not to exceed a total of \$250.00 per calendar year,~~ shall be charged to holders of endorsements to operate stands adjacent to the business, as permitted by Section 4.10.025(A)(2). The endorsement shall list the months that the stands may operate. Endorsements may be amended to add months, but no refund shall be given if the licensee does not exercise all rights under the endorsement.
- D. Vending endorsement fees shall be established by resolution of the City Council.

Staff: This section has been amended to remove references to specific dollar amounts in favor of having the fees set by resolution. It is a housekeeping change that the City has been making as sections of the Municipal Code are amended.

4.10.035 Restrictions

A. No vendor shall:

 POLICY OPTIONS

1(a) Vend within 500 feet of the grounds of any elementary or secondary school during the period commencing one-half hour prior to the start of the school day and ending one-half hour after dismissal at the end of the school day;

or

1(b) Vend within 500 feet of the grounds of any elementary ~~or secondary~~ school during the period commencing one-half hour prior to the start of the school day and ending one-half hour after dismissal at the end of the school day;

Staff: The Planning Commission received testimony from Janet Webster that the City needs to address the provision barring vending in road rights-of-way or on public property that is within 500-feet of an elementary or secondary school when school is in session (ref: 3/26/21 and 4/12/21 emails). Her concern namely relates to its potential impact on private property that she and her husband own that is not impacted by these regulations, since the Chapter 4.10 provisions are limited to road rights-of-way and public property.

The Commission considered Ms. Webster's comments when it met in work session to consider the draft amendments and indicated that it could potentially support lifting the prohibition as it relates to secondary schools (i.e. the middle and high school). Before acting upon any such change, the Commission asked staff to meet with the District. That meeting occurred on 6/23/21 and the School District provided written testimony on 6/28/21. The District requests that the City retain the existing standard, indicating, among other things, that allowing food carts could compromise a free lunch program they offer that relies upon student participation and would potentially conflict with closed campus policies that they have in place for the middle school or are considering for grades 9 and

10 at the high school. This is documented in letters dated 6/28/21 and 7/12/21. The Commission received written testimony from Janet Webster on 7/11/21, Front Street Marine, LLC (Steven Webster) on 7/12/21, and Victor Mettle on 7/12/21 objecting to the District's request and refuting their rationale, particularly as it relates to student safety and the nutritional quality of food truck/cart products.

Following the 7/12/21 hearing, the Commission requested that the District provide additional information about the free lunch program and asked that these two options be kept on the table for further consideration on 7/26/21.

The Commission can retain the existing limitation, as shown with option 1(a) or it could amend the prohibition as it relates to secondary schools as shown with option 1(b). Staff recommends the Commission pursue option 1(a), which retains the existing 500-foot limitation, if there is a chance the introduction of mobile food units in close proximity to secondary schools could compromise the District's free lunch program. Such a concern is reasonable considering the number of students that benefit from the program, and even with the limitation in place, the code changes will make available a substantial amount of right-of-way to food trucks, consistent with the Council's goal.

POLICY OPTION

2. Vend within the Nye Beach or Bayfront parking districts, the geographic boundaries of which are defined in NMC Section 14.14.100, except within a business vending area or as authorized by a Special Event Permit issued pursuant to NMC Chapter 9.80.

Staff: This policy option has been added, at the Commission's request, in response to public testimony received at the 7/12/21 public hearing. A request was made that food trucks/carts be limited to pods in Nye Beach and the Bayfront given the level of activity and congestion in these areas. This would require that they be prohibited in public rights-of-way and on public property. The proposed language leaves in place the option of vendors operating within the districts if they are located

within a designated vending area or as part of a Special Event Permit. NMC 14.14.100 includes boundary descriptions for the districts and is logical in that it coincides with areas where timed parking is used to manage demand. A map illustrating the district boundaries is included with the 7/26/21 agenda packet materials.

3. Vend between the hours of 9:00 P.M. and 6:00 A.M.
4. Leave any stand unattended.
5. Sell food or beverages for immediate consumption along rights-of-way or public property that front an eating or drinking establishment or in areas where air litter receptacles are-is not available within 25 feet of the vendor.

Staff: This change addresses the second bullet point in the 7/6/21 letter from Hallmark Inns and Resorts, Inc., requesting the Commission prohibit food carts/trucks from setting up in a parking space that is in front of an existing eating or drinking establishment. This would help prevent friction between users and avoids what could be viewed as unfair competition for patrons. Following the 7/12/21 hearing, the Commission confirmed that this revision is warranted.

6. Leave any location without first picking up, removing and lawfully dispersing of all trash or refuse remaining from sales made by the vendor or otherwise resulting from the vendor's activities.
7. If vending is from a stand, allow any items relating to the operation of the vending business to be placed anywhere other than in, on, or under the stand.
8. If the license includes a stand, expand the stand beyond what is described in the application and allowed in the permit.
9. Vend anything other than that which the vendor is licensed to vend;
10. Violate any city ordinance regulating sound or noise.
11. Vend within any portion of any-a vehicle travel lane portion-of-anywithin a street other than at times when

the street is closed to allow vending. This prohibition does not prohibit the use of mobile stands legally parked and selling to persons not within the vehicle ~~use travel lane portion~~ of a street. For the purpose of this subsection, "legally parked" means the vehicle is located within a striped parking stall or other area designated for vehicle parking.

Staff: This subsection has been revised for clarity. At its 5/24/21 work session, the Commission inquired as to whether or not a vehicle can park across multiple striped parking spaces. The Police Chief indicated that he is unaware of a law that would prevent that from occurring, so language has been added to define legally parked, in the context of vending, as being parked within a striped stall or other area designated for parking.

12. Operate a stand without displaying a copy of the business license with the vending endorsement on the stand or engage in other vending activity without having the business license with vending endorsement immediately available for inspection.
- B. No vendor selling other than at a fixed stand shall vend at any location where the sidewalk is not at least eight feet in width, or within 10 feet of an entrance way to any building or within 20 feet of any crosswalk or intersection. No vendor shall block or allow customers to block a sidewalk.
 - C. No vendor shall allow his or her stand or any other item relating to the operation of the vending business to lean against or hang from any building or other structure without the owner's permission.
 - D. Vending activities, whether from a stand or otherwise, shall be conducted in such a way as to not block pedestrian use of a sidewalk. Pedestrian use is considered blocked if two persons cannot pass each other walking in opposite directions.

4.10.040 Vending Stands

POLICY OPTIONS

A(1) Vending stands licensed for business vending areas shall not exceed five feet in length and five feet in height, excluding canopies and umbrellas.

or

A(2) Vending stands licensed for business vending areas shall not exceed ~~five~~ eighteen (18) feet in length and ~~five~~ ten (10) feet in height, excluding canopies and umbrellas.

or

A(3) Vending stands licensed for business vending areas shall not exceed five feet in length and five feet in height, excluding canopies and umbrellas, unless an alternative vending stand size limitation is established for a business vending area(s) by City Council resolution.

Staff: These policy options get at the size allowances for vending stands at "business vending areas," which are public sites designated for vending by Council resolution. Areas currently designated include the plaza at the Nye Beach Turnaround (up to 3 licenses) and the lift station site at Hatfield and Bay Blvd (up to 2 licenses). Option A(1) retains the existing language, which limits the size of stands to a footprint that can accommodate food vending pushcarts or small tables for retail sales. Option A(2) expands the size allowance for a stand to accommodate a food truck/cart, in line with the recommendation listed under the third bullet point of the 7/6/21 letter from Hallmark Inns and Resorts, Inc. Option A(3) was added at the Commission's request following the 7/12/21 hearing. It gives the City Council the option of identifying, by resolution, business vending areas where stands larger than 5-ft x 5-ft are appropriate.

B. Umbrellas and canopies shall be a minimum of seven feet above the sidewalk. Umbrellas or canopies may not exceed 100 square feet in area.

C. Vending stands on sidewalks adjacent to the licensee's place of business are permitted only in the following areas:

1. On SW Coast Highway between SW Angle Street and SW Fall Street.
2. On SW Bay Boulevard between SW Bay Street and SE Eads Street.

3. On Hurbert Street between SW 7th Street and SW 9th Street.
4. In the area bounded by Olive Street on the south, NW 6th Street on the north, NW High Street and NW Coast Street on the east and the Pacific Ocean on the west, including both sides of each named street. For purposes of this section, "Olive Street" means both Olive Street and the area that Olive Street would occupy if it continued straight to the Pacific Ocean west of SW Coast Street.
5. Any other location designated by the Council by resolution.

4.10.045 Denial and Revocation

- A. A vendor's endorsement may be denied or revoked for any of the following causes:
 1. Fraud or misrepresentation contained in the application for the business license with vending endorsement.
 2. Fraud or misrepresentation made in the course of carrying on the vending business.
 3. Conduct of the vending business in such manner as to create a public nuisance or constitute a danger or hazard to the public health, safety, or welfare.
 4. Violation of any provision of this subchapter or of any other law or regulation relating to the vending business.
 5. Felony convictions or misdemeanor convictions involving moral turpitude. In deciding whether to deny an application for a past conviction, the city may consider the length of time since the conviction, whether the applicant appears to have been successfully rehabilitated, and the risk to the public.
 6. Failure to obtain or maintain liability insurance covering personal injury and property damage, with policy limits of at least ~~\$500,000~~ \$2,000,000 and naming the city as an additional insured.

Staff: The liability insurance amount has been increased to align with the change that was made to Section 4.10.020.

4.10.050 Appeal

If an application is denied or a license is revoked, the license holder may appeal by filing a written appeal with the city manager. The deadline for an appeal of a denial is 15 days after a denial is mailed, and the deadline for an appeal of a revocation is two days after the revocation is delivered. A revocation sent by mail shall be deemed delivered two business days after the date of mailing. The Council shall hear and decide the appeal at its next regular meeting held at least 10 days after the filing of the appeal. The decision of the Council shall be final.

4.10.055 Violation

Violation of any provision of this chapter is a civil infraction, with a maximum penalty of \$500.00. Each day during which a violation shall continue is a separate offense. Violations of separate provisions are separate infractions.

DRAFT

(Unless otherwise specified, new language is shown in double underline, and text to be removed is depicted with ~~strikethrough~~. Staff comments, in *italics*, are for context and are not a part of the revisions.)

CHAPTER 14.01 PURPOSE AND DEFINITIONS**

14.01.020 Definitions

Mobile Food Unit. Any vehicle that is self-propelled or that can be pulled or pushed down a sidewalk, street, highway or waterway, on which food is prepared, processed or converted or which is used in selling and dispensing food to the ultimate consumer.

Mobile Food Unit Pod. Four or more mobile food units on the same lot, parcel, or tract.

Temporary Structures. Trailers, mobile ~~homes~~ food units, prefabricated buildings, or other structures that can readily be moved or which are not attached in a permanent manner to a permanent foundation and are used for residential or business purposes.

~~**Temporary Vending Carts.** A trailer or other vehicle that does not exceed 16 feet in length, has functional wheels, an axle for towing, is not attached in a permanent manner to a permanent foundation and is self-contained for sanitary sewer. A temporary vending cart may be mobile (i.e. does not remain stationary for longer than a few hours), or remain stationary, as permitted by Section 14.08.050.~~

Staff: The definition of mobile food unit aligns with language contained in OAR Chapter 333, Division 150, which contains Oregon Health Authority food sanitation rules. The City has discretion as to what constitutes a "Pod" where additional requirements are triggered. These definitions replace the definition for "temporary vending carts," which is deleted. Definition of temporary structures is being modified to eliminate outdated reference to mobile homes and adds reference to mobile food units. At its 5/24/21 work session, the Commission recommended that "Pods" be defined as four or more mobile food units.

CHAPTER 14.09 TEMPORARY ~~STRUCTURES PERMITS~~USES

14.09.010 Purpose

The purpose of this section is to provide some allowance for short-term uses that are ~~truly~~ temporary in nature, where no permanent improvements are made to the site, and the use can be terminated and removed immediately. Temporary activities include special events as defined in [9.80.010](#) of the Newport Municipal Code, temporary living quarters, construction trailers, leasing offices, ~~vending carts~~[mobile food units](#), kiosks, storage buildings, and similar structures.

Staff: Chapter title is being changed from structures to uses, which is more consistent with the purpose statement. Mobile food units are introduced as a type of temporary use, which is appropriate given that they are vehicles.

14.09.020 Special Events Structures

Placement of special events structures is regulated under [Chapter 9.80](#) of the Newport Municipal Code.

14.09.030 Temporary Living Quarters

Notwithstanding any other restrictions and prohibitions in this code, a recreational vehicle may be used as a temporary living quarters subject to the following conditions:

- A. The request for temporary living quarters must be in conjunction with a valid, active building permit.
- B. The time limit shall be no longer than one (1) year from issuance. After the expiration of the time limit, the recreational vehicle used for the temporary living quarters must no longer be used for on-site living purposes.
- C. The recreational vehicle used as the temporary living quarters must be self-contained for sanitary sewer.
- D. Temporary living situations for non-residential projects may use a job shack or other such structure instead of a recreational vehicle as the living quarters and may have a portable toilet instead of a self-contained unit.
- E. The location of the temporary living quarters on the site shall satisfy the vision clearance requirements as set forth in [Section 14.21](#) of the zoning code.

- F. Prior to the issuance of a temporary living quarters permit, the applicant shall sign an agreement that the applicant shall comply with the provisions of this subsection.

14.09.040 Temporary Structures for Other Than Special Events

Notwithstanding any other restrictions and prohibitions in this code, a temporary structure not associated with a special event may be erected subject to the following:

- A. The permit, if approved, shall be issued for a period not to exceed two (2) years. Upon like application and approval, the permit may be renewed for up to an additional (1) year.
- B. Temporary structures are limited to ~~commercially and industrially~~commercial, industrial, water-related, or water-dependent zoned properties.
- C. No permanent changes will be made to the site in order to accommodate the temporary structure.
- D. Permission is granted by the property owner.
- E. Sanitary facilities will be made available to the site.
- F. The structure does not interfere with the provision of parking for the permanent use on the site.
- G. The structure satisfies the vision clearance requirements of the zoning code.
- H. Approval is obtained from the City Building Official if the structure is to be erected for 180 days or longer.
- I. For temporary structures that are to be placed in one location for 12 or more consecutive months, a bond or cash deposit for the amount required to remove the temporary structure, if not removed in the required time frame, shall be placed in an interest-bearing account in the name of the applicant and the City of Newport. Any bond or cash deposit must be in a form approved by the City Attorney.

Staff: Revision is housekeeping in nature. City has previously interpreted that commercial and industrial includes water-related and water-dependent zoned areas. This change makes it explicit.

~~14.09.050 Temporary Vending Carts~~

~~Notwithstanding any other restrictions and prohibitions in this code, a temporary vending cart, not associated with a special event, may be located within the City of Newport subject to the following:~~

- ~~A. Temporary vending carts may be located on commercially-zoned property that is at least ½ mile from a permanent eating and drinking establishment.~~
- ~~B. Temporary vending carts and any accessory improvements (such as seating) are limited to privately-owned properties, and may encroach onto public property or public right-of-way only if the city consents to the encroachment as provided in Chapter 4.10 of the Newport Municipal Code.~~
- ~~C. The items available for sale from temporary vending carts are limited to food and beverages for immediate consumption. Requests to have a different item or service considered shall be submitted in writing to the City Manager, who shall determine if the item or service:~~
- ~~1. Can be vended from a regulation size temporary vending cart;~~
 - ~~2. Not lead to or cause congestion or blocking of pedestrian traffic on the sidewalk;~~
 - ~~3. Involve a short transaction period to complete the sale or render the service;~~
 - ~~4. Not cause undue noise or offensive odors; and~~
 - ~~5. Be easily carried by pedestrians.~~
- ~~D. A permit for a temporary vending cart, if approved, shall be issued for a period not to exceed two (2) years. Upon expiration of a permit, a temporary vending cart must immediately cease operation, and must be permanently removed within seven (7) days.~~
- ~~E. At least one trash and one recycling receptacle will be made available to the public.~~
- ~~F. The City of Newport receives a signed statement that the permittee shall hold harmless the City of Newport, its officers and employees, and shall indemnify the City of~~

~~Newport, its officers and employees for any claims for damage to property or injury to persons which may be occasioned by any activities of the permittee. Permittee shall furnish and maintain public liability, products liability, and property damage insurance as will protect permittee, property owners, and city from all claims for damage to property or bodily injury, including death, which may arise from operations of the permittee. Such insurance shall provide coverage of not less than \$1,000,000 per occurrence. Such insurance shall be without prejudice to coverage otherwise existing, and shall name as additional insured the City of Newport, their officers and employees, and shall further provide that the policy shall not terminate or be canceled prior to the completion of the contract without 30 days written notice to the City Recorder of the City of Newport.~~

~~G. A bond or cash deposit for the amount required to remove the temporary vending cart, if not removed in the required time frame, shall be placed in an interest bearing account in the name of the applicant and the City of Newport. Any bond or cash deposit must be in a form approved by the City Attorney.~~

Staff: This section is being replaced by Sections 14.09.050 and 14.06.060 below.

14.09.050 Mobile Food Units

Notwithstanding any other restrictions and prohibitions in this code, a mobile food unit, not associated with a special event, may be located within the City of Newport subject to the following:

A. The lot, parcel or tract upon which the mobile food unit will be placed is zoned for commercial, industrial, or water-related use, and

POLICY OPTION

B. The lot, parcel or tract upon which the mobile food unit will be placed is located at least 500 feet from the grounds of any elementary or secondary school when said school(s) are in session. For the purpose of this subsection, "in session" is the period of time commencing one-half hour prior to the start of the school day and ending one-half hour after dismissal at the end of the school day; and

Staff: This policy option responds to concerns raised in the 6/28/21 and 7/12/21 letter from the Lincoln County School District, in which the District expressed concerns about allowing food carts/trucks to locate on private property in close proximity to their facilities. This is distinguishable from their other request, which is for the City to retain the existing 500-foot separation requirement in NMC Chapter 4.10 that applies to vending within public rights-of-way or on public property.

The Commission received written testimony from Janet Webster on 7/11/21, Front Street Marine, LLC (Steven Webster) on 7/12/21, and Victor Mettle on 7/12/21 objecting to the District's request and refuting their rationale, particularly as it relates to student safety and the nutritional quality of food truck/cart products.

This option imposes a 500-foot buffer around elementary and secondary schools where mobile food units would be prohibited. The District's justification for the requirement relates, among other things, to a concern that allowing food carts could compromise a free lunch program they offer that relies upon student participation and would potentially conflict with closed campus policies that they have in place for the middle school, or are considering for grades 9 and 10 at the high school.

If the Commission elects to pursue this option, then a modest number of commercial properties south of the high school and north/south of Yaquina View elementary would be impacted. There are no commercial, industrial, or water-related properties within 500-feet of Sam Case Elementary or the middle school. A map illustrating the 500-foot buffers was included in the 7/12/21 meeting packet. Staff recommends the Commission impose the 500-foot limitation if there is a chance the introduction of mobile food units in close proximity to secondary schools could compromise the District's free lunch program. Such a concern is reasonable considering the number of students that benefit from the program, and even with the limitation in place, the code changes will make available a substantial amount of private property to mobile food units.

POLICY OPTION

C. The lot, parcel or tract upon which the mobile food unit will be placed is located outside of the Nye Beach or Bayfront

parking districts, the geographic boundaries of which are defined in NMC Section 14.14.100, unless the use is a Mobile Food Unit Pod; and

Staff: This policy option has been added, at the Commission's request, in response to public testimony received at the 7/12/21 public hearing from the owners of the Taphouse and Chowder Bowl in Nye Beach, and Clearwater Restaurant along the Bayfront. The rationale is that there is too much congestion in these areas and that mobile food units would pull business away from established restaurants that are struggling to bounce back from the pandemic. Mobile food unit pods would be permitted in these districts. Those that testified in support of this allowance argued that Pods are more permanent, with a level of investment that is comparable to permanent eating and drinking establishments. NMC 14.14.100 includes boundary descriptions for the districts and is logical in that it coincides with areas where timed parking is used to manage parking demand. A map illustrating the district boundaries is included with the 7/26/21 agenda packet materials.

 POLICY OPTIONS

D(1) Written consent is obtained from the property owner where the mobile food unit is to be placed; and

or

D(2) Written consent is obtained from the property owner where the mobile food unit is to be placed and from the owner of any adjacent property occupied by an eating and drinking establishment; and

or

D(3) Written consent is obtained from the property owner where the mobile food unit is to be placed and from the owners of each adjacent lot or parcel; and

Staff: The requirement that written consent be obtained from property owner is a given; however, if the Commission is concerned about the impact a mobile food unit may have on brick and mortar eating or drinking establishments than staff has included optional language that would require sign-off from owners of adjoining properties (Option D(2)). A third

option, requiring sign-off from the owners of each adjacent lot or parcel irrespective of whether or not they are developed with an eating or drinking establishment, is included as well but would be more difficult to justify. Staff recommends the Commission pursue Option D(1) or D(2).

- E. The mobile food unit is placed such that it or any associated structure does not occupy required landscaping or obstruct a sidewalk, drive isle, fire lane, clear vision area or accessible parking; and
- F. 10-feet of clearance is maintained between each mobile food unit and between such units and existing or proposed buildings; and
- G. Mobile food unit service windows are to be oriented to pedestrians (i.e. no drive thru windows) and if directed toward a public right-of-way shall maintain a minimum five (5) foot separation from the right-of-way; and
- H. Electrical connection(s) are placed on the ground and covered with a cable protection ramp or equivalent where crossing drive isles or pedestrian paths; and
- I. Any power generating equipment separate from and external to the mobile food unit is located at least 10-feet from other mobile food units and buildings and is fully screened from view; and
- J. Signage associated with each mobile food unit is limited to that which is permanently affixed to the vehicle in accordance with NMC 10.10.070, and one portable a-frame sign that complies with the parameters outlined in NMC 10.10.060(E); and
- K. Awnings, if any, are fully attached to the mobile food unit and located entirely on the subject lot, parcel, or tract; and
- L. Each mobile food unit is limited to a single piece of outdoor cooking equipment situated no less than 10-feet from the unit and any building; and
- M. A minimum of one (1) trash receptacle per mobile food unit is located on the lot, parcel, or tract with at least 10-feet of separation between the receptacle(s) and combustible fuel tanks; and

N. Mobile food units parked for more than two (2) hours or that provides customer seating shall be situated within 500-feet of an accessible restroom with handwashing facilities; and

O. The permit for a mobile food unit other than a mobile food unit pod, if approved, shall be issued for a period not to exceed two (2) years. Upon like application and approval, the permit may be renewed for additional (2) year intervals.

Staff: The provisions above apply to the placement of mobile food units on private property (as opposed to the provisions of Chapter 4.10 that apply to public rights-of-way). They draw from the code concepts discussed at the 4/12/21 work session and sample codes reviewed at that 3/22/21 work session. Some of the concepts also borrow from codes adopted by the City's of Beaverton and Corvallis. This is structured as a ministerial action with review and approval by the Community Development Department without notice, which is consistent with how other temporary uses are handled. As a ministerial action, the standards must be clear and objective.

A number of the provisions also integrate with Oregon Health Authority requirements outlined in OAR Chapter 333, Divisions 150 and 162 (enclosed) and requirements of the Oregon Building and Fire Codes. Generators are permissible but must be screened and they would be subject to decibel limitations of the City's noise ordinance.

14.09.060 Mobile Food Unit Pods

In addition to complying with the provisions of NMC 14.09.050, a mobile food unit pod may be located within the City of Newport subject to the following:

A. The mobile food units include a sheltered common customer seating area that conforms with the following parameters:

1. Has a maximum of 50 percent of the structure enclosed with walls or sides. Membrane structures may be fully enclosed; and
2. Are not more than 15-feet in height.

B. Each mobile food unit is connected to city sanitary sewer service, water, and a permanent power source located on the lot, parcel, or tract; and

- C. Existing uses on the lot, parcel or tract upon which the mobile food unit pod is to be located possess off-street parking that satisfies the requirements of NMC Chapter 14.14; and
- D. One off-street parking space is provided for each mobile food unit plus one space for every 150 square feet of seating; and
- E. The lot, parcel, or tract shall be landscaped in accordance with NMC Chapter 14.19; and
- F. Areas occupied by customers are illuminated when mobile food units operate during hours of darkness, with fixtures that are downward directed and shielded to prevent glare on abutting properties; and
- G. Use of generators is prohibited; and
- H. Review and approval shall be subject to a Type I decision making procedure as set forth in NMC Chapter 14.52.

Staff: Mobile food unit pods are defined as four or more units on a lot, parcel, or tract. This can be adjusted. The concept is that at this density they need to move closer towards standards that would apply to brick and mortar eating and drinking establishments. This is where the requirement that seating be provided comes into play. Given Newport's climate, a requirement that the seating be sheltered is reasonable. The limitation that a non-membrane shelter be no more than 50% enclosed helps facilitate continuity of the Pod by ensuring visibility between mobile food units and seating areas and it avoids triggering assembly occupancy and related provisions of the Oregon Structural Specialty Code that could significantly drive up the cost of a project. Connection to public water and sewer will trigger SDCs, a cost that is similarly borne by brick and mortar establishments. Use of a permanent power source alleviates the need for generators, which could be a noise issue when several are running in a concentrated area.

Off-street parking and landscaping requirements trigger for a pod; whereas, they are not a consideration for sites with one or two mobile food units. Brick and mortar eating and drinking establishments must satisfy these same requirements.

After the Commission's 7/12/21 hearing, but prior to the 7/26/21 hearing, staff amended Subsection 14.09.050(O) and added Subsection (H). Given the level of investment associated with a Pod development, it would be difficult for the City to justify the approval being limited to two (2) years with an option for renewal every two (2) years.

14.09.060070 Permits Not Transferable Unless Approved

Permits authorized by this section are not transferable to another person or location unless approved by the Community Development Director.

14.09.070080 Approval Authority

Unless otherwise provided, placement of temporary structures is subject to review and approval by the Community Development Director as a ministerial action.

14.09.080090 Application Submittal Requirements

In addition to a land use application form with the information required in Section 14.52.080, applications for temporary ~~structures-uses~~ shall include the following:

A. A site plan, drawn to scale, showing:

1. The proposed location of ~~the~~ temporary structures, mobile food units, seating areas, and amenities, as applicable.
2. Existing buildings.
3. Existing parking.
4. Access(es) to the parking areas.
5. Any additional structures, seating areas, and amenities associated with the temporary structureuse.
6. The location and size of trash receptacles.
7. Utilities.
8. Existing signs and signs associated with the temporary structureuse.

9. ~~Temporary structure~~ Building elevations or photos of proposed temporary structures or mobile food units.

10. ~~The location of drive-up windows~~ (The location of an accessible restroom with handwashing facilities, if applicable).

- B. A signed agreement stating that the applicant is aware of the limitations and conditions attached to the granting of the permit and agrees to abide by such limitations and conditions.
- C. A description of the types of items sold or services rendered, if applicable.
- D. A valid copy of all necessary permits required by State or local health authorities, and other required licenses or permits, such as business license or sign permit obtained by the applicant and maintained on site.

Staff: The submittal requirements have been updated to account for mobile food units as an application type.

~~14.09.090~~100 Fire Marshal Inspection

Prior to the issuance of any permit, the Fire Marshal shall inspect and approve any temporary structure to assure conformance with the provisions of the Fire Code.

~~14.09.100~~110 Construction Trailer Exemption

Construction trailers located on the site upon which construction is to occur that are used during the course of the construction project are exempt from the process outlined in this section and may be permitted at the time of building permit approval provided said structures comply with the building code and the vision clearance requirements of the zoning code.

July 7, 2021 Revisions to NMC Chapters 11.05 and 12.15, Relating to Building Codes and System Development Charges

(Unless otherwise specified, new language is shown in double underline, and text to be removed is depicted with ~~strikethrough~~. Staff comments, in *italics*, are for context and are not a part of the revisions.)

CHAPTER 11.05 BUILDING CODES

11.05.180 Exemptions

~~Temporary Vending Carts~~ Mobile Food Units that are permitted in accordance with ~~the Newport Zoning Code and Ordinance section 2-2-29.030 Municipal Code Chapter 14.09 and~~ are not permanently attached to a foundation, ~~they~~ are considered vehicles (not a building or structure), and the Oregon Structural Specialty Code does not apply.

Staff: These revisions are need to address changes to terminology and to accurately cross-reference the section of the code that will regulate mobile food units.

CHAPTER 12.15 SYSTEM DEVELOPMENT CHARGES

12.15.060 Exemptions

A. The following actions are exempt from payment of SDCs:

1. Additions to multi-family and other dwelling units that are assessed SDCs on an Equivalent Dwelling Unit basis, provided the addition does not result in a new dwelling unit.
2. An alteration, addition, replacement, change in use or permit or connection that does not increase the parcel's or structure's use of a public improvement system is exempt from payment for the SDC payment applicable to that type of improvement. Some redevelopment may be subject to some types of SDCs and not to others.
3. Temporary and seasonal uses, including special events, ~~vending carts~~ mobile food units (other than pods), and patio or deck seating associated with eating or drinking establishments.

Staff: With this change, persons establishing a mobile food unit pod (i.e. four or more mobile food units on a property) will be required to pay system development charges commensurate to the developments impact on public services. Revisions to NMC Chapter 14.09 require that pods be connected to city wastewater services and that they offer sheltered seating to guests. These are more permanent site improvements with impacts that may be more year-round than seasonal. Three or fewer mobile food units on a property will not be required to pay SDCs.



515 NW COAST STREET
NEWPORT, OR 97365
(541)272-5545

July 9, 2021

To The City of Newport and all whom it may concern:

Nye Beach in the summer is a busy area for tourism, yet the infrastructure of the roads and parking make it cramped leaving the businesses in the area with only so much space for their potential customers to navigate and park. If the city were to allow Food Carts in the Nye Beach turnaround it would add more stress to an area that is already so limited on space. Last time a food cart was in the turnaround was a couple years ago and in the short time the cart was there, the amount of paper garbage that was blowing around in the wind was amazing. The trash bins were unable to carry the load from all the to-go containers that are produced from a food cart. All the excess trash causes the seagulls to be very densely populated in that area feeding on anything that is left behind creating messes of their own. This would contribute to making our Nye Beach area littered and dirty, which isn't what any of us want.

Food carts in our small city are not a good idea either, they can come and go without any investment in our area. The carts don't have to pay the overhead costs like the restaurants. Yet they can pick the best, most lucrative times to show up (weekends, holidays, summer) and pull business from the restaurants that are here all 12 months of the year. Our locally owned restaurants only have a small window of time to make sure they make enough to keep the doors open when the tourists aren't around in winter.

We do not want any food carts to be allowed in Newport. As a compromise if the city were to allow food carts in, it should only be as a food cart pod. The food pod would need to have carts sign a year lease to make sure they are part of our community, not just here to take from our businesses without an investment in the city. They would need to provide adequate parking for their patrons, garbage, sanitation and cleanup to make sure our city stays clean and a place people want to visit. With a lease and overhead like restaurants the carts would then be a more permanent business paying their part just like all the restaurants in Newport do.

After speaking to other restaurant owners in the area we are not the only ones who feel this way and have concerns about allowing food carts in Newport.

Thank you for your time and consideration,

**Greg Morrow
Susan Armstrong
Owners**

NEWS

Local News...Coastal Views...

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NEWPORT WOMAN ON JEOPARDY
SEE...COMMUNITY PAGE B1

PRIMALTONES: A VENUE LIKE NO OTHER
SEE...BUSINESS PAGE B8

Newport could open up to food trucks
Planning commission continues public hearing

BY KENNETH LIPP
Of the News-Times

NEWPORT — The Newport Planning Commission held a first public hearing on proposed changes to city code regarding food trucks, which are currently all but forbidden in the city.

The Newport City Council made amending the city code to allow greater operation of food trucks one of its legislative goals, sending the matter to the planning commission, which first took up the issue on March 22. During a public hearing at its regular meeting Monday night, the commission reviewed revised code language developed by city staff.

The current code requires food trucks, referred to as mobile food units, on commercial property to be at least half mile of brick-and-mortar eateries. There are very few commercial properties in Newport that fit that bill, Community Development Director Derrick Tokos said during the meeting Monday.

It's possible to get an endorsement that allows operating in a right of way — parking on the

TRUCKS on Page A8

Up-close look at PacWave

BY MATHEW BROCK
Of the News-Times

SEAL ROCK — From curious Lincoln County residents to Oregon State University engineering students, dozens of people from Lincoln County and beyond were shuttled to Driftwood Beach State Recreation Area on Saturday to get an up-close look at the ongoing construction of the PacWave South project's beachside landing site.

Half the construction equipment at the site was shut down Saturday for an open house, with visitors being brought in from the Seal Rock Fire Station and given tours from PacWave staff, engineers and contractors who explained just what goes into an underground and subsea construction project of this scale.

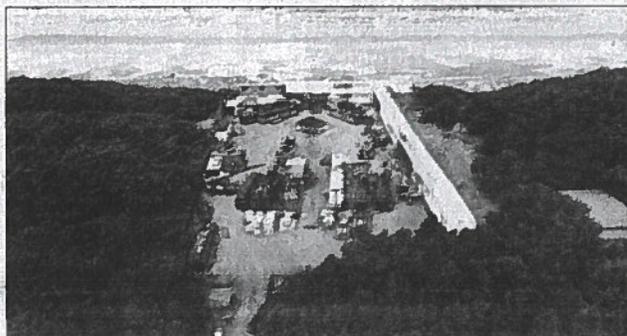
When complete, Driftwood will house the PacWave South facility's beachside landing point, which will connect the seven miles of undersea cable that extend from the projects offshore testing facility to its on-shore utility monitoring

PACWAVE on Page A10



Construction workers at Driftwood Beach State Recreation Site stand by as they prepare to operate a massive auger attached to an underground drill. (Photo by Mathew Brock)

A drone photo (pictured right) shows the Driftwood Beach construction site from the air. (Courtesy photo)



Toledo council discusses raising street lighting fee

BY MATHEW BROCK
Of the News-Times

TOLEDO — The Toledo City Council is considering raising the city's Street Light Utility fee this year to help cover the \$140,000 in costs required annually to maintain the local lighting system.

The current fee was technically lowered from \$7.50 to \$2.50 a month in 2019, with the \$5 difference being redirected to the city's Sewer Fund, which received a boost this year when the council chose to raise the city's sewer and water rates by 2 percent in May.

The council met last Wednesday, June 7, at city hall, where it discussed a new framework to determine the rate and will hold off on a decision until city staff can

LIGHTING on Page A7

New Seal Rock fire board gets to work

Anton elected board president

BY MICHAEL HEINBACH
Of the News-Times

SEAL ROCK — The three newly elected members of the Seal Rock Rural Fire Protection District Board of Directors wasted little time ushering in a culture of transition during their first



Al Anton, right, recites the oath of office during a July 8 meeting of the Seal Rock Rural Fire Protection District Board of Directors as sitting board member Tina Fritz looks on at the district's Grebe Street station. Shortly after being sworn in, along with newly elected directors Mike Burt and Paul Rimola, Anton was elected the new board president. (Photo by Michael Heinbach)

SEAL ROCK on Page A9

Hit-and-run charge after

Derrick Tokos

From: Lighthouse Associates <lighthouseassociates.online@gmail.com>
Sent: Wednesday, July 14, 2021 6:39 PM
To: Derrick Tokos; Public comment; Sherri Marineau
Cc: seacaptдон@gmail.com; lighthouseassociates.online@gmail.com
Subject: File No. 1-Z-21. Mobile Food Units and Proposed Changes to Codes and Policies
Attachments: foodtruckfreedom.pdf

[WARNING] This message comes from an external organization. Be careful of embedded links.

Mr. Derrick I. Tokos, AICP
 Community Development Director
 City of Newport
 169 SW Coast Highway
 Newport, OR 97365
d.tokos@newportoregon.gov

Planning Commission
 City of Newport
 169 SW Coast Highway
 Newport, OR 97365
publiccomment@newportoregon.gov
s.marineau@newportoregon.gov

RE: File No. 1-Z-21. Mobile Food Units and Proposed Changes to Codes and Policies

Dear Mr. Tokos and Commissioners Patrick, Branigan, Hardy, Berman, Hanselman, East, and Escobar.

As a resident of Newport, Oregon and a business owner and resident manager of commercial property in the "Deco District" I am writing to offer my input with regard to the proposed changes regarding food trucks and food carts (and other potential mobile vendors).

I was invited on short notice and attended the July 12th evening meeting/public hearing regarding this issue, and regret that I was not prepared to offer input at that time.

My first exposure to food trucks was in Roswell, New Mexico while I was a junior high school student five decades ago. I know most people think of food trucks as a more recent phenomenon, but I clearly remember the line of food trucks parked in the "bus loading zone" during the middle of the school day offering food and snacks. The school district welcomed them and profited from the rent charged them. The health and welfare of the students did not appear negatively impacted. I am certainly not suggesting that for our schools here in the Lincoln County School District, but I do believe that the 500' limit is unjustified. I lived on Third right across from the High School with a daughter attending school there. She came home every day during lunch, usually with several friend to have lunch. Those same friends also often went to Starbucks, The Human Bean and other establishments. As a parent, I sincerely do not believe that access to mobile food units would impact the school any more than the current options and heartily disagree with the presentation and arguments made by the representatives of the LCSD. They offered no real statistics on what the actual impact might be.

Prior to coming to Newport, I spent two years working for a non-profit food pantry and community service organization in Orange County, California. Food trucks are an integral part of most communities there and are positive and productive contributors to those communities. They are licensed and inspected and must have their permit stickers posted indicating the same. Many are operated on street corners using public street parking spaces with access via public sidewalks and I never once saw any problem with traffic obstruction or impeding sidewalk usage. Some even operated in core downtown areas of Orange and Santa Ana enhancing the other businesses in those areas and helping build buying foot traffic.

Also, the arguments presented by the brick and mortar eating establishments would equally apply to any new eating establishment opening in Newport and claiming unfair competition is an unfounded argument. It has long been held that competition is an American value and is usually encouraged. My answer to that argument is "step up" and earn customers the old fashioned way with good food and good service. Statistically, around the country mobile food units are not detrimental to traditional eating establishments, although I believe that some restrictions would, like fences, make for good neighbors. My own belief is that 200' from an existing eating or drinking establishment would be a suitable boundary unless a waiver is granted by an existing business.

I am attaching a PDF file compiled by an organization in conjunction with universities for the purpose of "How to Build Better Food Truck Laws in Your City". The publication references several other studies and policies that have worked and some that haven't in other cities around the country. I encourage your perusal of that material as you contemplate those issues in our beloved City.

Respectfully,

Donald G
Lighthouse Associates LLC
(541) 992-7175

Attachments: Food Truck Freedom, How to Build Better Food Truck Laws in Your City"

Other suggested references:

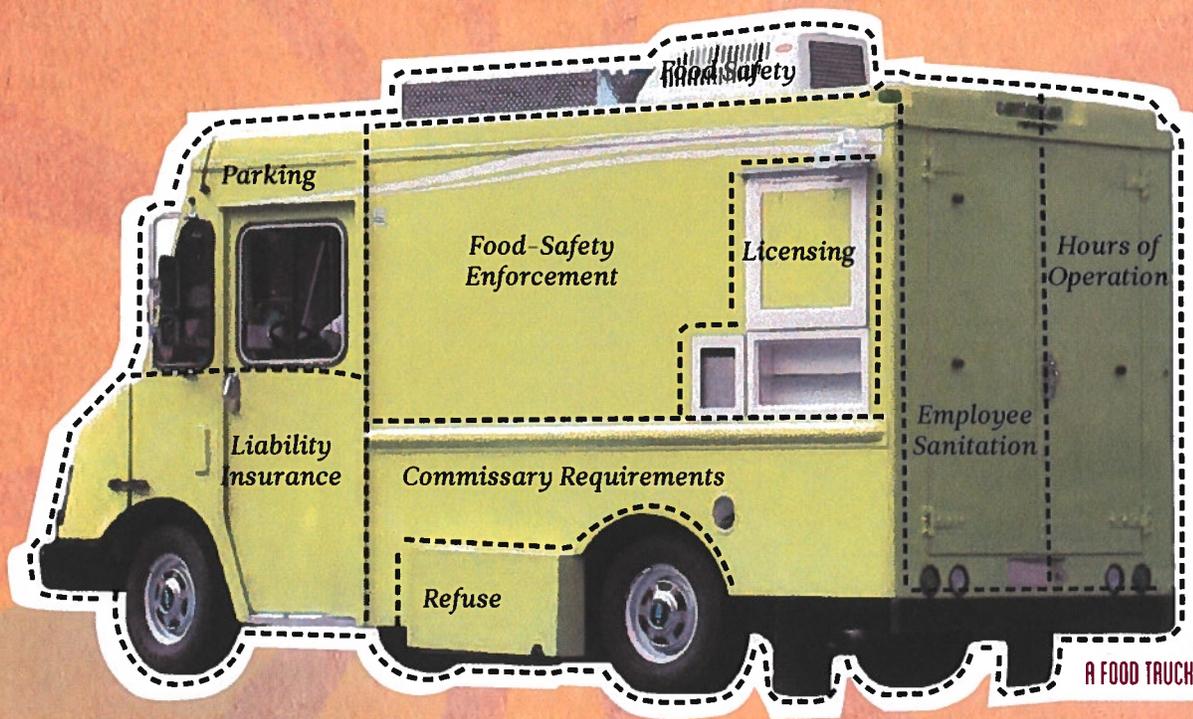
<https://ced.sog.unc.edu/food-trucks-local-regulation-and-community-economic-development/>

http://www.ij.org/images/pdf_folder/economic_liberty/vending/foodtruckfreedom.pdf

FOOD TRUCK

FREEDOM

How to Build Better Food-Truck Laws
in Your City



A FOOD TRUCK HOW TO.



By Robert Frommer & Bert Gall
November 2012

FOOD TRUCK FREEDOM

*How to Build Better Food-Truck Laws
in Your City*



by Robert Frommer and Bert Gall
Institute for Justice
November 2012

FOREWORD

This report is a project of the Institute for Justice's National Street Vending Initiative, which the Institute created in 2010 to promote freedom and opportunity for food-truck operators and other street vendors. The initiative also seeks to combat anti-competitive and protectionist laws that stifle the economic liberty of mobile-food operators and street vendors.

Through this initiative, the Institute has successfully fought protectionist restrictions in court, and it encourages cities to instead enact narrowly tailored laws that address legitimate public health and safety concerns while not stifling entrepreneurial drive and opportunity. (For current news about the initiative, go to <http://www.ij.org/vending>.) In 2011, as part of its educational efforts, the Institute published *Streets of Dreams: How Cities Can Create Economic Opportunity by Knocking Down Protectionist Barriers to Street Vending*, which for the first time documented anti-competitive laws and regulations that restrict street vendors in the 50 largest cities in America.

In response to that report and the growing popularity of food trucks, officials and food-truck operators have asked for examples of good laws that allow the food-truck industry to flourish while also protecting public health and safety. The Institute for Justice, drawing on its research of food-truck laws nationwide, as well as its experience litigating vending cases and its discussions with food-truck operators, associations and government officials, created this document: *Food Truck Freedom: How to Build Better Food-Truck Laws in Your City*.



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EXECUTIVE SUMMARY

America is experiencing a food-truck revolution. These mobile kitchens are a way for new and innovative chefs who are long on ideas but short on capital to try out new concepts and dishes. Thanks to their low start-up costs, food trucks give new entrepreneurs the opportunity to get into business for themselves at a fraction of what it would cost to open a restaurant. These new businesses offer consumers more dining options, create jobs, and improve the overall quality of life in their communities.

In order to foster the conditions that will let food trucks thrive in their cities, officials should remember the two principles of good food-truck policy: 1) no protectionism; and 2) clear, narrowly tailored, and outcome-based laws. The following recommendations—based on the legislative best practices of Los Angeles and other cities that have experience regulating food trucks—exemplify those principles.

FOOD SAFETY: The Institute for Justice recommends that cities follow their state and county health codes. To the extent the county or state food code does not deal with a specific issue, the Institute recommends that officials follow the requirements of Chapter 10 of the California Retail Food Code, which governs food trucks.

FOOD-SAFETY ENFORCEMENT: The Institute recommends that cities follow the approach of Los Angeles County, which inspects trucks both when they are first permitted and periodically when they are in the field. Inspectors should hold food trucks and restaurants to the same standards.

PARKING:
Proximity Restrictions and Restricted Zones: Cities should not pass or retain laws that tell food trucks they may not operate either within a certain distance of a brick-and-mortar competitor or in select parts of the city. Protecting a few select businesses from competition is not a proper government role; instead, cities should regulate only to protect the public against actual health and safety concerns.

Distance to Intersections: The Institute recommends that cities follow the example of El Paso, Texas, which states allows food trucks to operate on the public way so long as they are not parked within 20 feet of an intersection.

Use of Metered Parking Spaces: The Institute recommends that cities follow the example of Los Angeles by allowing food trucks to operate from metered locations.

Duration Restrictions (How Frequently Food Trucks Must Move): The Institute recommends that cities follow the examples of Philadelphia and New York City, which do not force food trucks to move after a certain period of time.

Potential Sidewalk Congestion: The Institute for Justice recommends that cities follow the example of Los Angeles, which specifies only that food trucks not operate in a manner “which will interfere with or obstruct the free passage of pedestrians or vehicles along any such street, sidewalk or parkway.”

REFUSE: The Institute recommends that cities follow Los Angeles’ approach, which requires trucks to “pick up, remove and dispose of all trash or refuse which consists of materials originally dispensed from the catering truck” and to provide “a litter receptacle which is clearly marked with a sign requesting its use by patrons.” Cities should further specify the precise distance from the truck for which operators are responsible.

LIABILITY INSURANCE: The Institute recommends that cities follow the example of Los Angeles, which does not require trucks to purchase liability insurance beyond the amount required of all vehicles under state law.

HOURS OF OPERATION: The Institute recommends that cities follow Los Angeles' approach and not restrict when food trucks may operate.

EMPLOYEE SANITATION:

Handwashing: The Institute for Justice recommends that cities follow the example of Los Angeles County and the California Retail Food Code, which requires trucks to have handwashing stations if they prepare food, but does not require them on trucks selling only prepackaged foods like frozen desserts.

Bathroom Access: The Institute recommends that cities emulate Las Vegas, Charlotte and Portland, Ore., by not requiring that food trucks enter into bathroom-access agreements with brick-and-mortar businesses.

COMMISSARY REQUIREMENTS: The Institute recommends that cities follow the example of Portland, Ore., which exempts food trucks that carry all the equipment they need to satisfy health and safety concerns from having to associate with a commissary. For trucks that do require commissaries, the Institute recommends that cities follow Los Angeles County's approach of allowing trucks to share commissary space. Cities, however, should not follow Los Angeles County's practice of forbidding shared commercial kitchens, and should emulate the models put forward by cities like Austin, Texas, and San Francisco.

LICENSING:

Application Process: Cities should follow the licensing approach of Los Angeles County, which has a simple and straightforward application process. In terms of guidance, cities should emulate Boston and Milwaukee, which have both published step-by-step instructions to guide entrepreneurs through the licensing process.

Cost: The Institute recommends that cities should impose a flat annual fee in the range of \$200-300, as both Cleveland and Kansas City, Mo. have done. To the extent that a city issues licenses on a calendar year basis, its fee should be prorated so a truck first getting on the road halfway through the year would pay only half the full-year amount.

Who the License Covers: The Institute recommends that cities follow the example of Los Angeles County by licensing the overall vending business rather than the individual vendor.

Limits on the Number of Permits Issued: The Institute for Justice recommends that cities follow the example of Los Angeles and not limit the number of food-truck permits.

The specific laws and regulatory materials upon which these recommendations are based are discussed thoroughly in the pages that follow. Cities should implement these recommendations, which will both protect public health and safety and allow food-truck entrepreneurs to create and run businesses that will create jobs, increase customer choice, and boost the local economy.

AN ONLINE COMPENDIUM CONTAINING THE FULL LANGUAGE OF THE LAWS CITED IN THIS REPORT CAN BE FOUND AT [HTTP://WWW.IJ.ORG/VENDING](http://www.ij.org/vending).



INTRODUCTION

The food truck revolution is sweeping the nation. In 2010, *The Economist* magazine predicted that “some of the best food Americans eat may come from a food truck.”¹ That prediction has become true. Gourmet trucks across the country are at the forefront of modern dining, serving affordable and delicious fare that rarely can be found at the neighborhood sandwich shop. In addition, food-truck “rallies” have become popular social events around the country, with events frequently drawing thousands of hungry customers.² These mobile kitchens are also powerful engines of economic growth. Together, food trucks directly employ thousands of people nationwide, and the trucks, equipment, and food they purchase generate millions in economic activity.

In its 2011 research report on street vending entitled *Streets of Dreams*, the Institute for Justice explained how street vendors, including food-truck owners, are creating jobs, satisfying customers and generally making their communities safer and more interesting places to live.³ Below are just some of the benefits that food trucks are providing as their numbers grow in cities across the country:

- Food trucks create jobs, buy products and services from local businesses, and contribute sales taxes and permit fees to cities.
- Food trucks attract foot traffic to commercial districts—which means increased sales and a more vibrant retail-business environment overall.
- Food trucks serve as “eyes on the street” and make the street a safer and more enjoyable place to visit. Their presence can help prevent crime and revitalize underused public spaces.
- Food trucks give entrepreneurs with big dreams, but only a little capital, a way to start their own food-service businesses. In many instances, trucks serve as a stepping stone toward opening a brick-and-mortar space. Food trucks also give existing restaurants a new way to reach their customers.

Given the rapid growth of the food-truck industry, it is little surprise that city officials across the country have started to look for answers about how to regulate this new culinary trend. The purpose of this report is to provide those answers.

In Part I of this report, the Institute for Justice outlines two important general principles for regulating food trucks, and then discusses how those principles have led to a thriving food-truck economy in the city of Los Angeles, which has the best overall legal framework for food trucks in the country. In Part II, the report discusses how Los Angeles and other cities have addressed specific regulatory issues based on an Institute survey of the food-truck laws in the 50 largest cities in the United States. Using these examples, as well as discussions with government officials, food-truck owners and other stakeholders, the report then offers recommendations as to what cities’ laws are models that other cities should follow.

TWO IMPORTANT PRINCIPLES FOR THE REGULATION OF FOOD TRUCKS

In this report, the Institute discusses a variety of specific vending issues. While the details of each city’s laws concerning these issues may vary, the Institute for Justice has found that the best laws typically follow the same pattern of 1) not protecting incumbent businesses from competition, and 2) providing clear, narrowly tailored and outcome-based rules that address actual health and safety issues.

Principle #1: No Protectionism

Cities should not pass laws meant to protect established businesses from competition from food trucks. Some of the anti-competitive laws the Institute for Justice first identified

¹ Jon Fasman, *Trucking Delicious*, *THE ECONOMIST*, November 22, 2010, <http://www.economist.com/node/17493279>.

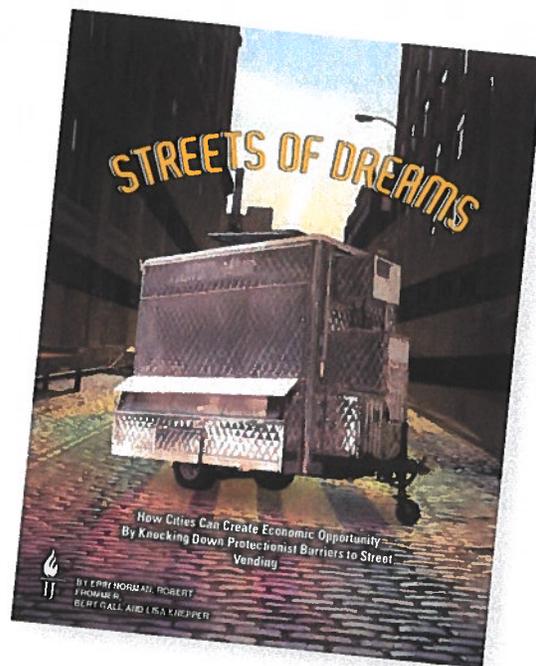
² See, e.g., Sarah Meehan, *Organizers hope to grow Baltimore, D.C. food truck competition*, *BALTIMORE BUSINESS JOURNAL*, June 25, 2012, <http://www.bizjournals.com/baltimore/news/2012/06/25/organizers-hope-to-grow-baltimore.html>.

³ Erin Norman, Robert Frommer, Bert Gall & Lisa Knepper, *STREETS OF DREAMS: HOW CITIES CAN CREATE ECONOMIC OPPORTUNITY BY KICKING DOWN PROTECTIONIST BARRIERS TO STREET VENDING* (2011), <http://www.ij.org/streets-of-dreams-2>.

in *Streets of Dreams* prevent trucks from operating in certain commercial areas, require trucks to move after an arbitrarily short time, and even stop trucks from operating within a certain distance of their brick-and-mortar competitors. These protectionist laws do not help protect public health or safety. Instead, they stifle entrepreneurship, destroy jobs and hurt consumers both by raising prices and giving them fewer choices.⁴

Many of these laws are the result of lobbying by a few politically connected and powerful brick-and-mortar restaurants, which argue that since food trucks don't have the same costs in terms of rent and property taxes, they amount to "unfair competition." Of course, this argument ignores the fact that restaurants have many advantages over food trucks. No food truck, for instance, can offer its patrons heating or air conditioning. Trucks generally can't offer customers anywhere to sit. And since space on a food truck is limited, once a truck is out of forks, knives and other supplies, it's just out; there's no stockroom in the back to turn to.

With all these inherent advantages, restaurants don't need the additional advantage of government intervention to "protect" them from food trucks. Furthermore, enacting rules to protect some businesses from competition isn't just wrong, it's unconstitutional. Both the U.S. Supreme Court and numerous federal courts have held that it is illegitimate for state and local governments to pass laws that burden one set of businesses in order to benefit another, more politically powerful, group.⁵



IJ's 2011 vending publication, *Streets of Dreams*.

Principle #2: Clear, Narrowly Tailored and Outcome-Based Laws

Cities should focus their efforts on enacting clear, narrowly tailored and outcome-based rules that address legitimate and demonstrable health and safety concerns. First, any laws that a city enacts should be drafted in a clear and easy-to-understand way. Clear laws are easier for food-truck operators to follow, since they need not guess at what the law requires or prohibits. They make it easier for new entrants to get permitted and on the road. And, lastly, clear laws are easier for a city to administer and create less risk that officials will apply vaguely worded restrictions in an unfair and anti-competitive manner.

Second, cities should enact narrowly tailored laws in order not to throw out the proverbial baby with the bathwater. In

⁴ GLENN HUBBARD & ANTHONY PATRICK O'BRIEN, *ECONOMICS* 462-63 (4th ed. 2013) (explaining welfare effects of government barriers to entry).

⁵ See, e.g., *Metro. Life Ins. Co. v. Ward*, 470 U.S. 869 (1985); *Craigsmiles v. Giles*, 312 F.3d 220 (6th Cir. 2002); *Merrifield v. Lockyer*, 547 F.3d 978 (9th Cir. 2008); *Cornwell v. Hamilton*, 80 F. Supp. 2d 1101, (S.D. Cal. 1999).

FOOD TRUCK FREEDOM

other words, putting rules in place that go no further than what is needed to solve the particular problem at hand. Overly broad and restrictive regulations don't better protect the public, but they can make running a business more difficult, if not impossible. One example comes up with regard to congestion. In New York City, the areas around theaters can often become quite crowded, particularly as theaters let out. New York's narrow solution is to prevent food trucks from operating at these specific locations during show time. By contrast, turning all of midtown Manhattan into a "no-vending zone" would be regulatory overkill and would appear to be born more out of protectionism than any legitimate concern for public health and safety.

Officials should also enact outcome-based regulations, rather than regulations that specify particular methods or processes.

Regulations that focus on results are simpler to follow and give food trucks an opportunity to figure out the best way to solve the problem. One example is how cities regulate trash. Although most cities require food trucks to pick up their refuse, a few cities painstakingly detail the kind of trash cans a truck should use and where they must be placed. This top-down approach stops trucks from coming up with creative solutions, and its one-size-fits-all nature means that some trucks will have to carry trash cans that are far larger and more unwieldy than what they actually need. Instead, cities should lay out their regulatory goal and then give the trucks flexibility in how they make that goal happen.

Ultimately, the prescription for food-truck success is simple: provide trucks with clear, narrowly tailored and outcome-based rules that address the public's legitimate health and safety concerns. And then step back and watch this new, dynamic industry, with its jobs, satisfied customers and revitalized public spaces, flourish. To see how these two principles have been applied in the real world, look no further than how the birthplace of the modern gourmet food-truck movement—the city of Los Angeles—regulates food trucks.



CASE STUDY: LOS ANGELES

Of all the cities in the United States, few are more closely identified with the food-truck revolution than the City of Angels. For decades, “loncheros” served tacos, burritos and tamales to construction crews and the occasional office worker.⁶ Then in late 2008, two entrepreneurs named Roy Choi and Mark Manguera came up with the idea for a Korean/Mexican fusion taco truck.⁷ Naming their creation “Kogi,” the two struggled at first, frequently setting up outside nightclubs in Hollywood.⁸ But soon Kogi went viral after Manguera and Choi started using Twitter to let people know where the truck would be at any given time.⁹ Since then, Kogi has been a wild success and now has four color-coded trucks on the road.¹⁰

Other entrepreneurs quickly realized the potential that gourmet food trucks had to offer. Within a few years, numerous entrepreneurs began to roll out their own kitchens on wheels. Now Angelenos have access to trucks selling everything from Vietnamese Banh Mi sandwiches to Hawaiian shave ice and home-style macaroni and cheese. The public reception for the trucks has been overwhelming, and the advent of food trucks has in no way diminished L.A.’s vibrant restaurant culture. Instead, Zagat.com reports that restaurant customers believe that the area’s restaurant scene has improved.¹¹

But a more-vibrant food scene is not the only gift the trucks have given Los Angeles. The growth in Los Angeles’ food-truck industry has created hundreds, if not thousands, of new jobs, both on the trucks themselves and also at the businesses that design the trucks, build them, and supply them with the equipment and ingredients that they need. Furthermore, having the food trucks out and about draws hungry customers outside as well, and as urban theorist Jane Jacobs pointed out, “a well-used street is apt to be a safe street.”¹² Lastly, food trucks are entrepreneurship incubators. Food trucks, with their lower capital costs, are a way for chefs to try out new cuisines and new ideas. Those owners who succeed often take their winning ideas one step further by expanding their businesses and sometimes opening brick-and-mortar spaces. As a result of his food-truck success, for instance, Kogi’s Roy Choi expanded his empire into brick-and-mortar locations, including his new restaurant named Chego.¹³

The food trucks’ success in the city of Los Angeles, along with the great benefits those trucks provide, show that L.A.’s regulatory framework is one that other cities would do well to emulate. What makes Los Angeles a success comes from its adherence to the two principles discussed above.

First, Los Angeles’ regulations are not designed to stifle food trucks for the purpose of protecting brick-and-mortar restaurants from competition. As discussed above, incumbent businesses often ask local governments to put roadblocks in the way of their new competitors. But Los Angeles’ code contains few if any anti-competitive restrictions. Unlike Chicago, San Antonio and New Orleans, for instance, Los Angeles does not say that food trucks cannot operate within a certain distance of their brick-and-mortar counterparts. This difference is partially due to an earlier ruling by a California court that such proximity restrictions are unconstitutional.¹⁴ Likewise, Los Angeles does not require that food trucks must be hailed before they stop and serve customers. And it does not artificially restrict when food trucks may operate.

Furthermore, California law has helped protect the public against attempts at protectionist legislation. In July 2006, the city of Los Angeles passed an ordinance that ordered food trucks to move every 30 or 60 minutes depending on whether they were in a residential or commercial area.¹⁵ The city began to stringently enforce the duration restriction in 2009, but it was soon rebuffed. On June 10, 2009, Judge Barry Kohn of the California Superior Court invalidated the ordinance because it expressly conflicted with the state vehicle code, which permits cities to regulate vehicle vendors only “for the public safety.”¹⁶ A similar duration restriction in the Los Angeles County code had earlier met the same fate.¹⁷

6 Jesús Hermosillo, *LOCHERAS: A LOOK AT THE STATISTARIY FOOD TRUCKS OF LOS ANGELES*, Sept. 2010, <http://www.labor.ucla.edu/publications/reports/Locheras.pdf>

7 Jessica Gelt, *Kogi Korean BBQ, a taco truck brought to you by Twitter*, LA TIMES, Feb. 11, 2009, <http://www.latimes.com/features/la-fo-kogi11-2009feb11,0,4771256.story>

8 Merrill Shindler, *Riding Shotgun with Kogi*, ZAGAT.COM, Apr. 6, 2009, <http://www.zagat.com/buzz/riding-shotgun-with-kogi>

9 Jessica Gelt, *Kogi Korean BBQ, a taco truck brought to you by Twitter*, LA TIMES, Feb. 11, 2009, <http://www.latimes.com/features/la-fo-kogi11-2009feb11,0,4771256.story>

10 Kogi BBQ-To-Go, <http://kogibbq.com/>

11 Zagat.com, *Zagat Celebrates 25 Years in Los Angeles: 2,027 Restaurants Surveyed By 21,166 Local Diners*, Sept. 11, 2011, <http://www.zagat.com/node/36895295>

12 See JANE JACOBS, *THE DEATH AND LIFE OF GREAT AMERICAN CITIES* 34 (1992).

13 Chego!, <http://eatchecho.com/>

14 *People v. Ala Carta Catering*, 159 Cal. Rptr. 479 (Cal. App. Dep’t Super. Ct. 1979).

15 L.A. City Code § 80.73(b)(2)(F).

16 Cal. Vehicle Code § 22455(b); Press Release, UCLA School of Law, *UCLA School of Law Clinical Program wins case challenging validity of Los Angeles city ordinance implemented against food trucks*, June 10, 2009, <http://www.law.ucla.edu/news-media/Pages/News.aspx?NewsID=737>.

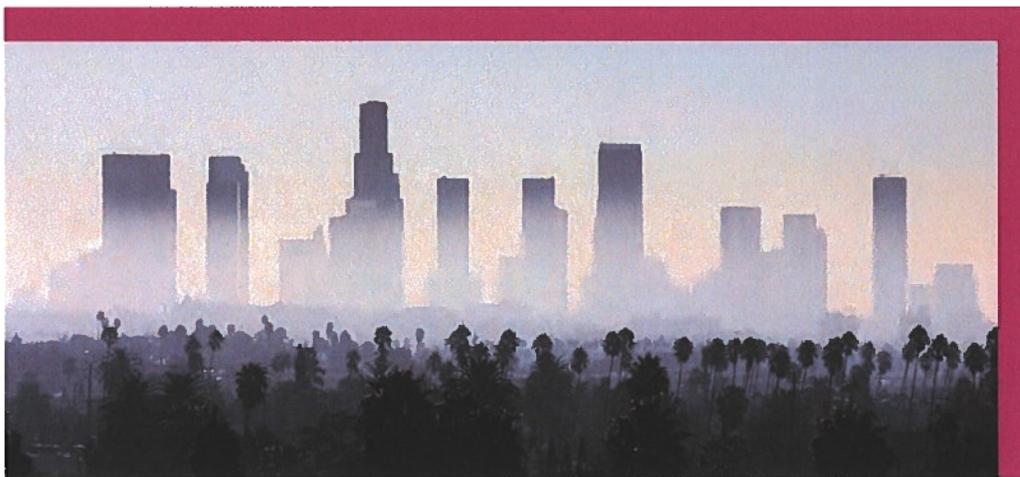
17 *People v. Garcia*, No. 8EA05884 at 5-6 (Cal. Sup. Ct. Aug. 27, 2008) (referring to Los Angeles County Code § 7.62.070).



Second, the laws that the city of Los Angeles does have in place are generally narrowly tailored to deal with actual health and safety issues, straightforward, and focus on results rather than on methods and processes. Together, the state, county and city have established rules to govern, among other things, what facilities and equipment a truck must carry on board, how it prepares food and where it may operate. In Los Angeles, the law does not micromanage trucks; instead, it merely requires that they obey the traffic rules applicable to all vehicles,¹⁸ follow basic safety precautions¹⁹ and pick up after themselves.²⁰ That said, some provisions of Los Angeles' laws are overly burdensome. The city's requirement that trucks not park within 100 feet of an intersection,²¹ for instance, seems excessive, particularly since other communities allow for much more reasonable distances.²²

USING LOS ANGELES AS A STARTING POINT

Although they are not perfect, and have been the subject of fights both in council chambers and the courts, Los Angeles' food-truck regulations are generally a success. Los Angeles has avoided protectionist laws in favor of clear, narrowly tailored and outcome-based health and safety rules, and its approach should serve as a starting point for cities that are drafting their own food truck laws. On the next two pages, the Southern California Mobile Food Vendors' Association emphasizes the benefits of the approach. Then starting on page 14, the Institute for Justice will discuss various food-truck topics and explain where L.A. has done well, where it has gone awry, and where other cities might have a superior approach. The Institute will then go on to provide specific recommendations that cities can adopt to address the main public health and safety issues concerning food trucks.



18 L.A. City Code § 80.73(b)(2)(B)

19 L.A. City Code § 80.73(b)(2)(C) (requiring that truck operators only serve customers from the side of the truck abutting the sidewalk)

20 L.A. City Code § 80.73(b)(2)(E)

21 L.A. City Code § 80.69(d)

22 See, e.g., El Paso City Code § 12.46.020(C) (requiring that trucks not operate within 20 feet of an intersection)

Los Angeles from the Trenches

by Matt Geller, CEO, and Jeffrey Dermer and Kevin Behrendt, Counsel, Southern California Mobile Food Vendors' Association

Southern California is the most mature mobile-vending market in the United States. The traditional taco trucks, or “loncheros,” have been a familiar sight in California for generations. As a result of this unique history, Southern California and Los Angeles are more comfortable with mobile vending than perhaps other parts of the United States. Furthermore, this experience has left Los Angeles with the most well-developed and mature set of regulations in the country.

But none of this came easily. Over the years, public-interest advocates have fought tirelessly in the courts, in the state legislature, and in local government halls for a more reasonable regulatory environment for mobile vending. Other states and cities would do well to avoid these battles and instead simply “cut to the chase” by repealing any protectionist laws on their books and passing narrow regulations that deal with actual health and safety issues. By emulating the best parts of Los Angeles’ regulatory landscape as described in this report, officials throughout the country can make sure that trucks comply with the law and that consumers and residents are satisfied.

Below, we briefly describe how Los Angeles’ unique regulatory landscape has evolved and the economic and social benefits that it has helped produce.

Mobile Vending in Los Angeles

Historically, mobile vending in Los Angeles was primarily a business for recent immigrants. Many of the taco trucks of the 1970s and 1980s were founded and run by Mexican immigrants. These trucks faced discriminatory enforcement of the laws and, in some cases, outright attempts by city officials to shut down mobile vending in many communities. Those pioneers fought back by pairing with civil-rights lawyers to push back on the most egregious of these laws, including one that prohibited food vending within 100 feet of a restaurant’s front door.²³ The current state of regulations is a testament to those advocates.

Another key to California’s vending landscape came in 1984, when the California Legislature passed a landmark provision telling cities that they may only regulate mobile vending “for the public safety.”²⁴ One year later, the Legislature went one step further by preventing cities from instituting outright bans on mobile vending for any reason.²⁵ This law has helped food trucks fight back against anti-competitive restrictions at the city and county levels.

The Southern California Mobile Food Vendors Association was founded in January 2010 in response to the confusing regulatory framework that confronted gourmet food-truck operators. Since then, the Association has worked with over 30 cities to repeal anti-competitive vending laws, fought back attempts at the California state legislature to weaken state protections for food trucks and brought suit against municipalities that, at the behest of brick-and-mortar businesses, enacted ordinances meant to ensure that no mobile vending occurred on their streets.

The late 2000s saw the rise of the modern gourmet food truck. In the past, food trucks had primarily served construction workers on job sites. This business model worked well during the boom times, but the real-estate collapse of 2007-08 meant that there were few construction sites to service. Faced with a massive excess capacity of catering vehicles, many entrepreneurs bought trucks and repurposed them. This was helped, in part, by the fact that Los Angeles is home to a family-business culture and a large

²³ *People v. Ala Carte Catering Co.*, 158 Cal. Rptr. 479 (Cal. App. Dep’t Super. Ct. 1979).

²⁴ Cal. Vehicle Code § 22455(b).

²⁵ More specifically, the 1985 amendment to section 22455 removed the final sentence of subsection (b), which previously read: “An ordinance or resolution adopted pursuant to this subdivision may prohibit vending from a vehicle upon a street.”

number of different ethnic groups, many of whom brought new food concepts to this emerging industry.

But the growth in this new industry ruffled some feathers, including corporate quick-serve restaurants and the commercial developers who rent to them. Unfortunately, but not surprisingly, these forces made a concerted effort to pass new protectionist laws in the city of Los Angeles and elsewhere. Although Los Angeles itself refrained from enacting any new anti-competitive restrictions, some other municipalities in the area passed restrictive vending laws and began to enforce anti-competitive laws that were already on the books.

It was against this backdrop that the food trucks in Southern California joined forces to create the Southern California Mobile Food Vendors Association. Only two years old, the Association has grown from 30 initial members to over 150 members. Through education, lobbying and litigation, the Association has sent a clear message to regulators that consumer choice and entrepreneurship should come first.

Thankfully, forward-looking officials in Los Angeles have heard this message, embraced it, and now see the benefits that come from giving food trucks the freedom to operate. This hands-off approach has spawned an entirely new food-truck industry, with many companies now building and customizing food trucks, supplying graphic wraps for new entrepreneurs and selling technology to help consumers both locate their favorite trucks and order from them. The number of trucks has grown, leading to hundreds of new jobs. And the increased competition has pushed everyone, both food trucks and brick-and-mortar restaurants, to cook and serve food that is better tasting and a better value.

Competition is what makes America great, and Los Angeles' regulatory model wisely embraces that competitive spirit and rejects the idea that the government should protect certain businesses at the expense of consumers. The city's approach to regulating food trucks has worked for Los Angeles, and it can work for your city as well.

HOW CITIES SHOULD ADDRESS PUBLIC HEALTH AND SAFETY ISSUES

In the following pages, the Institute for Justice discusses how cities should address some major topics surrounding food trucks, including these health and safety issues:

- **Food Safety**
- **Food-Safety Enforcement**
- **Parking**
- **Refuse**
- **Liability Insurance**
- **Hours of Operation**
- **Employee Sanitation**
- **Commissary Requirements**
- **Licensing**

For each issue, the Institute will describe the applicable law in Los Angeles and explain its advantages and drawbacks. It will then examine how other cities address the issue and explain why those other approaches are better or worse than what L.A. does. Finally, the Institute will recommend what law cities should adopt and give reasons for that recommendation. Throughout, the report will provide citations to the pertinent laws.

An online compendium containing the full language of the laws cited in this report can be found at <http://www.ij.org/vending>.

FOOD SAFETY

HOW LOS ANGELES REGULATES FOOD SAFETY:

The city of Los Angeles does not regulate the design of food trucks, how they store and cook food or what procedures they must follow in cleaning their equipment and utensils. Instead, this function is performed by the Los Angeles County Health Department, which administers the rules set forth in the California Retail Food Code.²⁶ That code prescribes how all food businesses, restaurants and food trucks included, must be designed and run.

While the Food Code has general rules that are applicable to all food sellers,²⁷ it also contains food-truck specific rules. The code, for instance, specifies the requisite amount of aisle space within the cooking portion of the truck²⁸ and mandates that utensils be secured so they are not thrown about while the truck is moving.²⁹ The code also imposes different requirements on trucks based on what the vehicle will be used for. If food will be prepared and cooked on board a food truck, for instance, the code requires that the vehicle be equipped with both warewashing and handwashing sinks³⁰ and that any deep fryers be sealed using a positive air pressure lid.³¹ Trucks that do not prepare and cook food need not meet these requirements.

HOW OTHER CITIES REGULATE FOOD SAFETY:

As in Los Angeles, in most cities the regulations concerning food safety aboard food trucks come from state or county retail-food codes. In Phoenix, for instance, the Maricopa County Environmental Health Code governs how food trucks are regulated.³² That code requires that trucks follow the general provisions that are

²⁶ Cal. Health and Safety Code §§ 113700 *et seq.*

²⁷ Cal. Health and Safety Code § 114294(a) (stating that “[a]ll mobile food facilities and mobile support units shall meet the applicable requirements in Chapters 1 to 8, inclusive, and Chapter 13, unless specifically exempted from any of these provisions”).

²⁸ Cal. Health and Safety Code § 114321.

²⁹ Cal. Health and Safety Code § 114323(b)(1).

³⁰ Cal. Health and Safety Code § 114311.

³¹ Cal. Health and Safety Code § 114323(b)(2).

³² Maricopa County Environmental Health Code, <http://www.maricopa.gov/EnvSvc/AboutUs/HealthCode.aspx>.



applicable to brick-and-mortar restaurants, but it also imposes some additional, food-truck specific regulations. Likewise, the regulations that govern food safety for food trucks in Indianapolis are governed by the retail food establishment sanitation requirements of the Indiana Administrative Code, which govern both mobile and fixed-location food providers.³³

Often the design and construction requirements for a food truck turn on what the truck will be used for. New York City, for instance, has two different sets of regulations for food trucks based on whether the food truck will be selling food that requires any cooking or processing in the vehicle (excluding the boiling of hot dogs). The two categories are subject to different requirements, which are a mix of state and local sanitary and health codes.³⁴ Likewise, the food-truck application for Portland, Ore., details four classes of vehicles and the specific requirements that apply to each class.³⁵

INSTITUTE FOR JUSTICE RECOMMENDATION:

The Institute for Justice notes that most municipalities follow the food-safety rules established in county or state food codes, which are typically based on industry best practices. To the extent the county or state food code does not deal with a specific issue, the Institute recommends that officials follow the requirements of Chapter 10 of the California Retail Food Code, which governs food trucks.³⁶

Furthermore, cities drafting their own regulations should, as the California Retail Food Code does, customize those requirements based on what the truck will serve. Safety or cooking equipment that is necessary for a truck where food is prepared may well be unnecessary for a truck that

sells only prepackaged food or ice cream. Regardless of what law a city follows, though, it should lay out what precise steps operators must take. Having officials rely on informal customs and standards that are unknowable to those on the outside unnecessarily increases both uncertainty and costs to would-be entrepreneurs.

BOTTOM LINE:

Cities without food-safety regulations for mobile vehicles should adopt Chapter 10 of the California Retail Food Code and tailor those regulations to the potential risk that the truck's food poses to public health and safety.

FOOD-SAFETY ENFORCEMENT

HOW FOOD SAFETY IS ENFORCED IN LOS ANGELES: Los Angeles County is the government body responsible for administering the state retail-food code and inspecting food trucks.³⁷ Its rules call on county officials to perform unannounced field inspections of trucks. In early 2011, the county started assigning letter grades to food trucks based on the results of their inspections, which mirrored what the county already did for brick-and-mortar restaurants.³⁸ Food trucks must display the grade they received on their vehicle.³⁹ Food truck owners have largely welcomed this change, which gives them the opportunity to show that they are just as clean and sanitary as their brick-and-mortar counterparts.⁴⁰

HOW OTHER CITIES ENFORCE FOOD SAFETY: Cities are split as to who inspects mobile food vendors. Approximately half of America's largest 50 cities inspect trucks themselves, while state or county health departments conduct inspections for the other 25 cities. The frequency of inspections similarly varies: While San Antonio conducts "routine, unannounced inspections" of food trucks,⁴¹ Albuquerque, N.M., inspects trucks at least twice a year based on the "past compliance record of a food establishment and the risk presented to consumers by the menu items provided by the specific food establishment."⁴² Inspections in most cities are

33 Indiana State Department of Health, Retail Food Establishment Sanitation Requirements, http://www.in.gov/isdh/files/410_tac_7-24.pdf.

34 See New York City Department of Health and Mental Hygiene Mobile Vending Permit Inspection Requirements, http://www.nyc.gov/html/doh/downloads/pdf/permit/mfv_cart_truck_inspection.pdf.

35 See Mobile Food Unit Plan Review Packet, http://web.multico.us/sites/default/files/health/documents/mfu_plan_review.pdf.

36 Cal. Health and Safety Code §§ 114294 et seq.

37 L.A. County Code §§ 8.04.405, 8.04.752.

38 Rong Gong Lin II, *A drive to grade food trucks in L.A. County*, L.A. TIMES, Sept. 14, 2010, <http://articles.latimes.com/2010/sep/14/local/la-me-food-trucks-20100914>.

39 L.A. County Code § 8.04.752.

40 See Lisa Jennings, *L.A. food trucks to post letter grade inspection results*, NATION'S RESTAURANT NEWS, Oct. 20, 2010, <http://nm.com/article/la-food-trucks-post-letter-grade-inspection-results>.

41 San Antonio City Code § 13-62(k).

42 Albuquerque City Code § 9-6-1-6.

unannounced,⁴³ and most are conducted by the same officials who inspect brick-and-mortar restaurants.⁴⁴

INSTITUTE FOR JUSTICE RECOMMENDATION: Of the existing laws concerning food-safety enforcement, the Institute for Justice recommends that cities generally follow the approach of Los Angeles County.⁴⁵ In a forthcoming report, the Institute for Justice compares the inspection grades of restaurants and food trucks in Los Angeles and finds that the city's food trucks are just as clean and sanitary on average as its restaurants. Furthermore, cities should consider following Albuquerque's approach of taking a truck's inspection history and the food it serves into account when deciding how frequently to inspect it. The Southern California Mobile Food Vendors Association, in a similar vein, has suggested that trucks that get two "A" grades in a row should receive a "Certification of Excellence" that reduces their inspection rate to only once per year. This approach makes sense, since inspectors generally should spend less time on trucks that pass inspection with flying colors and instead focus on food trucks or restaurants that have a history of problems. Finally, inspectors should hold food trucks and brick-and-mortar restaurants to the same food-safety standards.

BOTTOM LINE:

Cities should follow Los Angeles' approach by inspecting food trucks both when first permitting them and periodically thereafter. Trucks serving non-hazardous food or that have passed multiple inspections should, as in Albuquerque, N.M., be subject to less frequent inspections, which will give inspectors more time to inspect trucks and restaurants with a history of issues.

PARKING

HOW LOS ANGELES DEALS WITH PARKING:

Proximity Restrictions and Restricted Zones: The city of Los Angeles does not prohibit food trucks from operating within a certain distance of brick-and-mortar restaurants. Likewise, the city does not restrict food trucks from operating in popular

commercial areas; instead, it merely states that food trucks cannot operate within 200 feet of certain parks⁴⁶ or near the Pacific Ocean.⁴⁷

Distance to Intersections: Food trucks in Los Angeles must follow all traffic rules and any stopping, standing or parking prohibitions as provided by the State Vehicle Code.⁴⁸ They must also follow the traffic regulations in the Los Angeles Municipal Code that apply to all vehicles.⁴⁹ In addition to those state and municipal traffic laws, food trucks may not park within 100 feet of an intersection.⁵⁰ The 100-foot prohibition is far larger than what is needed to accommodate any congestion or visibility issues. For many smaller blocks, the restriction makes it difficult, if not impossible, for trucks to legally park and serve their fare. Indeed, it appears that Los Angeles recognizes the difficulty with this approach; according to the Southern California Mobile Food Vendors Association, the city of Los Angeles does not actively enforce its 100-foot restriction.

Use of Metered Parking Spaces: The city of Los Angeles permits food trucks to vend from metered public parking spots for the maximum amount of time listed on the meter.⁵¹

Duration Restrictions (How Frequently Food Trucks Must Move): The city of Los Angeles previously restricted how frequently food trucks had to move. Under its old law, food trucks could only stay in one spot for 30 minutes in a residential area, or 60 minutes in a commercial one.⁵² They then had to move one-half mile away and not return for 30 or 60 minutes, respectively.⁵³ A Los Angeles Superior Court judge invalidated this duration restriction in 2009 and it is no longer enforced.⁵⁴

43 See, e.g., City of Kansas City, Food protection frequently asked questions, <http://www4.kcmo.org/health.nsf/web/foodfaqs#8>

44 See, e.g., Las Vegas City Code § 6.02.020.

45 L.A. County Code §§ 8.04.405, 8.04.752.

46 L.A. City Code § 80.73(b)(2)(A)(4)(ii).

47 L.A. City Code § 42.15(c).

48 L.A. City Code § 80.73(b)(2)(B).

49 *Id.*

50 L.A. City Code § 80.73(b)(2)(A)(3).

51 See L.A. City Code § 80.73(b)(2)(B).

52 L.A. City Code § 80.73(b)(2)(F).

53 *Id.*

54 Press Release, UCLA School of Law Clinical Program Wins Case Challenging Validity of Los Angeles City Ordinance Implemented Against Taco Trucks, (June 10, 2009), <http://www.law.ucla.edu/news-media/Pages/News.aspx?NewsID=737>.



Potential Sidewalk Congestion: The city of Los Angeles does not mandate that food trucks park and vend only at sidewalks of a certain minimum width; instead, it states that food trucks should not operate in a way that blocks the public right of way.⁵⁵

HOW OTHER CITIES DEAL WITH PARKING:

Proximity Restrictions and Restricted Zones:

In *Streets of Dreams*, the Institute looked at how many of the largest cities in the United States imposed restrictions on where food trucks could operate. In all, 20 of the 50 largest U.S. cities told food trucks to stay a certain distance away from their brick-and-mortar competitors, while 34 cordoned off parts of the city, often prime commercial areas, from vending.⁵⁶ Proximity restrictions exist solely to prevent one business from being able to compete with another, which simply is not a legitimate government interest. Indeed, virtually every court to consider one of these laws has held them to be unconstitutional and struck them down.⁵⁷

Although not as transparently protectionist as laws establishing proximity restrictions, laws that create restricted zones are often protectionist in effect due to their breadth. Typically, congestion issues are fairly localized at particular intersections or on particular streets. But rather than take a narrow approach, restricted zones prohibit all vending in large swaths of a city. Regulations that exceed their required scope look like less of an honest attempt to solve a real problem and more of an attempt to keep food trucks from competing.

Distance to Intersections: The 100-foot restriction that Los Angeles requires food trucks to follow is much larger than similar laws in other major cities. Many cities do

not specify any minimum distance a truck must be from an intersection, instead merely requiring that a truck not vend “in a congested area where the operation will impede pedestrian or vehicle traffic.”⁵⁸ And of those cities that do provide for a minimum, the required distance ranges from 20 to 50 feet.⁵⁹

Use of Metered Parking Spaces: Most cities in the United States allow food trucks to pay for and operate from metered parking spaces for the amount of time listed on the meter. One notable exception to this is Pittsburgh, which says that food trucks “shall not park any vehicles for the purpose of vending, or place any materials in on-street metered parking spaces.”⁶⁰ And in New York City, a controversy has erupted over whether food trucks may vend from metered spots. The city’s transportation regulations state that “[n]o peddler, vendor, hawker or huckster shall park a vehicle at a metered parking space for purposes of displaying, selling, storing or offering merchandise for sale from the vehicle.”⁶¹ A food truck sued, arguing that its food was not “merchandise” for purposes of the law. A New York trial court ruled for the city in May 2011,⁶² and that ruling was upheld the following year.⁶³

Duration Restrictions: As discussed in *Streets of Dreams*, 19 of the 50 largest U.S. cities mandate how frequently a vendor must move, regardless of whether he or she is vending from a metered space or what the time limit for the space, if any, might be.⁶⁴ Those laws require vendors to move once every 15 minutes to two hours;⁶⁵ in some instances, vendors who have moved are not allowed to return to their original location for a specified amount of time.⁶⁶ These laws are counterproductive, and should be scrapped. Forcing vendors to move regularly makes it difficult, if not impossible, to run a profitable business. Short time limits also pose a safety hazard, since it pressures cooking trucks into moving before their equipment has completely cooled. And by requiring trucks to constantly be on the road, laws like these make congestion worse, not better.

Potential Sidewalk Congestion: Most cities deal with potential sidewalk congestion issues as Los Angeles does, by simply requiring that food trucks not operate in a manner that blocks or inhibits use of the sidewalk by pedestrians. Fresno, Calif., for instance, states that “[n]o mobile vendor shall block or

55 See L.A. City Code § 56.08(c).

56 STREETS OF DREAMS 16, 20 (July 2011).

57 See, e.g., *People v. Ala Carte Catering*, 159 Cal.Rptr. 479 (1979); *Duchemin v. Lindsay*, 42 A.D.2d 100, 345 N.Y.S.2d 53 (1973), *aff’d*, *Duchemin v. Lindsay*, 34 N.Y.2d 636 (1974); *Thunderbird Catering Co. v. City of Chicago*, Case No. 83-52921 (Oct. 15, 1986).

58 Las Vegas City Code § 6.55.070(A)(2).

59 See, e.g., El Paso City Code § 12.46.020(C) (20 feet); Minneapolis City Code § 188.480(2) (30 feet); San Antonio City Code § 13-63(a)(5) (50 feet).

60 Pittsburgh City Code § 719.05A(d).

61 New York City Department of Transportation Regulations § 4-08(h)(8).

62 Glenn Collins, *Food Trucks Shooed From Midtown*, N.Y. TIMES, June 28, 2011, http://www.nytimes.com/2011/06/29/dining/food-trucks-shooed-from-midtown.html?_r=2.

63 *Manroy v. City of New York*, May 8, 2012, <http://caselaw.findlaw.com/ny-supreme-court-appellate-division/1600535.html>.

64 STREETS OF DREAMS 23 (July 2011).

65 See Columbus City Code § 2151.16 (15 minutes); Las Vegas City Code § 6.55.070(A)(2) (30 minutes); Chicago City Code § 7-38-115(b) (two hours).

66 See, e.g., Sacramento City Code § 5.68.170 (stating that vending vehicle may not return to original location until the next day).

obstruct the free movement of pedestrians or vehicles on any sidewalk.”⁶⁷ Las Vegas, Nev., similarly says that no mobile food vendor shall “[v]end in a congested area where the operation will impede pedestrian or vehicle traffic.”⁶⁸ And Philadelphia states that food trucks should not “increase traffic congestion or delay, or constitute a hazard to traffic.”⁶⁹

INSTITUTE FOR JUSTICE RECOMMENDATION:

Proximity Restrictions and Restricted Zones: The Institute for Justice recommends that cities follow the example of Los Angeles by not prohibiting food trucks from operating within a certain distance of brick-and-mortar restaurants. The first lawsuit the Institute for Justice brought as part of its National Street Vending Initiative was against El Paso, Texas, which enacted a law that kept food trucks from operating within 1,000 feet of any fixed business that served food.⁷⁰ In response to the lawsuit, El Paso quickly backed down and dropped its anti-competitive restriction.

The Institute for Justice also recommends that cities follow the example of Los Angeles by not establishing broad zones where food trucks may not operate. As discussed at the beginning of this report, cities should strive to enact narrow laws that address the particular problem at hand but go no further. New York City, for instance, does not have any blanket prohibitions on where food trucks may go; instead, it proscribes vending only at certain specific times and locations based on demonstrable congestion concerns. The Institute for Justice recommends that other cities do the same.

Distance to Intersections: Of the laws dealing with traffic, parking, and congestion issues, the Institute for Justice recommends that cities follow the example of El Paso, Texas, which states that food trucks “shall be allowed to stop, stand or park on any public street or right-of-way, provided this area is not within twenty feet of an intersection, such vehicle does not obstruct a pedestrian crosswalk and the area is not prohibited to the stopping, standing or parking of such vehicles.”⁷¹ This rule is clear, definite, and easy for food trucks to follow. The Institute for Justice does not recommend that cities follow Los Angeles’ approach of prohibiting food trucks from parking within 100 feet of an intersection. Cities should not regulate more heavily than necessary, and Los Angeles’ 100-foot restriction is excessive compared to what other cities prescribe.

Use of Metered Parking Spaces: The Institute for Justice recommends that cities follow the example of Los Angeles and virtually every other major city by allowing food trucks to operate from metered locations provided that they pay the requisite fees and follow any time limitations associated with the location. Food trucks are miniature commerce centers, and letting them pay for and use parking spaces both enriches the city and helps consumers find the trucks that they want to patronize. Furthermore, there is no reason to single out food trucks from all other commercial vehicles and impose special burdens on them that the rest do not share.

Innovation: Food Truck Parking Passes

Some food trucks will want to use a metered parking space for longer than typically permitted. Food trucks that sell fried items, for instance, frequently struggle with shorter parking periods, as they often must take 30 minutes or more to heat up their oil while setting up or to cool it down while preparing to move. One way that cities can accommodate this desire is to sell special permits to food trucks that let them park at metered locations for an extended period of time. These permits may be issued on a periodic basis, such as monthly or quarterly, or the city can instead sell one-time passes. To use such a pass, truck operators would scratch off the current date and place it in their windshield; once on display, the pass would let the truck legally park at one or multiple spots over the course of the day. The price of these permits or passes could be set at a premium above standard meter rates. This would give more entrepreneurial food trucks more options while generating more revenue for the city.

⁶⁷ Fresno City Code § 9-1107(h).

⁶⁸ Las Vegas City Code § 6.55.070(A)(2).

⁶⁹ Philadelphia City Code § 9-20317(d).

⁷⁰ El Paso Vending, The Institute for Justice, <http://www.ij.org/el-paso-vending>.

⁷¹ El Paso City Code § 12.46.020(C).



Duration Restrictions: After reviewing laws that govern how long food trucks may stay at one location, the Institute for Justice recommends that cities follow the examples of Philadelphia and New York City. Neither city forces food trucks to move after an arbitrary amount of time; instead, they require only that food trucks obey the parking rules that apply to all vehicles. Although Los Angeles does not impose any duration restrictions, that is only because a court held them to be invalid; accordingly, the Institute does not recommend that cities adopt the language in Los Angeles' code.

Food trucks responding to an Institute survey pointed out that, for cooking trucks, it can often take up to a half hour to get set up and ready to cook and another half hour to close down the kitchen and get back on the road. As a result, owners universally expressed frustration with duration restrictions, which can make it practically impossible to vend from a modern gourmet food truck. Trucks also complained about the harm to their business's reputation when they have to turn away customers who have patiently waited in line. As one Washington, D.C., entrepreneur put it, "Expecting busy trucks to move with 30 people on line is a burden." For these reasons, the Institute for Justice recommends that food trucks be allowed to stay at one location for at least as long as any other vehicle.

Potential Sidewalk Congestion: The Institute for Justice recommends that cities follow the example of Los Angeles, which specifies only that food trucks not operate in a manner "which will interfere with or obstruct the free passage of pedestrians or vehicles along any such street, sidewalk or parkway."⁷² A set rule that requires a minimum sidewalk width in some instances can be regulatory overkill, such as in areas with little to no

pedestrian traffic, and might be insufficient in particularly crowded areas. Los Angeles' approach is superior because it gives trucks more flexibility while continuing to protect the public right of way. As noted below, the fear that trucks lead to congested sidewalks has little to no evidentiary support.

BOTTOM LINE:

***Proximity Restrictions and Restricted Zones:** Cities should follow the example of Los Angeles by not prohibiting food trucks from operating within a certain distance of brick-and-mortar restaurants or establishing large no-vending areas that are neither narrow nor based on real congestion concerns.*

***Distance to Intersections:** Cities should adopt El Paso Code Section 12.46.020(c), which states that food trucks "shall be allowed to stop, stand or park on any public street or right-of-way, provided this area is not within twenty feet of an intersection, such vehicle does not obstruct a pedestrian crosswalk and the area is not prohibited to the stopping, standing or parking of such vehicles."*

***Use of Metered Parking Spaces:** Cities should follow the example of Los Angeles and almost all other cities by letting food trucks operate from metered locations.*

***Duration Restrictions:** Cities should follow the examples of Philadelphia and New York City, neither of which artificially restricts how long a food truck may stay at one spot.*

***Potential Sidewalk Congestion:** Rather than prescribing the minimum width that a sidewalk must be for mobile vending, cities should follow Los Angeles' approach and simply require that food trucks not operate in a manner "which will interfere with or obstruct the free passage of pedestrians or vehicles along any such street, sidewalk or parkway."*

⁷² See L.A. City Code § 56.08(c)

IJ Original Research on Food Trucks and Sidewalk Congestion

Some local businesses that do not want to compete against food trucks argue that letting trucks operate on the streets will increase sidewalk congestion. The argument is that this congestion makes it harder for pedestrians to navigate the right of way and, in some instances, could even lead to safety hazards. This concern is offered as a justification for laws that prohibit trucks from operating in certain areas of the city or from operating on public property at all.

Of course, legislators should only act on these concerns if they are in fact true. But while claims of food trucks creating sidewalk congestion abound, there was no actual evidence showing that to be the case. In fact, the effects of food trucks on congestion had never seriously been examined. So, to find out if trucks really do pose congestion concerns, the Institute for Justice undertook an original empirical research study.

On three days in December 2010, January 2011, and February 2011, a team of researchers from the Institute for Justice observed pedestrian traffic in two areas of Washington, D.C. known as Federal Center and Dupont Circle. Federal Center is an area in Southwest D.C. that is close to several government buildings and a handful of deli-style restaurants. Dupont Circle,

which is located in Northwest D.C., is one of the city's busiest areas, with many dining options, office buildings, and retail shops. Both Federal Center and Dupont Circle are near subway stations.

IJ researchers measured the amount of foot traffic on both sides of the street. They also calculated how long it took pedestrians to travel from one end of the block to the other. They counted pedestrians on both sides on days when food trucks were present and on days when they were not.

The Institute's research showed that the presence of a food truck did not significantly increase foot traffic. In the Federal Center area, the highest amount of foot traffic occurred on a day when no food trucks were present, indicating that other factors impact foot traffic. The data from Dupont Circle reiterated this finding. The presence of a food truck was associated with a minor increase of pedestrians, just 28, over a two-hour time period, which amounts to an increase of less than one percent of total foot traffic.

Foot Traffic With and Without Presence of Food Trucks

	Dec. 15, 2010 (With Truck)	Jan. 13, 2011 (Control – No Truck)	Feb. 10, 2011 (No Truck)
Federal Center	772	939	673
Truck Side	336	296	263
Non-Truck Side	436	643	410
	Feb. 15, 2011 (With Truck)	Feb. 23, 2011 (Control – No Truck)	
Dupont Circle	2921	2893	N/A
Truck Side	1043	951	N/A
Non-Truck Side	1878	1942	N/A

Nor did the presence of a food truck make it more difficult for pedestrians to traverse the sidewalk. Researchers observing Federal Center discovered that it took 42 seconds to travel a sidewalk block when a food truck was present, compared to 41 and 43 seconds when no truck was there. In Dupont Circle, it took pedestrians 74 seconds to cross a block where a food truck was parked, one second less than when no truck was present.

Average Time for Pedestrians to Travel the Block, in Seconds

	December 15, 2010 (With Truck)	January 13, 2011 (Control – No Truck)	February 10, 2011 (Control – No Truck)
Takorean (Federal Center)⁷³			
Truck Side	42	41	43
Non-Truck Side	47	47	46
CapMac (Dupont Circle)	February 15, 2011 (With Truck)	February 23, 2011 (Control – No Truck)	
Truck Side	74	75	N/A
Non-Truck Side	75	76	N/A

Lastly, researchers noted that food trucks and customers often work out ways to further minimize any disruptions. At one popular truck, where upwards of 30 people were waiting, researchers saw customers spontaneously forming a single-file line along the edge of the sidewalk, which ensured that there was ample room for other pedestrians to pass by. This example shows that, even if there are discrete situations where sidewalk congestion might be an issue, there are simple and effective solutions that do not require limiting the ability of vendors to earn a living or preventing customers from having access to the delicious food they want to buy.

REFUSE

HOW LOS ANGELES REGULATES REFUSE:

Los Angeles requires that food trucks "shall pick up, remove and dispose of all trash or refuse which consists of materials originally dispensed from the catering truck, including any packages or containers, or parts of either, used with or for dispensing the victuals."⁷⁴ So that customers can assist in this effort, the city also mandates that food trucks provide "a litter receptacle which is clearly marked with a sign requesting its use by patrons."⁷⁵

HOW OTHER CITIES REGULATE REFUSE: Most cities surveyed by the Institute for Justice require that food trucks clean up trash. In some cities like Seattle, for example, trucks must "maintain the vending site, merchandise display, and adjoining and abutting public place free of all refuse of any kind generated."⁷⁶ Other cities instead require only that vendors take care of trash that they themselves create. Columbus, Ohio, for instance, makes vendors responsible for keeping the area within twenty-five (25) feet of their operation free and clear of any litter caused by such operation.⁷⁷

Like Los Angeles, some jurisdictions require that trucks put out trash receptacles. In Boston, for instance, food trucks must provide "a waste container for public use that the operator shall empty at his own expense."⁷⁸ And Buffalo, N.Y., which recently liberalized its vending rules, likewise requires that food trucks be "equipped with trash receptacles of a sufficient capacity that shall be changed as necessary."⁷⁹

⁷³ Due to construction, the sidewalk on the western side of the street was significantly shorter than the eastern side (201 feet compared to 303 feet). To account for this, times for the eastern side of the street have been multiplied by .6633. Adjusted times are shown.

⁷⁴ L.A. City Code § 80.73(b)(2)(E).

⁷⁵ L.A. City Code § 80.73(b)(2)(D).

⁷⁶ See Seattle City Code § 15.17.152(A).

⁷⁷ See Columbus City Code § 523.13(c)(11).

⁷⁸ Boston City Code § 17-10.8(a)(5).

⁷⁹ Buffalo City Code § 316-51(I).

INSTITUTE FOR JUSTICE RECOMMENDATION: Of the laws that deal with refuse issues, the Institute for Justice recommends that cities follow Los Angeles' approach, albeit with additional language that precisely lays out how far from the truck operators must search for any trash they created.⁸⁰ The following is an amalgam of language from Los Angeles and Columbus that cities may use in crafting their laws:

After dispensing victuals, at any location, a catering truck operator, prior to leaving the location, shall pick up, remove and dispose of all trash or refuse **within twenty-five feet of the catering truck** which consists of materials originally dispensed from the catering truck, including any packages or containers, or parts of either, used with or for dispensing the victuals.

It is reasonable for cities to make food trucks remove any trash they generate from the immediate area surrounding the truck, as is the requirement that trucks give customers some way to discard their refuse. Cities should be careful, however, not to go overboard with these regulations by mandating exactly what type of receptacles trucks must use or how large they have to be.⁸¹

BOTTOM LINE:

Cities should follow the example of Los Angeles and require trucks to be responsible for the trash they create, but they should also give trucks a specific distance they are responsible for, as Columbus, Ohio, does.

LIABILITY INSURANCE

INSURANCE REQUIREMENTS FOR FOOD TRUCKS IN LOS ANGELES:

Like all motor vehicles, food trucks in California must carry liability insurance in order to operate on the public right of way.⁸² Food trucks operating in Los Angeles need not purchase any additional liability insurance beyond that amount.

INSURANCE REQUIREMENTS FOR FOOD TRUCKS

IN OTHER CITIES: Most of the city laws surveyed by the Institute for Justice, like Los Angeles, do not impose separate liability insurance requirements on food trucks. Instead, those vehicles may get to work so long as they carry the state-mandated level of insurance to operate on the road. Some cities, however, also require that trucks carry a general liability insurance policy that lists the city as an additional insured. In Boston, for instance, a food-truck applicant must provide a "certificate of insurance providing general liability insurance listing the City as additionally insured."⁸³ And in Las Vegas, food trucks must maintain auto and general liability insurance of at least \$300,000.⁸⁴

INSTITUTE FOR JUSTICE RECOMMENDATION:

After reviewing liability insurance requirements for food trucks, the Institute for Justice recommends that cities follow the general approach of Los Angeles by not requiring that food trucks maintain insurance policies naming the city as an additional insured. Cities are no more liable for injuries caused by food trucks than they are for injuries caused by brick-and-mortar businesses. Additionally, having to name the city as an additional insured causes additional headaches for food trucks, as the practice is out of the ordinary and something many insurance companies are reluctant to do. Unless a city requires that all food service companies doing business within its boundaries carry a specific level of liability insurance, it should follow Los Angeles' approach and not foist additional requirements on food trucks that their brick-and-mortar counterparts do not share.

⁸⁰ L.A. City Code § 80.73(b)(2)(D)-(E).

⁸¹ An earlier revision of Buffalo's food-truck law, passed in January 2012, required that trucks carry and put out "two, 65-gallon garbage cans." After complaints from food-truck operators, who saw the law as unnecessary and unduly burdensome, the sponsor of the bill changed the language to what is reflected above. Aaron Bessecker, *Revised food truck rules unveiled*, THE BUFFALO NEWS, at 05 (Jan. 12, 2012).

⁸² See Cal. Vehicle Code § 1656.2 (detailing minimum liability requirements that vehicle operators must carry).

⁸³ Boston City Code § 17-10.5(b)(7).

⁸⁴ Las Vegas City Code § 6.55.080.



BOTTOM LINE:

Unless a city requires all businesses in its jurisdiction to carry a specific amount of liability insurance, it should follow the approach of Los Angeles and not impose this requirement on food trucks. Cities should not require trucks to carry liability insurance that names the city as an additional insured.

restricting vending during certain hours only at specified locations.⁸⁶

Other cities' restrictions, however, are quite onerous. In Phoenix, food trucks may not operate in the public way after 7 p.m. or whenever it gets dark, whichever is later.⁸⁷ And in Sacramento, Calif., the city manager requires vendors to limit their hours of operation to between 8 a.m. and 6 p.m.⁸⁸ These restrictions do nothing to further public health and safety, but make it that much harder for trucks to succeed.

HOURS OF OPERATION

HOURS OF OPERATION IN LOS ANGELES: The city of Los Angeles does not place any artificial limitations on when vendors may operate, which allows food trucks to specialize. Some trucks like PerKup Coffee and Tea Co. may choose to serve breakfast fare, while other trucks may decide to cater to late-night customers, just as others serve bar patrons on Friday and Saturday nights. This kind of flexibility means that consumers will be able to get food on their way into work or on their way home after a late night. In the end, letting trucks choose when to operate leads to more successful trucks and more satisfied customers.

HOURS OF OPERATION IN OTHER CITIES: Of the 50 cities surveyed by the Institute for Justice for this report, approximately half prohibited food trucks from operating during at least part of the day. Some of these restrictions are quite minimal: In Austin, Texas, for instance, mobile food vendors are only required to cease operations between the hours of 3 a.m. and 6 a.m.⁸⁵ And New York City has no blanket restriction on hours of operation, instead

INSTITUTE FOR JUSTICE RECOMMENDATION: The Institute for Justice recommends that cities follow Los Angeles' approach and not restrict when food trucks may operate. Trucks should be free to vend at any time, or at the very least to be subject to the same rules as brick-and-mortar restaurants. To the extent that vending from a specific location at certain times poses actual public health and safety concerns, cities should address the specific problem and go no further. One example of such a narrow approach is Santa Monica, Calif. There, officials were concerned about the large crowds of people coming out of late-night bars on a stretch of Main Street. The worry was that the size of the trucks might create visibility problems for passing automobiles and lead to accidents involving inebriated bar patrons who venture out into the street. Rather than banning all food trucks in Santa Monica from operating at night, the city took a more focused approach by merely saying that on Friday and Saturday nights, trucks could not sell from 1 a.m. to 3 a.m. on the half-mile stretch of Main Street where the bars are located.⁸⁹ Food trucks were able to continue operating on nearby side streets where the city's traffic safety concerns were less.

BOTTOM LINE:

Cities should follow Los Angeles' example and not place restrictions on when food trucks may operate. If a demonstrable health and safety issue exists at a specific location, cities should take the narrowest approach that resolves the issue.

⁸⁵ See Austin City Code § 25-2-812(C)(4).

⁸⁶ See New York City Department of Health and Mental Hygiene Letter to Mobile Food Vendors 05/06/2011, available at <http://www.nyc.gov/html/doh/downloads/pdf/perm/mtfv-restricted-streets.pdf>.

⁸⁷ Phoenix City Code § 31-24.1(C).

⁸⁸ Sacramento City Code § 5.88.110.

⁸⁹ Jason Islas, *Santa Monica Bans Late-Night Food Trucks on Main Street*, THE LOOROUT NEWS (Nov. 10, 2011), http://www.surfsantamonica.com/ssm_site/the_lookout/news/News-2011/November-2011/11_10_11_Santa_Monica_Bans_Late_Night_Food_Trucks_on_Main_Street.html.

EMPLOYEE SANITATION

SANITATION LAWS IN LOS ANGELES:

Handwashing: One of the simplest ways to prevent disease and contamination is for food handlers to wash their hands. In Los Angeles, food trucks that prepare food on board must be equipped with a handwashing sink for employees' use. This sink must be connected to at least a three-gallon water tank, be capable of dispensing water in excess of 100 degrees Fahrenheit, and must function independently of the truck's engine.⁹⁰

Bathroom Access: Los Angeles requires food-truck operators that stay at a single location for more than an hour to have access to a building with toilet and handwashing facilities that is within 200 feet of where the truck is located.⁹¹ A recent change to the law extends that distance to up to 300 feet for food trucks that pre-arrange and enter into "a fully-executed agreement between the operator and the owner of the restroom facility." Alternatively, trucks may close for 15 minutes every hour to "reset" the one hour clock. During that period, the food truck's windows must be shut, its employees must leave, and the operator must leave a note saying when the truck closed and when it will reopen.

SANITATION LAWS IN OTHER CITIES:

Handwashing: Los Angeles' requirement that all trucks have handwashing sinks is by no means out of the ordinary. Almost all cities that regulate food trucks mandate handwashing sinks, with the specific requirements for those sinks differing based on the jurisdiction. For Mesa, Ariz., the handwashing sink must be at least 9" long, 9" wide, and 5" deep.⁹² And Arlington, Texas, specifies that all food trucks must contain a handwashing station that is equipped with both soap and sanitary towels.⁹³

Bathroom Access: Los Angeles is in the minority when it comes to its bathroom requirement. Most cities do not regulate bathroom access, instead trusting food truck entrepreneurs to manage their own bathroom needs. And those cities that do mandate bathroom access are less intrusive. In Austin, Texas, a food truck must enter into an agreement only if it will be in one location for more than two hours.⁹⁴ And in Boston, trucks need only show that they have access to flushable toilets and handwashing facilities within 500 feet of the truck if they're in one spot for more than an hour.⁹⁵

INSTITUTE FOR JUSTICE RECOMMENDATION:

Handwashing: The Institute for Justice recommends that cities follow the example of the California Retail Food Code, which requires trucks to have handwashing stations if they prepare food, but does not require them on trucks selling only prepackaged foods like frozen desserts.⁹⁶ Typically, the issue of handwashing sinks is governed by state health codes. To the extent that a state health code does not address the issue, the Institute recommends that a city require that "[m]obile food facilities from which nonprepackaged food is sold shall provide handwashing facilities."⁹⁷

Bathroom Access: The Institute for Justice recommends that cities follow the examples of Las Vegas, Charlotte, and Portland, Ore., none of which requires trucks to enter into agreements for bathroom usage. Food trucks, as a matter of common sense, already provide bathroom access for their employees; they need not be ordered to do so by the government. Furthermore, laws requiring written bathroom agreements discourage trucks from exploring new markets and sharing their innovative products with parts of the city that they do not normally frequent.

BOTTOM LINE:

Handwashing: Cities should follow California Retail Food Code Section 114311, which says that "[m]obile food facilities . . . from which nonprepackaged food is sold shall provide handwashing facilities," while exempting food trucks that sell only prepackaged foods like frozen desserts.

Bathroom Access: Cities should emulate Las Vegas, Charlotte, N.C., and Portland, Ore., by not requiring that food trucks enter into bathroom-access agreements with brick-and-mortar businesses.

⁹⁰ Cal. Health and Safety Code § 114325.

⁹¹ Cal. Health and Safety Code § 114315.

⁹² Maricopa County Environmental Services Department, Mobile Food Units 6, <http://www.maricopa.gov/EnvSvc/EnvHealth/pdf/Mobile%20Food%20Units%20English.pdf>.

⁹³ City of Arlington, Texas, Requirements for Mobile Food Service Trucks, http://www.arlingtontx.gov/health/food_ordinances_mobile.html.

⁹⁴ See Austin City Code § 10-3-9(A)(8).

⁹⁵ See Boston City Code § 17-10-5(b)(6).

⁹⁶ Cal. Health and Safety Code § 114311 ("Mobile food facilities not under a valid permit as of January 1, 1997, from which nonprepackaged food is sold shall provide handwashing facilities.").

⁹⁷ See *id.*



COMMISSARY REQUIREMENTS

COMMISSARY REQUIREMENTS IN LOS ANGELES:

Most mobile-food vending operations in Los Angeles are based out of a commissary, which is a facility at which they can park and clean their truck, store their inventory and do the paperwork that is associated with running any business. The California Retail Food Code and Los Angeles County require that most food trucks be stored and serviced at an approved commissary.⁹⁸ The only exceptions to this requirement are for trucks that operate from a fixed position at community events, or trucks that engage only in limited food preparation (in which case they may instead be serviced by a mobile support unit).⁹⁹ With the exceptions noted above, food trucks must be cleaned every operating day and must report to the commissary at the end of each day's operations.¹⁰⁰

Although Los Angeles food trucks may clean their vehicles and do their paperwork at a shared commissary, they may not actually do any food preparation there. The reason is a Los Angeles County Health Department rule that says that only the permit holder for a commercial kitchen may use it to prepare food. Matt Geller, CEO of the Southern California Mobile Food Vendors Association, views that position as counterproductive and "a threat to public health because it does not give mobile vendors the option to operate legally in a rented kitchen. This can lead to mobile vendors prepping from home or unlicensed kitchen facilities." He recommends that Los Angeles County create regulations that allow for use of an approved commissary or shared kitchen space.

COMMISSARY REQUIREMENTS IN OTHER CITIES: Most other cities require that food trucks generally associate with a commissary, but some cities' models give trucks more flexibility than Los Angeles does. Under Portland, Oregon's law, for example, a truck need not associate with a commissary if it sells only prepackaged food, in which case it need only be affiliated with a warehouse.¹⁰¹ Alternatively, trucks in Portland "may not be required to have a base of operation if the unit contains all the equipment and utensils necessary to assure" that the vehicle is clean and can safely store and prepare food.¹⁰² The state of Florida has similarly proposed regulations that would exempt self-sufficient mobile food vehicles from having to associate with a commissary.¹⁰³

Most other cities also let food trucks and other culinary entrepreneurs use shared kitchen spaces to prepare and cook food. One such city is San Francisco, where La Cocina, a nonprofit "kitchen incubator," offers low-income entrepreneurs shared commercial kitchen space and workshops with such titles as "How to Start a Food Business in San Francisco."¹⁰⁴ And in Austin, Texas, another city that lets food truck operators use shared commercial kitchen spaces, a company named Capital Kitchens gives Austin food truckers a choice: They can use the facility as just a commissary where they can clean their truck and store their food, or they can also register the facility as their base of operations, which allows them to prepare and cook food there as well.¹⁰⁵

INSTITUTE FOR JUSTICE RECOMMENDATION: The Institute for Justice recommends that cities follow Portland's example by exempting food trucks from being "required to have a base of operation if the unit contains all the equipment and utensils necessary to assure" that the truck can satisfy health and safety concerns. Some food trucks are self-contained mobile kitchens that protect against vermin and can refrigerate and freeze food 24 hours a day. Likewise, a truck selling only prepackaged items, like cupcakes, poses no real threat to public safety. Because signing up and working through a commissary can often be arduous, requiring trucks like these to associate with a commissary is both costly and unnecessary. For trucks that are not self-sufficient, the Institute recommends that cities follow the example of Los

⁹⁸ Cal. Health and Safety Code § 114295.

⁹⁹ See Cal. Health and Safety Code § 114295(b),(e).

¹⁰⁰ Cal. Health and Safety Code §§ 114295(c), 114297(a).

¹⁰¹ Or. Admin. R. 333-162-0040.

¹⁰² *Id.*; see also Oregon Health Authority Mobile Food Unit Operation Guide, <http://public.health.oregon.gov/Healthy-Environments/FoodSafety/Documents/muguide.pdf>.

¹⁰³ Florida Administrative Code § 61c-4.0161.

¹⁰⁴ La Cocina, <http://www.lacocinasf.org/>.

¹⁰⁵ Capital Kitchens, Mobile food vendor, <http://capital-kitchens.com/mobile-food-vendor.html>.

Angeles County, where trucks can operate out of their own commissary or a shared commissary.

Cities should also let food trucks band together and open their own shared kitchen spaces. Los Angeles County's prohibition against shared kitchens is counterproductive and puts a high roadblock in the way of fledgling entrepreneurs. Instead, the Institute recommends that cities follow the examples of San Francisco and Austin, Texas, which both let food trucks prepare and cook food in shared commercial kitchen spaces.

BOTTOM LINE:

Cities should follow Portland, Oregon's example by saying food trucks should not be "required to have a base of operation if the unit contains all the equipment and utensils necessary to assure" to satisfy health and safety concerns.

For trucks that are not self-sufficient, cities should follow the example of Los Angeles County, where trucks can operate out of their own commissary or a shared commissary. Lastly, cities should let food trucks join together and open their own shared kitchen spaces, as both San Francisco and Austin, Texas, do.

permit and get out on the road. Although the Southern California Mobile Food Vendors Association¹¹² has helped fill some of the void, Los Angeles should clarify what these fledgling entrepreneurs need to get started.

Cost: The annual fee for a Los Angeles County health permit for a food truck ranges from \$602 to \$787, depending on what types of items the truck sells.¹¹³ The city of Los Angeles does not charge for a business license.¹¹⁴

Who the Permit Covers: Los Angeles County requires only that the operator of a truck have a permit. The employees who help out on the truck need not apply and receive their own vending permit.

Limits on the Number of Permits Issued: Neither the city of Los Angeles nor Los Angeles County limit or in any other way restrict the number of food trucks that may apply for and receive a license or permit.

PERMITTING AND LICENSING

HOW LOS ANGELES PERMITS AND LICENSES FOOD TRUCKS:

The Application Process: Before a truck gets on the road, it needs to get both a health permit from the county of Los Angeles and a separate business license from the city of Los Angeles. The health permit requires operators to provide detailed plans for the layout of the vehicle.¹⁰⁶ It also requires operators to fill out written operational guidelines that lay out the truck's proposed menu, how it will be prepared, and how the truck will wash its equipment and utensils.¹⁰⁷ Lastly, at least one person on board the truck must be certified in food safety.¹⁰⁸

Although Los Angeles' application process is relatively less complex than the process in other jurisdictions, it is still often hard for would-be food-truck operators to navigate it. This is because, although food trucks in Los Angeles are regulated at the city,¹⁰⁹ county,¹¹⁰ and state¹¹¹ levels, none of those jurisdictions clearly explains how to get a vending

HOW OTHER CITIES LICENSE AND PERMIT

FOOD TRUCKS:

Application Process: Many cities' actual permitting procedures are more complex than Los Angeles'. In Milwaukee, for instance, opening a food truck means getting a peddler's license that requires the health department to inspect the vehicle. But a would-be operator must also apply for a separate food-dealer license and occupancy permit for the business.¹¹⁵ And that, in turn, requires the operator to apply for and receive a Wisconsin state seller's permit.¹¹⁶ Altogether, an applicant in Milwaukee must get permission from at least three separate government agencies, each requiring multiple steps, before getting on the road.

¹⁰⁶ County of Los Angeles Department of Public Health, Plan Check Guidelines for Mobile Food Facilities and Mobile Support Unit, http://www.publichealth.lacounty.gov/eh/docs/vip/PLAN_CHECK_GUIDELINES_1.pdf

¹⁰⁷ County of Los Angeles Department of Public Health, Written Operational Procedures, http://www.publichealth.lacounty.gov/eh/docs/vip/CalCode_Writn_Opt_Proc_2.pdf

¹⁰⁸ County of Los Angeles Department of Public Health, Mobile Food Facility Information Packet Operational Guidelines, http://www.publichealth.lacounty.gov/eh/docs/vip/Rules_and_Regulations_4.pdf

¹⁰⁹ See generally L.A. City Code § 80.73(b)

¹¹⁰ See generally L.A. County Code Chapter 8.04.

¹¹¹ Cal. Health and Safety Code § 114294 *et seq.*

¹¹² <http://socalmfva.com/>

¹¹³ L.A. County Code § 8.04.720

¹¹⁴ Southern California Mobile Food Vendors Association, FAQ, <http://socalmfva.com/faq/>

¹¹⁵ City of Milwaukee, Food Peddler License Information, <http://city.milwaukee.gov/ImageLibrary/Groups/ccLicenses/FoodPeddlerApplication.pdf>

¹¹⁶ *Id.*



Boston's law is similarly complicated. The city has a single application form for mobile vendors; once an applicant submits the form, the Public Works commissioner submits it to various city departments for their review and approval.¹¹⁷ But before an applicant submits their application, he or she must first obtain a health permit from the city Inspectional Services Department, a business certificate, a state-issued peddler's license and a GPS contract.¹¹⁸ Altogether, a would-be vendor in Boston must go to three different city departments, the commonwealth of Massachusetts and a private GPS company before receiving her license. Actually being able to sell from the truck on either public or private property requires entrepreneurs to take several additional steps.¹¹⁹

Although Milwaukee's and Boston's permitting procedures are much more complicated than Los Angeles', both cities provide helpful guidance to applicants. In modernizing its food-truck rules, Milwaukee created a web document that helps would-be food-truck entrepreneurs understand what they need to do to get licensed.¹²⁰ Boston provides similar information on its website.¹²¹

Cost: The licensing fees that food trucks pay vary greatly by jurisdiction. In Kansas City, Mo., food trucks have to pay \$292 annually for a permit. In Boston, the permit fee varies based on a complex valuation of the public way used by the truck.¹²² And in Cleveland, the annual fee for a food truck is \$263.44.¹²³

Who the Permit Covers: Lastly, most cities require only that a food truck apply for and receive a single vending permit, with the truck's employees working under that permit. But Washington, D.C., issues

vending permits to individuals, not businesses, and requires that someone with a valid permit be on board the truck whenever it is in operation.¹²⁴ If the food truck's owner cannot be on board himself, then an employee on the truck must have his own separate vending permit. This requirement imposes a significant burden on food-truck owners, who face a huge burden if they want someone else to occasionally run the truck. And Washington, D.C.'s rule limits the opportunities for job creation that mobile food vending can offer.

Limits on the Number of Permits Issued: Most cities in the United States do not impose a limit on how many food trucks may apply for and receive a permit. One exception is New Orleans, which states that "the number of [food-truck] permits issued . . . shall at no time exceed 100 for the entire city."¹²⁵ New York City limits the number of permits available to food vendors, including food trucks, to 3,100.¹²⁶ Although it sounds like a large number, this number of permits is insufficient and has led to the growth of an illegal black market in vending permits. The price on the black market to use someone's food vending permit for two years has reached as high as \$20,000 according to a Wall Street Journal investigative article.¹²⁷

INSTITUTE FOR JUSTICE RECOMMENDATION:

Application Process: The Institute recommends following Los Angeles County's approach to permitting, which is less complex than the process in other jurisdictions. Most truck operators in other parts of the country report having to deal with two or more different agencies to get their permits, and having it take weeks, if not months, to complete the process. This complexity compounds the confusion that often surrounds the permitting process. As a food-truck operator in Philadelphia, which is known to have a complicated permitting process, said, "The government operates in silos, no agency is coordinated, no one person can give a succinct overview of the entire process, it seems like no one truly understands it comprehensively." Requiring multiple permits from many different government agencies makes it both more complicated and more expensive to get a truck on the road.

In terms of clarity, however, the Institute applauds Milwaukee and Boston for clearly explaining how to apply for a permit, and the Institute recommends that other cities publish similar step-by-step instruction guides. Operators across the

¹¹⁷ Boston City Code § 17-10.5.

¹¹⁸ City of Boston, Food Truck Permit Application 2012, http://www.cityofboston.gov/Images_Documents/2012%20Food%20Truck%20Permit%20Application-4-12_tcm3-25641.pdf

¹¹⁹ City of Boston, Mobile Food Truck: Choosing a Location For Your Food Truck, <http://www.cityofboston.gov/business/mobile/locations.asp>

¹²⁰ See Pushcarts, Popcorn Trucks and Restaurants on Wheels: A Guide for Operators of Mobile Food Establishments from the City of Milwaukee Health Department, http://city.milwaukee.gov/ImageLibrary/Groups/health-Authors/CEH/PDFs/pushcarts_booklet_for_web_2010.pdf

¹²¹ See City of Boston, Mobile Food Truck: Permit Overview, <http://www.cityofboston.gov/business/mobile/application.asp>

¹²² Boston City Code § 17-10.9(b).

¹²³ Cleveland City Code § 241.05(d).

¹²⁴ D.C. Department of Consumer and Regulatory Affairs, Mobile Food Truck Licensing Information, <http://d.c.gov/DC/DCRA/for+business/apply+for+a+business+license/how+to+start+a+mobile+food+truck+business>. (stating that food-truck licenses "are issued to individuals not businesses and the truck must be operated by the individual who is issued the license")

¹²⁵ New Orleans City Code § 110-191(f).

¹²⁶ New York City Code § 17-307(b)(2)(a) to (b)(3)(a).

¹²⁷ Sumathi Reddy, *Prices for Food-Cart Permits Skyrocket*, WALL STREET JOURNAL, March 9, 2011, <http://online.wsj.com/article/SB10001424052748704758904576188523780657688.html>.

country repeatedly complain that the most frustrating aspect of the permitting process is not the specific requirements involved, but the lack of clear, consistent instructions on how to complete them. According to food-truck entrepreneurs with whom the Institute spoke, officials often don't seem to know all the rules, are unhelpful or give conflicting information.

Cost: The Institute, after reviewing the cost of applying for vending permits across the country, recommends that cities should impose a flat annual fee in the range of \$200-300, as both Cleveland and Kansas City have done. Businesses should not be viewed as a cash cow, and the Institute for Justice recommends that fees be no higher than necessary to cover the cost of inspecting and regulating the food trucks. Furthermore, those fees should be relatively stable and known to would-be truck operators before they enter the business. For this reason, the Institute for Justice recommends that cities not adopt Boston's convoluted fee structure.

Who the License Covers: The Institute for Justice recommends that cities follow the example of Los Angeles County by letting operators decide whether to have a license or permit issued to them personally or to their vending business. Cleveland, for instance, issues food-truck licenses to "vendors," which can be either an individual or the associated business.¹²⁸ Brick-and-mortar restaurants need not get a separate license for each shift manager; similarly, taking this simple step will let trucks avoid the time and expense of acquiring a vending permit for each manager who oversees truck operations.

Limits on the Number of Permits Issued: The Institute for Justice recommends that cities follow the example of Los Angeles and not limit the number of food-truck permits. Placing an arbitrary limit on how many licenses may be issued does not address any actual health and safety issues. Instead, it acts as a barrier to new food trucks while enriching those few who are lucky enough to have snared a permit. Furthermore, a limit hurts consumers by limiting their choices. Lastly, a cap is unnecessary, as consumer demand will guide how many food trucks will voluntarily choose to operate in a given city.

BOTTOM LINE:

***Application Process:** Cities should follow the licensing approach of Los Angeles County, which is not plagued by unnecessary complexity. In terms of guidance, cities should emulate Boston and Milwaukee, which both have published step-by-step instructions to guide entrepreneurs through the licensing process.*

***Cost:** Cities should follow the approach of both Cleveland, and Kansas City, Mo., by imposing a flat annual fee in the range of \$200-300.*

***Who the License Covers:** Cities should follow the approach of Los Angeles by issuing vending licenses to an individual's vending businesses rather than the individual himself or herself.*

***Limits on the Number of Permits Issued:** Cities should follow the approach of Los Angeles and not cap the number of food-truck permits, which hurts consumers and leads to an illicit black market for permits, as it has in New York City.*

Innovation: Reciprocal Licensing Arrangements

One major hurdle for food-truck entrepreneurs is having to get a separate license for each town in which they want to operate their trucks. This requirement makes little sense, particularly given that inspectors in many states verify food trucks' safety using a common set of criteria that are developed at the state level. Cities should consider entering into reciprocal licensing arrangements with nearby communities. A compact or joint agreement between different cities would mean that a truck would need to get licensed only once; it then could operate in any city that was a party to that joint agreement. This approach would cut a vast amount of red tape and make the trucks more commercially viable while still ensuring that the trucks met each city's legitimate health and safety concerns.

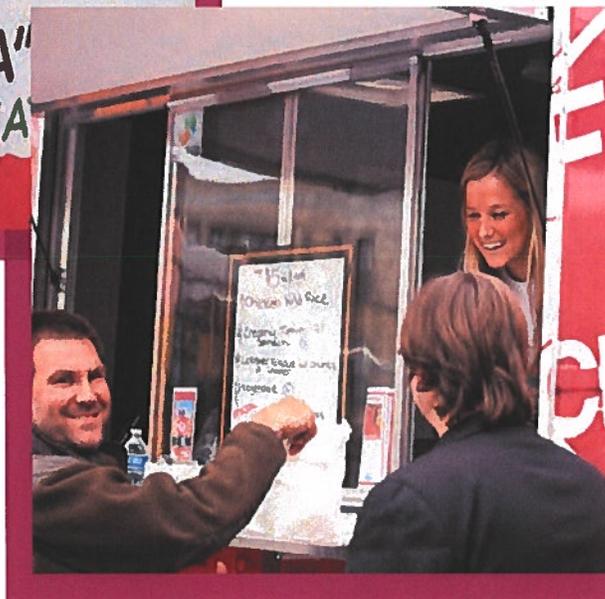
¹²⁸ Cleveland City Code § 241.03(3)

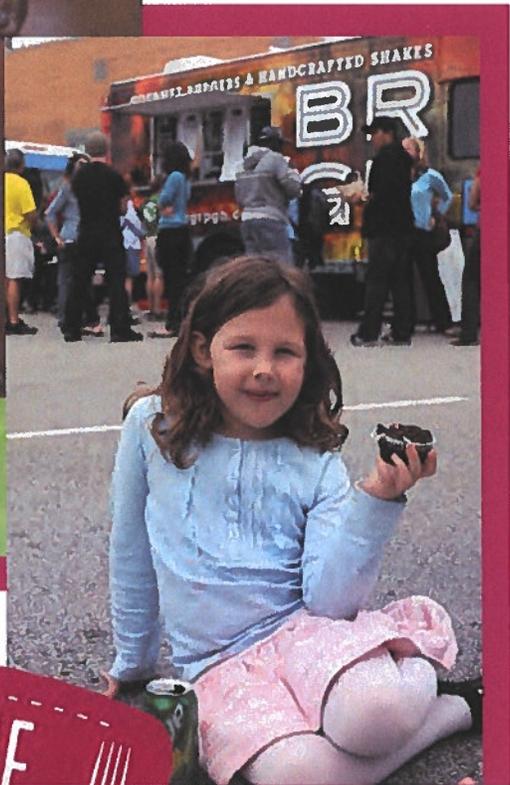
CONCLUSION

A vibrant food-truck industry benefits everyone. It provides consumers with a wide variety of innovative, inexpensive cuisine that they might otherwise not get to enjoy. It gives would-be entrepreneurs who are long on ideas but short on financial capital a way to pursue their dream. And it can activate underused spaces, bring new life to communities and make them safer, more enjoyable places to live.

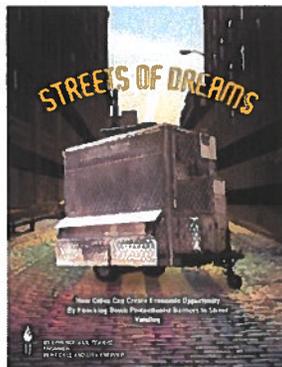
Public-minded officials who want to make their cities better would do well to encourage food-truck entrepreneurship. Thankfully, this commitment doesn't require paying for an expensive new program or hiring dozens of vending "experts." Instead, cities can look to other cities that have experience regulating food trucks, such as Los Angeles, and then adopt their best legislative practices by implementing the recommendations in this report. By avoiding protectionist restrictions and enacting clear, narrowly tailored and outcome-based laws to address legitimate health and safety issues, cities will enable their residents to enjoy all of the economic and cultural benefits of America's growing food truck revolution.

An online compendium containing the full language of the laws cited in this report can be found at <http://www.ij.org/vending>.





OTHER PUBLICATIONS OF THE INSTITUTE FOR JUSTICE'S NATIONAL STREET VENDING INITIATIVE



Street of Dreams: How Cities Can Create Economic Opportunity by Knocking Down Protectionist Barriers to Street Vending (July 2011)
<http://www.ij.org/streets-of-dreams-2>

Seven Myths and Realities about Food Trucks: Why the Facts Support Food-Truck Freedom
(November 2012)
<http://www.ij.org/vending>

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Chicago Food Trucks
www.ij.org/ChicagoFoodTruckVideo



Atlanta Vending
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El Paso Vending
www.ij.org/freedomflix/category/43/177

ROBERT FROMMER

Robert Frommer is an attorney with the Institute for Justice, where he litigates in defense of political speech, economic liberty and private property.

Frommer is lead counsel on the Institute for Justice's lawsuit against the city of Chicago's anti-competitive food-truck law. He is also lead counsel on a lawsuit challenging Atlanta's vending monopoly and is a co-author of *Streets of Dreams*. Frommer's views have been published in a number of print and on-line newspapers and journals, including *The Wall Street Journal*, *The Washington Post* and the *Pittsburgh Post-Gazette*.

Before joining IJ, Frommer was an attorney with the Washington, D.C., office of Gibson, Dunn & Crutcher LLP. He is a former law clerk to Judge Morris Sheppard Arnold of the U.S. Court of Appeals for the Eighth Circuit. Frommer received his law degree magna cum laude from the University of Michigan Law School in 2004.



BERT GALL

Bert Gall is a senior attorney at the Institute for Justice, where he litigates economic liberty, free speech, school choice and property rights cases nationwide.

Gall directs IJ's National Street Vending Initiative, a nationwide effort to vindicate the right of street vendors to earn an honest living by fighting unconstitutional vending restrictions in courts of law and the court of public opinion. In addition to serving as co-counsel in IJ's current challenge to Chicago's protectionist food-truck law, he also served as co-counsel in IJ's successful challenge to El Paso's protectionist restrictions on mobile vendors, which resulted in El Paso repealing those restrictions.

Gall received his law degree from Duke University in 1999 and his undergraduate degree from Rice University. Before coming to the Institute, he worked at Helms Mulliss & Wicker in Charlotte, N.C., and clerked for Judge Karen Williams of the U.S. Court of Appeals for the Fourth Circuit.

In 2009, Gall was recognized by *The National Law Journal* as one of its "Rising Stars: Washington's 40 under 40," which honored the top 40 lawyers under the age of 40 in the Washington, D.C., area.



ACKNOWLEDGEMENTS

The authors would like to thank the many food-truck associations whose members and officers provided valuable information and feedback, including Matt Geller, CEO of the Southern California Mobile Food Vendor's Association (SoCalMFVA); Jeffrey Dermer and Kevin Behrendt, counsel for SoCalMFVA and partners in law firm Dermer & Behrendt; Executive Director Che Ruddell-Tabisola and Doug Povich of the Food Truck Association of Metropolitan Washington; Rachel Billow, President of the New Orleans Food Truck Coalition; and Rebecca Kelly, President of the Tallahassee Food Truck Association. The authors would also like to thank Jon Markman, Akil Alleyne, Jordan Fischetti, Brad King, Eddie Lowe, Katie McLay, Nick Sibilla, Bryson Smith and Andrew Ward for their help in compiling and analyzing the data underlying this report.

Designed by Robyn Patterson.

THE INSTITUTE FOR JUSTICE

The Institute for Justice is a nonprofit, public interest law firm that litigates to secure economic liberty, school choice, private property rights, freedom of speech and other vital individual liberties and to restore constitutional limits on the power of government. Founded in 1991, IJ is the nation's only libertarian public interest law firm, pursuing cutting-edge litigation in the courts of law and in the court of public opinion on behalf of individuals whose most basic rights are denied by the government. Through its National Street Vending Initiative, the Institute for Justice works to defeat anti-competitive restrictions that violate the constitutional rights of street vendors to earn an honest living.



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A tow truck driver was sent to a job on Newport's Nye Beach back in September 1945, and his day went drastically downhill from there, as can be seen in this photo taken by Roger Hart. (Photo courtesy of the Lincoln County Historical Society, LCHS #1635, oregoncoasthistory.org and www.facebook.com/newportlincolncountyhistoricalsociety)

7/21/21

VIEWPOINT

Where's the new power?

Last month I wrote why, logistically, electric cars aren't for everyone, and especially for those traveling long distances. Please stop telling me I am destroying the planet if I don't have one. Here's some reasons why they're not for me.

First, if I need gas, I pull in, fill up in 10 minutes, and am on my way. No waiting in line and finally getting to the recharge station for another, 40 minutes to charge.

Secondly, electricity for electric cars will not be a stable commodity. Remember the California rolling blackouts during the fires? People with electric cars couldn't evacuate because their cars wouldn't charge. Even today, California is having a hard time keeping the power on. Last month we saw most of the Portland area with no electricity because of overuse of air conditioners.

Third, the price is between \$55,000 and \$125,000 for a new Tesla — very high monthly payments.

Fourth, would I be able to trade my used electric car in? Would anyone buy a used one knowing a battery could go bad, costing a fortune to replace? If people aren't buying used ones, then dealers won't be taking them in. It costs nearly \$16,000 to replace a Tesla Model 3 battery pack.

And fifth, if electrical cars don't use gasoline, they will not pay the gas tax, which pays for roads and bridges. What then? They'll start tracking your travel to tax you. No thanks, it's none of the government's business where I go or how much I travel.

Put your thinking caps back on. Again, Bill Gates, liberal who knows technology: "Current renewables are dead-end technologies. They are unreliable. Battery storage is inadequate. Wind and solar depend on the weather. The cost of de-carbonization using today's technology is beyond astronomical." John

Kerry recently said even if we go to zero CO2 emissions, it wouldn't do a thing if the rest of the world doesn't follow.

Electrical grids in our country will not handle the masses having electrical cars. If we really intend to adopt electric vehicles for all, we have to face certain realities. The average house is equipped with 100 to 200-amp service, and they would need an additional 75-amp service for a Tesla. Smaller systems are available, but they require up to nine hours to recharge a car. On a small street (approximately 25 homes), the electrical infrastructure would be unable to carry more than three houses with a Tesla. If even half the homes have smaller electric vehicles, the system would be wildly overloaded. In addition to the grid and infrastructure overload, where is the new power?

As I stated in my last letter, where are all the charging stations located on the highways, as it will take thousands and thousands of them? All highway systems will need to be very high amp systems so charging times will not be in hours. Lithium-ion batteries perform better in warm weather, so in colder winter months it will require more charging. Where is that grid, and where is the power?

So, before we continue to spend tax dollars on tax credits for rich people to buy electric cars, maybe we should start building nuclear power plants across the country so we can power all the charging stations. Even if we built nuclear power plants, and it would take many to provide enough electricity, we still have the problems of building a completely new power grid for both home charging stations and acres and acres of highway, very high-amp charging stations, plus a huge disposal issue for dead batteries.

Again, logistically it won't work.

Bob Folkers is a resident of Siletz.

VIEWS ON THE NEWS — READER FEEDBACK

Each week, readers are asked — via the News-Times Facebook page — to offer their input on an issue currently in the news. To join that conversation, log on at www.facebook.com/newportnewstimes.

The topic: Newport is considering amending its city code to allow greater operation of food trucks, which currently are all but forbidden in the city. Some people would like to see more food trucks, while others believe they would represent unfair competition with existing brick-and-mortar businesses.

Questions: Do you ever patronize food trucks, and would you like to see more of them in Newport, or whatever city you live in? Do you think allowing more food trucks to operate is unfair to brick-and-mortar businesses that have made big investments in their permanent buildings and infrastructure? If so, how would you balance the scales?

There is a time/place for both of them. If you only get a 30-minute break, the truck is the only way to go. Besides, the market will decide who survives.

Need more, not enough restaurants. Too many visitors. Food trucks offer additional options.

I think there should be rules, like can't be within so much distance of any restaurants and don't be anywhere you might interrupt traffic or slow it down. Otherwise it's great for people that are on a lunch break.

Personally I love the idea of food trucks. I think with our current tourist level, we can support both.

Choices can only be positive for businesses and for consumers. As with everything lately, this subject will have to be kicked around, probably for a long time, before decisions can be made. Meanwhile, a food truck court, called The Pines, is under construction in the Taft sector of Lincoln City.

Food trucks are a great idea. They are working well for Waldport and Ya-chats and serve a different clientele. I would certainly rather see family-owned food trucks than chain fast food restaurants, both of

which cater to folks on the go.

I'm for food trucks, competition is a positive. Only issue I see is traffic congestion, parking. Maybe create food courts.

I love food trucks for a quick, eclectic meal, in a wide array of great food options. The theory that food trucks create unfair competition to brick-and-mortar restaurants is ludicrous. Every eatery has the option to choose how they serve their customers. We need diversity, and food trucks offer an option between a sit-down restaurant and a fast-food chain. Cities need to do more to create food courts for food trucks, where they have a permanent place to operate, instead of being forced to dance around towns, looking for a spot to sell from. Good for the community and good for the economy.

First I think they should have to meet all food safety and preparations guidelines set by the state. I truly don't see them as being in competition with the brick-and-mortar restaurants in Newport because it is a different experience and service.

Newport needs all the help it can get. So many restaurants have closed and have not been replaced. I am tired of the same three fast food choices in this town and would welcome the chance to try new foods.

Yes, I much prefer food trucks, especially when more than one can gather together. So nice that a couple or family can all get the food of their choice and still eat together at community tables. They have "food truck sites" in Salem and it's really cool. Also great to everyone get their meal and go sit on a beach.

I personally think that first chance to operate a food truck should be offered to, and owned and operated by restaurants that have a brick and mortar in town.

Yes on food trucks. Especially when the weather is nice and the pandemic lingers, what could be better than ordering a nice meal and eating it outside with friends? The food truck pod in

north Albany, "The Barn at Hickory Station," is a brilliant example of food truck success.

Lincoln City needs them, not enough restaurants to cover the tourist season. Locals can't even get in for dinner on the weekends. Food trucks are a different experience from a sit-down, elegant restaurant.

I don't see how having food trucks could be a problem. More job opportunities, they're delicious and provide more food options at one spot.

I would love for us to have food trucks. I think a way around the issues is for them to be as a food truck pod, which is successful in many Oregon cities.

The brick-and-mortar establishments are having trouble for lots of other reasons, nothing related to food carts. Why not do it for the community and visitors? People haven't even been able to get into lots of them lately anyhow. I saw people who couldn't even get a hot cup of coffee in Nye Beach it was so packed up in the morning, never mind trying to get you and your visiting family or friends fed.

I believe we need to open Newport up to food trucks. It helps new businesses to get started and brings in more variety. Newport has been frozen for too long.

Yes, we need a few food trucks in our area. Today, trying to get my take-out lunch in Nye Beach was a nightmare. I couldn't find a dang spot anywhere nearby, so I parked several blocks away. I normally wouldn't mind the walk, but on lunch breaks, we don't have the extra time to deal with the tourist traffic at our favorite places. The few drive-thrus are always packed, too. There's room for food trucks — we all eat.

We are getting them here in Lincoln City. I'm excited because think of all the times you can't get into a restaurant during tourist season.

It will not affect brick-and-mortar businesses. We need food trucks.

More food trucks please. We should be encouraging the talents of all our amazing chefs.

This would really add some choices and convenience to finding a meal. Just cannot have plastic utensils, containers, straws or paper products that will add to the litter problems that plague our beaches.

Food trucks would be a welcome addition for this local, especially in the summertime when tourists take over everything. The fact that we don't allow them already is insane.

No way. Our poor businesses are dying already. They can do something at the fairs. Our city is totally anti business unless they line their pockets. We do not need food trucks other than at events here.

Yes, please. We need variety, family friendly selections. If you think about it, most people would stay and enjoy the beaches if there were a food truck in walking distance of our parks. It would actually help draw people to stop in our town. Foodie people flock to a good food truck.

Unfair competition? I think the food trucks are the underdog here. Not to mention the brick-and-mortar joints aren't the only ones investing money to operate. Running a food truck isn't free, it's a lot of blood, sweat, and mostly tears at present. Any business that helps a family survive right now is good business. What we don't need is more taxes.

During the summer it would be great. Restaurants are not able to keep with many visitors, and the wait is 45 minutes to an hour or more to eat. So yes, in the food trucks. If you're worried about your restaurant losing business to the food trucks, maybe it's the food and atmosphere that you should revisit.

Editor's note: due to space constraints, we don't guarantee all "Views on the News" comments received via our Facebook page will be printed in this space, and some comments may be edited for length.



Sherri Marineau

From: Janet Webster
Sent: Sunday, July 25, 2021 11:11 AM
To: Public comment
Cc: Derrick Tokos
Subject: July 25 Planning Commission Work Session & Continued Public Hearing

[WARNING] This message comes from an external organization. Be careful of embedded links.

July 25, 2021

Dear Planning Commission and Mr. Tokos,

I have reviewed the proposed ordinance amendments along with Mr. Tokos's comments. I have two issues for consideration. All pertain to Section 14.

1. I oppose Policy Option B that prohibits food trucks within 500 feet of an elementary or secondary school. Before making a decision on this prohibition, I suggest that the Planning Commission get clarity on the eligibility requirements for the free and reduced lunch program. I think eligibility depends on the number of students signed up to receive free and reduced meals, not on the number of meals served. Several members of the public have offered examples of the utility of access to food trucks in supplying students with nutritious food that they enjoy.
2. A suggested amendment excludes food trucks from private property if within the Bayfront and Nye Beach Parking Districts. I suggest that Policy Option D1 is workable. This would allow a business to place a food cart on its property as Local Ocean Seafoods is currently doing. Given the past year, restaurants that have the space have expanded outdoor dining. Placement of a food truck or cart could improve the service. I imagine that this would probably be a seasonal effort.

Sincerely,
Janet Webster
Newport, OR 97365

Macpherson, Gintner & Diaz

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July 24th, 2021

Mr. Derrick Tokos, Director
City of Newport
Community Development Department
169 SW Coast Highway
Newport, OR 97365

Re: **Draft Code Amendments Relating to Food Carts**

Dear Mr. Tokos:

This office represents Lincoln County School District (“School District”). As discussed in the last meeting, the School District is opposed to the proposed changes to the Newport Municipal Code (“NMC”). Specifically, the School District opposes any changes which would allow food trucks, carts, or pods within 500 feet of secondary schools, regardless of if they are on public or private property, during and immediately before and after school hours. This letter serves two purposes: to inform you of our concerns and to save grounds for appeal if the Planning Commission chooses to proceed with the current prospective language. The last letter submitted by the LCSD is hereby incorporated by reference.

I. INTRODUCTION

At the Planning Commission meeting on July 12th, 2021, some Commissioners asked for additional information before deciding how to proceed on this proposed change. Those Commissioners requested, specifically, more information on the participation-based lunch program, proof that school lunches are healthier than the food served by food carts, the current struggles the high school is having with truancy, and the long-term effects this ordinance would have on our city. It is the School District’s hope that, with this information in hand, the Planning Commission can do what is right for the entire community and not allow food trucks to operate directly across from the high school.

Before discussing the specifics, it is useful to understand the scope of this issue. Based on the letters received by and the testimony presented to the Planning Commission, there is currently only one property owner in Newport who is encouraging the elimination of the 500-foot requirement, Janet Webster. At that meeting, we heard from two people who want to start up food carts, and neither of them stated an interest to operate near the schools. There have been no other parties interested in reducing the 500-foot requirement that we are aware of.

Mrs. Webster's interest in using her property, located directly across from the high school, to make money is understandable. To be clear, the School District is in no way attempting to insult or demonize Mrs. Webster. We understand her desire to profit off her currently unused land. We also understand that, as we did not submit our letter to the Planning Commission until after she had submitted hers, she may be unaware of why this decision would harm the community. The School District simply believes that the dangers to the children, as well as the disadvantages to the entire community outweigh her monetary interests in operating food carts beyond the time she is currently allowed. The community interests Mrs. Webster presents are discussed in a later section of this letter and are unconvincing. After reading this letter and understanding the dangers presented to students, the Planning Commission will see that limited economic benefits cannot outweigh the health and welfare of our children and community at large.

This letter will argue a few points. First, it will define the scope of the issue by pointing out that food carts can, under the new scheme, already sell breakfast and dinner every day of the year within 500 feet of schools, reiterating that removing the word "secondary" from the NMC would only allow them to open for lunch. It will then discuss the state of the proposed law and how monitoring what food trucks sell near the high school would be impossible. Second, it will provide more information on the current USDA free school lunch program. Third, it will demonstrate that food served by food trucks is dramatically less healthy than the USDA standards Newport High School adheres to. Finally, this letter will discuss the specific dangers that allowing for a food pod directly across the street from the high school will cause or add to, including mental health issues, truancy, and safety concerns.

II. UNDERSTANDING THE ISSUES

1. Food Carts Can Already Operate Near Schools Every Day of the Year

Let's address the proponent of the change first. If the ordinance is changed in every respect except allowing food carts next to schools, what does that mean for Mrs. Webster or the other property owners within 500 feet of the high school? It means that they can still operate a food pod on their property every day of the year.

The 500-foot requirement is only for certain times on school days. Essentially, it prevents food carts from being open during lunch. The 500-foot requirement has aged gracefully as the risks associated with having food carts next to schools have only increased over time. Food carts can still operate within 500 feet of schools on weekends, half an hour after school, more than half an hour before school, on most holidays, and for the entire summer vacation. When we look at the District Wide School Calendar, we see that there are 186 non-school days per year where carts will have free reign. (Ex. 1.) Of the 178 school days, food carts are only unable to operate around school hours. The School District is not attempting to deprive landowners of their ability to profit off their land. Rather, we are asking the question, "Is allowing food carts to open for lunch directly across from the high school, for the benefit of so few, worth the potential harm?"

Keep in mind that the expanding of the food cart ordinance will generally allow for unprecedented food cart growth throughout the entire city. There are no operators or staff who will be harmed by the 500-foot restriction – they will have the whole city to choose where to set up shop and can migrate to the high school for dinner. This is not an all or nothing situation. The other NMC changes drastically reduce the importance of being able to operate directly next to the secondary school. A food cart owner may argue that operating somewhere like the Nye Beach turnaround would be important because of the tourist traffic there, but that argument does

not apply to the high school. In fact, it seems the only reason for operating next to the high school is to target a captive audience of students and staff. Mrs. Webster acknowledges this as her intention in her July 11th letter. However, because there are far more students than teachers, 608 students compared to 70 staff members, any food carts operating next to the high school would be primarily targeting high school children. Knowing this, these food carts will likely stock what sells best to children and what they cannot get in school, unhealthy food and drinks. This economic probability has serious consequences, which are addressed in detail in later sections.

Finally, let's discuss the benefits of not changing the ordinance. Students would benefit because they are able to continue to receive free, healthy meals all year round. The current meal site program allows for the School District to serve meals all year round to those children who need them most. Even in the summer months, students receive free meals, as documented in the schedule included as Exhibit 3. That could cease being the case if the lunch program is ended. For the meals served on school days, students benefit by being able to focus better, by attending classes more frequently, and by being safe from the dangers associated with this change (obesity, traffic, strangers, etc.) The teachers and staff will benefit because they will not have funding cut due to the end of the USDA program. More importantly, being healthier leads to children having happier, more fulfilling lives. It is difficult to imagine what the phrase "general welfare" could mean if it does not include promoting happy, healthy lives for members of our community.

2. The State of the Law and Practical Concerns

First and foremost, the Commission should understand the mission of the School District and all the good it entails. The School District's mission is to provide safe, healthy, enriching environments where our children can learn and grow. However, it takes a village (or in this case, a town) to raise a child. The School District shares the view of the American Dietetic Association, which is now called the Academy of Nutrition and Dietetics, in arguing "schools and the community have a shared responsibility to provide all students with access to high-quality foods and school-based nutrition services as an integral part of the total education program." (Ex. 6.) Frankly, the School District needs the help of the entire community. That includes neighbors, the Planning Commission, and the City Council. We are thankful for the Planning Commission providing us with the opportunity to further comment on this proposed change and hope that all community members understand they are needed to create a city that cares about its future.

We should also strive to understand the state of the law. For this, we must assume that the rest of the ordinance will pass as it is now. If the ordinance does not pass, there can be no food trucks so there will be none within 500 feet of a school, and this letter would be moot.

Additionally, the map demonstrating the area impacted by the 500-foot requirement is somewhat misleading. Attached is Exhibit 2, which shows the map provided by the Planning Commission at the July 12th meeting and a map of the entire city of Newport, both with the impacted area shaded in. After examining the maps, it is easy to realize that this change impacts just a minor fraction of our town.

When addressing the law, we must also address the enforcement mechanisms available. One might argue that we should simply monitor and restrict what food carts next to schools sell, but this is not possible. At the last meeting, one of the largest anti-cart arguments was that there is no way to enforce regulations relating to garbage or other violations. This argument captures the essence of a larger issue – the police budget in Newport is limited and must be prioritized

beginning with the most important matters. This means that, if the Commission or Council were to try and implement standards for what foods could be served near the high school, they would likely be unenforceable in practice. Further, the American Heart Association argues that “At a minimum, healthy mobile vending around schools should meet nutrition standards that are in line with the Institute of Medicine’s standards for competitive foods.” (Ex. 4.). This is all well and good in the major cities the American Heart Association analyzed, like Los Angeles and Seattle, but it provides an impossible barrier for a town like ours which lacks the resources to rely on enforcement mechanisms.

To the School District, it is clear that, as the American Heart Association states, “Mobile vendors who sell food in close proximity to schools or on the actual campus have the potential to greatly affect the nutritional intake of elementary and secondary school children.” (Ex. 4.) The American Heart Association, in their document “Mobile Vending Near Schools Policy Statement” state the same problems which our high school would struggle with. Problems like safety, school lunch programs, equity issues, and issues with school resources are all specifically addressed. (Ex. 4.) The problems our schools would be facing are not new or novel. Major cities and small towns alike face the same problems; the only difference is that major cities either use their resources to enforce nutrition standards or tend to push food carts further from schools during school hours. Because the first option is impossible, Newport should choose the second.

III. USDA LUNCH PROGRAM

Currently, all schools in Newport offer free breakfasts and lunches to all students. This program is made possible by the participation of the students in the entire school district, not just one specific school. This program, and the ability of the School District to provide free, nutritious meals to students could be harmed by the proposed changes to the NMC.

A. USDA Nutrition Standards

Newport High School is required, by the US Department of Agriculture, to meet certain nutritional standards. These standards are broken down in Exhibit 9. Exhibit 9 describes the meals in terms of their ingredients, calories, micronutrients, and macronutrients. These are difficult to directly weigh against a prospective food pod for numerous reasons. However, the USDA has certified that the school meals referenced in this document are healthier than the food served by food carts. “A USDA report to Congress concluded that competitive foods (such as food trucks) have lower nutritional quality than school meals and that these foods may contribute to overconsumption of food energy, dietary fat, saturated fat, added sugars, and sodium and under consumption of calcium, fiber, fruits and vegetables, and whole grains.” (Ex. 6.)

B. Funding and Participation

To answer the Commission’s questions regarding participation, a staff member at the Lincoln County School district drafted a letter. This letter, included as Exhibit 8, proves that a decrease in participation would not only hurt the high school, but would hurt the entire school system. Due to the interconnected nature of the USDA program, and the problems with participation and truancy described below, any decrease in participation would negatively impact the program. I urge all Commissioners to read Exhibit 8 thoroughly.

IV. EVALUATING FOOD CART NUTRITION

In general, there is a consensus that food carts are unhealthy. There is also a consensus that school food is healthy, thanks largely to the efforts of Michelle Obama's Healthy, Hunger-Free Kids Act. The specific standards imposed by this program are described in Exhibit 11. While the UDSA has already certified that school meals are healthier than food trucks, it is also useful to consider the intuitive nature of this idea. Food carts are, in general, much less healthy than USDA monitored school lunches. It just makes sense. Food carts aim to provide quick, delicious meals. Unfortunately, the taste and convenience come at the cost of nutritional value. We encourage the Commissioners to use their personal dining experience when considering the nutritional value provided by food carts.

We understand that one blanket statement from the USDA may not be enough to convince everyone on the Planning Commission. One of the best sources for providing detailed information regarding food trucks and the health issues associated with them is the paper "Preventing Childhood Obesity: Health in the Balance." This 434-page document, included as Exhibit 7, describes, in detail, the groups needed to prevent obesity in children, how obesity is impacted by poor nutrition, and how a lack of school food leads to a lack of knowledge which can cause obesity and all the problems associated with it. It was created and supported by the following organizations: the Centers for Disease Control Prevention (CDC), Institute of Medicine (IOM), Department of Health and Human Services' Office of Disease Prevention and Health Promotion (ODPHP), National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), National Heart, Lung, and Blood Institute (NHLBI), National Institute of Child Health and Human Development (NICHD), Division of Nutrition Research Coordination of the National Institutes of Health, and The Robert Wood Johnson Foundation (RWJF). The reason for creating this report was the "*Call to Action to Prevent and Decrease Overweight and Obesity*" issued by the US Surgeon General. The primary goal of this plan is prevention of obesity in children.

This report does not exclusively focus on food carts. Instead, it takes a multidiscipline approach to evaluating the behavioral, cultural, environmental, and social factors which cause obesity. Certainly, food carts fall under that umbrella. It is important to remember that health is not a single faceted problem, you cannot prevent obesity by just telling kids to eat better. "The committee...developed its recommendations to encompass the roles and responsibilities of numerous stakeholders and many sectors of society." (Ex 7.) Rather, it is a combination of many factors and environments, which is why the School District needs the support of the city. This again mirrors the position of the American Heart Association's assertion that all community stakeholders share the responsibility of ensuring local children grow up healthy.

While it is impractical to break down the entire document in this letter, I have provided it so that Planning Commissioners will have all the data they need to make the right decision. There are a few sections in this study I would like to address specifically, which demonstrate that "the value we attach to our children is fundamentally connected to society's responsibility to provide for their growth." (Ex. 7). In Section 6 "Local Communities" the study reiterates the view of the Academy of Nutrition and Dietetics in saying that both private and public resources, such as the local government, are responsible for fighting the obesity epidemic ravaging America's youth. The sections "Social and Emotional Health" and "Physical Health" repeat the concerns contained in this letter while specifically calling obesity an epidemic on short- and long-term time frames. There are short term effects to poor nutrition, such as lack of focus and decreased cognitive

ability, but the long-term effects are widespread and much more dangerous. The study, when read in the context of food carts against regulated USDA lunches, makes it clear that the School District's position is the correct one.

Based on the attached studies and intuitive logic, we can conclude that food carts are one factor which tend to increase obesity. How does childhood obesity impact the general welfare of Newport? Children who suffer from obesity "are more likely to be chronically ill, to have a negative impact on their earning potential, and to even die prematurely." (Ex. 7) Further, "The metabolic and psychologic dangers of childhood obesity track into adult life and eventually enhance the risks of disease, disability, and death." (Ex. 7) This problem is country wide as diet and physical inactivity are predicted to become the number one cause of death in America. Rather than allow for just one more factor contributing to lifelong obesity, the Commission should take the advice of the American Heart Association, the Academy of Nutrition and Dietetics, and essentially every other government and medical association's position on this topic by preventing food trucks from targeting our children.

V. THE GENERAL WELFARE AND RESPONDING TO ARGUMENTS

In providing the Planning Commission with more information, we would be remiss if we did not address the specific points raised by Mrs. Webster, especially those that relate to the general welfare. In her July 11th letter, Mrs. Webster seems to contend that the general welfare would be increased in a few ways: by allowing for more food carts in general, by offering a place to eat for those who "do not relish driving or walking on Hwy 101", and by providing nutritious food. As the point regarding nutritious food has already been discussed in detail, there is no need to reiterate it here. However, the first and second points deserve some attention, especially because these points will be true regardless of if the 500-foot limit is removed.

There will be more food carts, even on the east side of Highway 101, regardless of the change to the 500-foot buffer zone. Simply because there is a piece of land which, pre-ordinance change, is interested in offering itself to a pod does not mean that there are no other property owners who are outside the 500-foot zone who would do the same. The absence of evidence is not the evidence of absence, especially at this stage of the process. If there is a demand for food carts in areas east of Highway 101, that demand will be filled through the free market in compliance with the NMC. Unless food carts can directly target children, Mrs. Webster's property is irrelevant to the nature of supply and demand economics which motivate food cart operators. If the NMC is changed, food cart operators will evaluate the best place to do business. With that in mind, is the Planning Commission willing to risk the dangers to our children and community at large for such a minimal benefit?

In her letter, Mrs. Webster states that the primary audience for this food cart pod on her property would be the staff of the high school. Perhaps Mrs. Webster truly intends for staff to be the primary patrons of this pod, but that belief is incongruent with the facts. The high school has 70 staff members, and 608 children. For every 1 staff member, there are 8.6 children. When we look at the numbers, we see who the real audience of this food cart pod would be. If the pod is more than 500 feet away from the high school, the staff would still have easy access, relative to the other dining options in the area. Placing it right across the street does not provide real benefits to anyone except Mrs. Webster. Again, we are in no way trying to insult or demonize Mrs. Webster. We simply do not believe the balancing test weighs in her favor.

Let's move on to another point raised in the same July 11th letter. She contends that "A closed campus is the prerogative of the School District and its responsibility. The existence of a food truck would not interfere with this policy." The School District is currently considering a closed campus for 9th and 10th graders, but this change would not be so until the 2022-2023 school year at the earliest. Food carts so close to school would present one more reason for these students to become truant and skip school. Oddly, in the very next sentence, she states that food carts "provide an inviting atmosphere for their clients." We agree with her on that point. Perhaps Mrs. Webster did not know that the school is already struggling to deal with truancy and does not have the resources available to combat the increase which a nearby pod would provide. Our question is, why would the city offer students another incentive to skip school?

VI. TRUANCY AND MENTAL HEALTH

1. Truancy is Already a Serious Problem

Currently, there are serious problems with truancy at Newport High School. While truancy is specifically defined in the Oregon Administrative Rules, this letter defines it in a broader sense. Truancy is not simply a student missing "more than eight unexcused one-half day absences, or the equivalent thereof, in any four-week period in which school is in session" as the OARs state. Our problems go beyond this definition. Our problems include students who are showing up late to class or skipping classes entirely, as well as the long-term effects that missing class has on student achievement.

When a child is truant, it prevents them from being able to learn. This is true in the short- and long-term. Educating children is a primary goal of the School District, so this is very troubling. Obviously if a child skips a class, they will not learn as much as the children who attended. What children learn is built on the foundations set by previous classes and grade levels. If a student doesn't learn to add, they cannot learn how to multiply. Because of this, having a student miss an extended amount of school time is seriously detrimental to not just what they are learning now, but what they will not be able to learn later. This is just one more example of how this decision will have implications for years to come.

One may think that if truancy is already a problem, changing the ordinance would only be a drop in the bucket. This thinking is backwards and dangerous. It ignores the harm currently facing children and presents an excuse for those with power to ignore their responsibility. A truant child will never come to a Planning Commission meeting to explain their story. Rather, it is up to the School District to educate both the children and the local government about the reality of the situation. Instead of adding to the harm, we should all be focused on reducing it from every angle possible. The School District is taking new measures to combat truancy, especially truancy related to food options, by investing roughly \$150,000.00 into their cafeteria. A few photos demonstrating what the cafeteria used to look like and the current construction progress are included in Exhibit 10. By making it a more inviting place to eat and hang out, the School District hopes to curb the already rampant truancy in the high school. The project is still ongoing, but improvements can be seen in Exhibit 9.

We know that having a place to eat close to school causes truancy. In the school year of 2018-2019, when the Cub Cave was open, the truancy rate was significantly higher than the next year. Obviously, there are other factors at play, such as COVID-19 which explain why truancy dropped, but again, the idea of having access to an attractive place just across the street causing

children to be truant just makes sense. Having a fun place kids can go to means that kids will go there, regardless of what it means for their academic success.

The problems regarding truancy that come from the Cub Cave being so close to school are clear. Students would be lured into skipping classes by other truant students or community members who were spending time there. Despite, or perhaps because of, the Cub Cave's inviting nature, this was a natural result. However, the problem is not just students skipping classes. There were several times where school staff had to call the police when they were concerned about drugs. From across the street, the staff could do nothing but rely on the intervention of city workers like police to help. This strained both the school system and local law enforcement.

As we heard at the last Planning Commission meeting on July 12th, the owners of the Cub Cave stated they plan to reopen it as a restaurant. There is nothing the School District can do to stop this. So, the problems associated with truancy and other unsupervised bad behavior are likely to occur. The result of having to deal with the Cub Cave and four new food carts is clear. Food carts are uniquely attractive mobile events. Each one specializes in a certain kind of food due to their limited space. They are separate businesses that provide different attractions. Mrs. Webster stated her interest in opening a food cart pod, which is defined in the ordinance as at least four food carts. By allowing this pod next to the high school, the city would be multiplying the problems we already face. Essentially, we would have to deal with five Cub Caves (the original and the four carts) instead of just one.

The problem of truancy is country wide, and truancy leads to an increased chance of a student dropping out. In America, a student drops out of high school every 26 seconds. High school dropouts are three times more likely to be unemployed and thus draw from government benefits. Over 80% of incarcerated people in our country are high school dropouts. Finally, those who drop out are more likely to be uninsured, to struggle with mental health problems, and to have a lower life expectancy. As discussed, the School District is doing all it can to prevent truancy and dropouts, but we can't do it on our own. We need the help of the Planning Commission and the City Council.

Truancy is not just the problem of the School District. It is a problem for the students who learn less, perform worse, and harm their long-term mental abilities and economic potential. It is a problem for parents, who are planning on having their children graduate from high school, rather than drop out. It is a problem for the city, which makes less tax revenue on those who earn less, and which has limited police resources. And yes, it is a problem for the School District, which is doing its best to combat truancy, even without four new attractive nuisances across the street. The Commission should consider the long-term economic impacts of truancy on the entire city and weigh those, along with everything else, against the limited interests of one property owner.

2. Mental Health and Equity Issues

The USDA food program benefits the physical and mental health of our students by reducing stigmas surrounding poverty. When lunches are free, there is little that separates the poor kids from the affluent ones. They eat the same meals in the same space which leads to viewing each other as equals. We aren't saying that school lunch programs create a perfectly equal environment, but that they are one of the factors at play in encouraging the healthy mental development of children. If a student not only loses their only secured meals of the day but must watch from across the street as their richer peers have fun eating, this could severely negatively impact their mental health.

High school is not the same as it was 20 years ago. The current generation of children use technology, often to the detriment of their mental health, to document their days and compare themselves to one another. This would be just one more hurdle for a generation of children who already suffer from mental health issues more than any previous generation. “Popular as the indie food trucks are, the interests of small business should not trump the interest of low-income students, who should be able to enjoy a healthy free lunch with a side of dignity.” (Ex. 5.) A poor student who is suffering from anxiety and depression does not need an additional stressor which may prevent them from not only eating, but from feeling like an equal with their peers.

VII. SAFETY CONCERNS

Concerns about safety fall into two main categories; traffic and strangers. The proposed food pod location is directly across from where the School District is spending \$150,000.00 to expand the cafeteria. Students would have to cross 3rd street. There is no direct cross walk between the high school and the proposed location of the pod, and there is no way for teachers to supervise the children who leave campus. While this street is not ideal as it stands, it should be noted that the high school already closes off NE Eads Street from 7th to 3rd during the school day. So, a lot of the traffic which would typically use Eads is redirected onto 3rd, making the street more dangerous for children who would be sneaking out of school to visit the pod. There are questions of liability here. Who is liable if a driver hits a child that is running across the middle of the street? Is the school liable for failing to supervise a truant child? Is the food pod liable for creating an attractive nuisance? I’d encourage you to not think about liability, and instead consider responsibility. The Planning Commission should work to prevent children being hit by cars by preventing this change. This is a serious risk that cannot be underplayed. Traffic and other safety concerns are likely a big part of why the 500-foot limitation was passed in the first place.

One of the other dangers, having children deal with strangers, is a difficult one to approach. We are not saying that people who operate or frequent food carts are in any way less reputable than any other member of the community. What we are saying is that having groups of unsupervised children frequently congregate off school grounds can be dangerous. Parents should feel that, when they send their kids to school, they are sending them to a safe location. We know, from being next to the Cub Cave, that strangers will be spending time at the food carts, and that this can lead to bad behavior and drug use in our students. It will be no secret that high schoolers spend a lot of unsupervised time at these food carts. What sort of person would take advantage of that information, and to what ends? The School District is strongly opposed to a wait and see approach when it comes to the safety of our children.

VIII. CONCLUSION

It seems clear that the solely economic benefits this change would produce for a limited number of individuals is not worth the harm it presents to the community through the local children. The School District is doing its best to provide a safe and healthy learning environment for all students, and the proposed decision would actively impede that purpose. And for what? Mrs. Webster, or any other property owner, can already have a food pod on their property every day of the year. It simply cannot be a lunch time distraction for students which could cause

truancy, safety problems, and the end of a school food program which is often the only thing keeping the poorest children in Newport fed.

The problems facing our children are numerous and complicated. Obesity, malnutrition, mental health issues, physical health issues, inequality, safety, and truancy all impact the short- and long-term welfare of our children and community. The School District is simply asking that the general welfare be prioritized over limited economic interests. The Lincoln County School District urges the Planning Commission to deny removing the word “secondary” from the proposed language and to enact an ordinance which would prohibit any food carts from operating near schools, regardless of if they are on public or private land.

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Exhibit 1 – School Calendar - demonstrates that food carts can be open for 186 days per year regardless of the 500-foot language.

Exhibit 2 – Maps - demonstrate the very limited area impacted by keeping the secondary language. These maps present a more accurate picture than the map included in the meeting materials from the Planning Commission meeting on July 12th, 2021.

Exhibit 3 – Summer Meal Sites Schedule – demonstrates the locations where the School District is currently able to provide free lunches outside of schools, which could be harmed by changing the ordinance.

Exhibit 4 – American Heart Association Statement on Food Carts Near Schools – demonstrates the health risks associated with mobile vendors near schools.

Exhibit 5 – News Article – demonstrates the psychological and health problems with food carts directly outside of schools.

Exhibit 6 – Position of the American Dietetic Association – demonstrates that the health of children needs to be the responsibility of the entire community, not just schools.

Exhibit 7 – Food and Nutrition Board Committee on Prevention of Obesity in Children and Youth – study which demonstrates the importance of multiple groups working together to prevent obesity and the severe dangers obesity poses to children throughout their entire lives.

Exhibit 8 – Letter on Participation in the USDA Free Lunch Program – demonstrates how important participation is to the program for the high school and entire school system.

Exhibit 9 – USDA School Meal Nutritional Value – demonstrates that the USDA required nutritional standards used at Newport High School are very healthy.

Exhibit 10 - \$150,000 Renovation on School Cafeteria – demonstrates the effort Newport High School is putting into combating truancy and improving student’s dining space.

Exhibit 11 – USDA Food Standards for Breakfast and Lunch Program – demonstrates the specific standards imposed by the USDA on Newport High School.

Exhibit 1

2021-22 DISTRICT-WIDE SCHOOL CALENDAR

LINCOLN COUNTY SCHOOL DISTRICT						LCNSD	INSTRC DAYS	STDNT CONTACT
AUGUST	MON	TUE	WED	THU	FRI	AUGUST		
	2	3	4	5	6	2	0	0
	9	10	11	12	13	2 Administrators Report		
	16	17	18	19	20	Student Registration Days (Check school for dates and details)		
	23	24	25	26	27	24-27 New Teacher Inservice Week		
	30	31				30-3 All Teachers Report		
SEPTEMBER	MON	TUE	WED	THU	FRI	SEPTEMBER		
			1	2	3	22	18	18
	6	7	8	9	10	6 Labor Day Holiday (No School)		
	13	14	15	16	17	7 First Day of School and various orientations TBD.		
	20	21	22	23	24	7-9 Kindergarten Orientation (Check Schools for details!)		
	27	28	29	30		8 First Day of School! All Students: Grades 1-12		
OCTOBER	MON	TUE	WED	THU	FRI	OCTOBER		
					1	21	21	18
	4	5	6	7	8	8 LCSD Professional Development (No School)		
	11	12	13	14	15	20 Evening Conferences		
	18	19	20	**21	**22	21 Conferences Day/Evening (No School**)		
	25	26	27	28	29	22 No School**		
NOVEMBER	MON	TUE	WED	THU	FRI	NOVEMBER		
	1	2	3	4	5	20	18	18
	8	9	10	11	12	11 Veteran's Day Holiday Observed (No School)		
	15	16	17	18	19	24-26 Thanksgiving Break (No School)		
	22	23	24	25	26			
	29	30						
DECEMBER	MON	TUE	WED	THU	FRI	DECEMBER		
			1	2	3	13	13	13
	6	7	8	9	10	20-31 Winter Break (No School)		
	13	14	15	16	17			
	20	21	22	23	24			
	27	28	29	30	31			
JANUARY	MON	TUE	WED	THU	FRI	JANUARY		
						20	19	19
	3	4	5	6	7	3 All students back to School		
	10	11	12	13	14	17 Martin Luther King Day (No School)		
	17	18	19	20	21	27 End of 1st Semester		
	24	25	26	27	28	28 Records Day (No School)		
FEBRUARY	MON	TUE	WED	THU	FRI	FEBRUARY		
			1	2	3	20	19	18
	7	8	9	10	11	14 LCSD Professional Development (No School)		
	14	15	16	17	18	21 President's Day Holiday (No School)		
	21	22	23	24	25			
	28							
MARCH	MON	TUE	WED	THU	FRI	MARCH		
			1	2	3	18	18	17
	7	8	9	10	11	7 LCSD Professional Development (No School)		
	14	15	16	17	18	21-25 Spring Break (No School)		
	21	22	23	24	25			
	28	29	30	31				
APRIL	MON	TUE	WED	THU	FRI	APRIL		
					1	21	21	19
	4	5	6	7	8	20 Evening Conferences		
	11	12	13	14	15	21 Conferences Day/Evening (No School**)		
	18	19	20	**21	**22	22 No School**		
	25	26	27	28	29			
MAY	MON	TUE	WED	THU	FRI	MAY		
	2	3	4	5	6	22	21	20
	9	10	11	12	13	20 LCSD Professional Development (No School)		
	16	17	18	19	20	30 Memorial Day Holiday (No School)		
	23	24	25	26	27			
	30	31						
JUNE	MON	TUE	WED	THU	FRI	JUNE		
			1	2	3	11	10	10
	6	7	8	9	10	9 Seniors last day		
	13	14	15	16	17	10-11 High School Graduation		
	20	21	22	23	24	14 All students last day - End of 2nd Semester		
	27	28	29	30		15 Teachers last day/Records Day		
Professional Development (No School)						Total Days this Calendar		
Records Day (No School)						190	178	170
Wednesday Early Release (See your school for times)						Total Days 2020-21		
No School (Shaded days)						190	176	168
Conference Day (No School)								
** Evening Conference Trade Day (No School)								
Days included in Instructional time calculation, pursuant to								

Exhibit 2

City of Newport Zoning Map

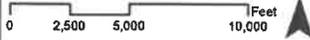
6/28/16

Legend

-  City Limits
-  Urban Growth Boundary

Zone District

-  C-1 Retail and Service
-  C-2 Tourist
-  C-3 Heavy
-  I-1 Light
-  I-2 Medium
-  I-3 Heavy
-  P-1 Public Structures
-  P-2 Public Parks
-  P-3 Public Open Space
-  R-1 Low Density Single-Family
-  R-2 Medium Density Single-Family
-  R-3 Medium Density Multi-Family
-  R-4 High Density Multi-Family
-  W-1 Water Dependent
-  W-2 Water Related



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 188 SW Coast Highway Phone: 541.874.0829
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This map is for informational use only and has not been prepared for, nor is it suitable for, legal, engineering, or surveying purposes. It neither data nor analysis services. The City of Newport assumes no responsibility for the completion or use and users of this information on any conditions in writing or oral manner with the City of Newport Community Development Department.



Attachment "C"
1-Z-21



NEWPORT City of Newport
 Community Development Department
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**Potential 500-ft Buffer from School Ground
 (Impacted Areas Shown in White Cross-Hatch)**

Image Taken July 2018
 4-inch, 4-band Digital Orthophotos
 Quantum Spatial, Inc. Corvallis, OR

This map is for informational use only and has not been prepared for, nor is it suitable for legal, engineering, or surveying purposes. It includes data from multiple sources. The City of Newport assumes no responsibility for its compilation or use and users of this information are cautioned to verify all information with the City of Newport Community Development Department.

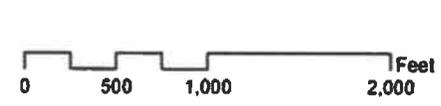


Exhibit 3



2021 Lincoln County Summer Meal Sites & Curbside Locations

			Menu Used	Breakfast	Lunch	Snack
Newport Locations						
Frank Wade Park June 21st thru Sept 3rd	M-F	Lunch & Afternoon Snack	Hot & Cold	N/A	11:30-12:00 M,W,Th &F 10:30-11:00 Tue	3:00-3:30
Newport Parks & Rec 225 SE Avery Street June 21st thru Sept 3rd.	M-F	Lunch & Afternoon Snack	Hot & Cold	N/A	11:30-12:00 M,W,Th &F 10:30-11:00 Tue	3:00-3:30
Oceanspray Family Center 1039 NW Nye Street June 16th thru Sept 3rd.	M -F	Breakfast & Lunch	Hot & Cold	10:00-10:30	12:00-12:30	N/A
Salmon Run Apts 7035 NE Echo Court June 16th thru Sept 3rd.	M -F	Breakfast & Lunch	Hot & Cold		11:30-12:00	N/A
Yaquina View Elementary 351 SE Harney Street June 16th thru Sept 3rd	M-F	Breakfast & Lunch	Hot & Cold	8:45-9:15	12:00-12:30	
Newport High School 22 NE Eads St. Curbside June 17th thru June 30th	M-F	Breakfast & Lunch		8:45-9:15	12:00-12:30	N/A
Newport High School 22 NE Eads St. Curbside Aug 16th thru Aug 20th	M -F	Breakfast & Lunch	Hot & Cold	8:00-8:30	12:00-12:30	N/A
Toledo Locations						
Olalla Center 321 SE 3rd Street	M-F	Breakfast & Lunch	Cold	10:30-11:00	12:30-1:00	N/A
Toledo High School 1800 NE Sturdevant Rd. Curbside June 17th thru June 30th	M-F	Breakfast & Lunch	Hot & Cold	8:45-9:15	12:00-12:30	N/A
Toledo High School 1800 NE Sturdevant Rd. Curbside Aug 16th thru Aug 20th	M-F	Breakfast & Lunch	Hot & Cold	8:45-9:15	12:00-12:30	N/A
Toledo Elementary 600 SE Sturdevant Rd. Curbside June 16th thru Sept 3rd	M-F	Breakfast & Lunch	Hot & Cold	8:45-9:15	12:00-12:30	N/A
Eddyville Charter School Curbside Aug 9 thru Aug 20	M-F	Breakfast & Lunch	Hot & Cold	8:45-9:15	12:00-12:30	N/A
Siletz Valley Charter School Curbside June 21nd thru July 2nd	M-F	Breakfast & Lunch	Hot & Cold	8:45-9:15	12:00-12:30	N/A
Siletz Valley Charter School Curbside Aug 9th thru Aug 20th	M-F	Breakfast & Lunch	Hot & Cold	8:45-9:15	12:00-12:30	N/A
Lincoln City Locations						
Taft 7-12 3870 Spyglass Ridge Dr. Curbside June 17th thru June 30th	M-F	Breakfast & Lunch		8:45-9:15	12:00-12:30	N/A
Taft 7-12 3870 Spyglass Ridge Dr. Curbside Aug 16th thru Aug 20th	M-F	Breakfast & Lunch	Hot & Cold	8:45-9:15	12:00-12:30	N/A
Taft Elementary 4040 High School Dr. Curbside June 17th thru Sept 3rd.	M-F	Breakfast & Lunch		8:45-9:15	12:00-12:30	N/A
Waldport Location						
Crestview Heights Elementary Curbside June 17th thru Sept. 3rd	M-F	Breakfast & Lunch	Hot & Cold	8:45-9:15	12:00-12:30	N/A
Waldport High School Curbside June 17th thru June 30th	M-F	Breakfast & Lunch	Hot & Cold	8:45-9:15	12:00-12:30	N/A

Meals will only be served during the listed hours above

This Institution is an Equal Opportunity Provider

ALL MEALS ARE NO COST TO CHILDREN AGES 1 TO 18

Exhibit 4

Mobile Vending Near Schools Policy Statement June 2012

Position and Rationale

The American Heart Association (AHA) advocates for nutrition policy efforts that make healthy foods more affordable and accessible to all consumers and bring food pricing and subsidies in line with federal dietary guidelines and AHA nutrition recommendations. The recent trend of mobile food vending allows for the possibility of greater access to healthy foods, such as fruits and vegetables, in low-income communities. However, it can also increase access to less healthy foods which is of particular concern around schools where the targeted consumers are children.

Mobile vending around schools should provide only healthy foods and be in line with the Institute of Medicine's nutrition standards for competitive foods in schools. As an emerging issue, there is limited evidence showing the health impact of mobile vending around schools. The American Heart Association supports additional research and pilot approaches with evaluation to determine the impact on children's health, diet, purchasing behavior, and calories consumed.

Background

Children attending public schools offering the National School Lunch Program (NSLP) and School Breakfast Program receive more than one third of their daily energy from foods consumed at school.¹ Foods sold in competition with school meals are widely available on and around campuses across the United States.² School-based obesity and chronic disease prevention strategies that target the food sold in schools have shown modest impacts on childhood obesity rates.^{3,4}

A growing body of evidence suggests the school food environment extends beyond school walls into neighborhoods that surround campuses, particularly for students who walk and bike to school.⁵ While a large number of studies have examined the effect that nearby fast-food outlets and convenience stores can have on the school food environment,^{3,6,7,8,9,10} little is known about the effect that mobile food vendors have on the school food environment. Mobile vendors who sell food in close proximity to schools or on the actual campus have the potential to greatly affect the nutritional intake of elementary and secondary schoolchildren.

National surveys^{11,12} show that most schools do not allow students to leave campus during lunchtime: only 25-27% of high schools, 4-15% of middle schools, and 6-8% of elementary schools support an open-campus system. Some vendors overcome this by locating directly on the school campus. Although students should be encouraged to eat healthy foods if they leave school for lunch, policies aimed at influencing school food environments may have a greater impact by targeting food consumed outside of the regular school day, particularly just before and after school. A number of studies have demonstrated that mobile food vendors tend to convene near schools just before and after school hours.^{13,14}

Unfortunately, it is difficult to estimate the number of mobile vendors who sell food in the United States. According to the 2007 U.S. Economic Census,¹⁵ 1,930 firms operated mobile food services that engaged in preparing and serving meals for immediate consumption from vehicles and carts across the country. The states in which the largest proportions of these firms operated were California (13.4%), New York (11.4%), Florida (6.9%), and Pennsylvania (6.9%).¹⁶ The U.S. Census data has two major flaws: first, the Census counts the number of businesses involved in mobile food vending without determining the number of individual vehicles or carts owned by each firm; second, the count listed above does not capture businesses that own and operate vehicles and carts that sell unprepared foods, including fruits and vegetables, candy, or soda. Additionally, since the mobile vending market is rapidly growing, the U.S.

Census data from 2007 is likely outdated. One market research firm estimates that the mobile food vending industry grew at an annual rate of 7.7% between 2006 and 2011.¹⁷

Mobile vendors sell food in both rural and urban areas across the United States.¹⁸ A number of cities have reported that the mobile food industry has the ability to provide entrepreneurial and workforce development opportunities for low-income and immigrant workers in their communities.^{19,20,21} In many communities, mobile food vendors frequently serve Hispanic and African American neighborhoods that have few large food outlets and grocery stores.²² These mobile vendors can travel deep into areas where zoning laws and other prohibitive factors discourage the establishment of permanent retailers.²³ Although mobile vendors can offer economic possibilities and community benefits, they frequently face opposition and resentment from competing local businesses and “brick-and-mortar” restaurants.²⁴ Other opponents of mobile food vendors cite concerns with trash, parking, and sidewalk congestion.²⁵

Mobile food vending near schools can have negative consequences for students and for school districts:

- *Safety issues:* Based on preliminary surveys on issues related to school vending, the concern about safety is foremost and can be divided into three categories –
 - Traffic-related safety as children run across public roadways to access vendors
 - Interaction with strangers
 - Food safety (unhealthy food preparation not up to school food standards and difficult to enforce).
- *School Lunch Program and School Breakfast Program Vulnerability:* as schools strive to meet USDA’s Healthier US Schools Initiative nutritional standards, the School Lunch and Breakfast programs could be undermined by the influence of outside unhealthy food sources.^{6,8} Additionally, allowing sales by outside vendors may result in a loss of revenue for school meal programs.
- *Equity issues:* food and beverage purchased from food trucks may cost more than students from low income families can afford, especially those who are on subsidized meal programs.
- *School resource issues:* school officials have a duty to supervise the students on campus, resources and staff would be needed to attend to students purchasing food from outside vendors.

Local-Level Policy Options

Although state retail food codes generally require all vendors to follow food safety and hygiene standards to prevent food-borne illnesses and contamination,²⁶ local governments typically play a large role in overseeing mobile food vendors’ day-to-day operations. Most cities implement municipal codes that require mobile vendors to obtain a number of permits or licenses to legally sell food within city limits. For example, the city of Boston, Massachusetts requires that mobile food vendors obtain permits from the Boston Fire Department, the health department, and the state of Massachusetts.¹⁹ Most cities also use municipal codes to ban mobile vendors from operating in specific zones or locations, including areas in close proximity to restaurants and other mobile vendors.²⁷ Further research is needed to determine if the regulations in place assure adequate food preparation and safety.

Existing Policies that have been Implemented

Due to the concerns outlined above, many localities have established policies to limit mobile food vendors’ ability to sell to children near schools (See Appendix.) These local ordinances have taken one or more of the following approaches:

- *Prohibit all mobile vending near schools:* policies ban mobile vendors selling food within a specified distance of schools on all days or during days and hours when children are likely to present.
 - Examples: Phoenix, AZ, Los Angeles, CA; Seattle, WA; where municipal codes prohibit mobile food vendors from locating within a certain distance of public and private schools.^{28,29,30}

- *Limit mobile vending by location:* policies restrict mobile vending by zoning code or on a block-by-block basis on at all times or during days and hours when children are likely to present.
 - Examples: Evanston, IL and Oakland, CA, where municipal codes prohibit mobile food vendors from operating within specific zones and blocks of the cities.^{31,32}

Policies that prohibit or restrict mobile vending face challenges and barriers to implementation, including:

- The need for sufficient infrastructure to enforce regulations. A study completed in Los Angeles, California showed that although mobile food vendors are prohibited from selling within 500 feet of schools, vendors still succeed in selling snacks after school to children outside of elementary schools.¹⁴
- Potential opposition from mobile vendors, who earn a living by selling to children. Mobile vending has been viewed as a valuable economic point-of-entry for immigrant and refugee communities.²⁹

Policies to Promote Healthy Mobile Vending

A number of localities have established policies to encourage mobile food vendors to sell healthy foods. These local ordinances have taken one or more of the following approaches:

- *Regulate the types and numbers of mobile vendor licenses:* policies promote increased licensing of healthy mobile vendors in localities that restrict the total number of mobile vendor licenses.
 - Example: New York, NY, where the city enacted “The Green Cart Initiative” legislation to bring healthy, fresh, affordable produce to city food deserts.^{33,34} This program created 1,000 additional city permits to operate fresh produce carts in designated neighborhoods where community members consumed low rates of fruits and vegetables.
- *Restrict certain types of goods sold by mobile vendors:* policies incentivize vendors to sell nutritious foods.
 - Example: Kansas City, MO, where mobile food vendors who sell in public parks receive a 50% discount on their annual permit fees if the food they sell meets specific nutritional standards.³⁵

Local policies that promote healthy mobile vending have the potential to increase access to highly nutritious foods in underserved neighborhoods. Some evidence suggests that mobile food vendors can increase fresh produce consumption:

- One year after the implementation of New York City’s Green Cart Initiative, low-income community members in underserved areas reported that they relied on Green Carts as a frequent shopping option.³³
- A recent small scale study³⁶ examined the impact of allowing mobile fruit vendors to increase access to fresh fruit and vegetables for schoolchildren. This study found that it is feasible for sanctioned vendors to sell nutritious food items after school and suggested that the presence of healthy food vendors may decrease sales at vendors selling less healthful items.

Policies that aim to incentivize healthy mobile food vending face challenges and barriers to implementation, including:

- The need for sufficient infrastructure to establish nutritional standards, to inspect for nutritional standards, to issue permits, and to enforce regulations.
- Potential opposition from mobile vendors who do not sell healthy foods.
- Potential opposition from proprietors of stores that sell healthy foods and who may lose business to healthy mobile food vendors.
- Potential need to allow vendors to accept Electronic Benefit Transfer cards (EBT) so that low-income families can use SNAP and WIC benefits to purchasing from mobile vendors. This practice would also increase vendors’ profitability in high poverty districts.³³

State-Level Policy Options

Mobile food vending regulations related to the school food environment have only been enacted at the local level. In February 2012, an assemblyman in California proposed a bill³⁶ to restrict mobile food vendors from locating near all schools in the state. While the bill did not pass during the 2012 session, it did spark significant discussion among public health officials and advocates, lawmakers, and mobile food vendors. We expect this discussion to continue in California and, in all likelihood, in other states across the country. States will need to learn from the experiences of local communities as they consider regulating mobile food vendors across varying communities.

Conclusion

Policy creation and implementation at any local level requires significant political will. In order to enact a successful mobile food vending policy that promotes healthy eating for children, policymakers should engage in conversations to gain support from parents, mobile vendors, local business owners, health department officials, law enforcement agencies, and school officials.

The American Heart Association supports additional research and policy approaches to determine the efficacy of healthy mobile vending policies on schoolchildren. The AHA prioritizes robust evaluation as part of local legislation or regulation that is passed. At minimum, healthy mobile vending around schools should meet nutrition standards that are in line with the Institute of Medicine's standards for competitive foods.

Appendix A: Sample of Local Mobile Food Vendor Restrictions Near Schools

City	State	Code	Mobile Food Vendor Restrictions
Phoenix	AZ	City Code §10- 166(B)(3)	Prohibited within 300' of property line of schools, 6:00 AM - 5:00 PM ³⁰
Fresno	CA	Municipal Code §9-1107(g)	Prohibited within 1000' of schools intended to educate children 18 or younger ³⁷
Los Angeles	CA	Municipal Code §80.73(b)(2)(A)(5)	Prohibited within 500' of schools ²⁸
Manhattan Beach	CA	Municipal Code §3.68	Prohibited within 300' of property line of schools, 7:00 AM - 5:00 PM, exception for allowance for principal exception ³⁸
Merced	CA	Municipal Code §5.54.090(B)	Prohibited from stopping or parking adjacent to any school, 8:00 AM - 4:00 PM on school days ³⁹
Oakland	CA	Municipal Code §5.49.050(C)(2)	Prohibited within 400' of primary and middle schools ³²
Riverside	CA	Municipal Code §9.04.210	Prohibited within 1000' of property line of schools, 7:00 AM - 4:00 PM ⁴⁰
Sacramento	CA	Municipal Code §5.88.010	Prohibited within 350' of any school building, school ground, playground, recreation park, or public park ⁴¹
San Diego	CA	Municipal Code §54.0122(g)	Prohibited within 500' of property line of schools, 7:00 AM - 4:00 PM ⁴²
San Francisco	CA	Public Works Code §5.8.184.85(3)(D)	Prohibited within 1500' of property line of schools, 7:00 AM - 5:00 PM, Monday - Friday ⁴³
San Jose	CA	Municipal Code §6.54.240(2)	Prohibited within 500' of schools ⁴⁴
Stockton	CA	Municipal Code §5.72.060(A)(1)	Prohibited within 300' of any school grounds, park, playground, or City-operated recreation center ⁴⁵
West Hollywood	CA	Municipal Code §5.92.050(2)(ii)	Prohibited within 1 block of schools, 8:00 AM - 5:00 PM ⁴⁶
Evanston	IL	Municipal Code §8-26-3(H)	Prohibited within 500' of schools when school is in session, prohibited on specific streets near high school stadium during events ³⁰
El Paso	TX	Municipal Code §12.46.020	Prohibited within 2 blocks of schools ⁴⁷
San Antonio	TX	Municipal Code §13-63(a)(9)	Prohibited within 300' of schools between 1 hour before school starts through 1 hour after school ends ⁴⁸
Des Moines	WA	Municipal Code §5.57.150(1)(a)	Prohibited within 400' of schools, regular school hours ⁴⁹
Puyallup	WA	Municipal Code §5.65(1)(a)	Prohibited within 400' of schools during the hours of regular school session and school-related events, exception for allowance by school ⁵⁰
Seattle	WA	Municipal Code §6.54.240(A)(2)	Prohibited within 1,000' of any school containing a Kindergarten through 12th-grade class, within 50' of any public park ¹⁵

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Exhibit 5

FOOD TRUCKS NEAR SCHOOLS: SCHOOL FOOD EXPERTS WEIGH IN ([HTTPS://BEYONDCHRON.ORG/FOOD-TRUCKS-NEAR-SCHOOLS-SCHOOL-FOOD-EXPERTS-WEIGH-IN/](https://beyondchron.org/food-trucks-near-schools-school-food-experts-weigh-in/))

by Dana Woldow on March 21, 2012



It has been well-documented that hungry students can't learn, but there is more to getting kids to eat a school lunch than just improving the food. Making kids feel comfortable enough to get into the lunch line is a challenge even in districts with scratch-cooked meals using locally sourced ingredients. School food reformer Chef Ann Cooper (<http://www.chefann.com/>), who overhauled school meals in Berkeley, says, "High school students are some of the hardest to get to eat in the cafeterias. For too long, eating school food has been associated with being poor, and that stigma is hard to shed."

Janet Poppendieck, Professor of Sociology at Hunter College in New York, knows all about that stigma. In one of the best-known scholarly studies of the

National School Lunch Program, *Free for All: Fixing School Food in America* (http://www.janetpoppendieck.com/free_for_all.html), she wrote:

The biggest problem is the stigma that comes from being different, from being marked as poor, from being unable to pay in a culture that places excessive value on being able to pay and a school food subculture that increasingly views children as 'customers.'

Several years ago, San Francisco Unified School District began taking steps to combat the stigma. A swipe card system was installed in the cafeterias, so no one can tell just by looking who is paying for their meal and who is getting free lunch. A la carte choices previously available only to those with money to purchase them were eliminated, and a wider choice of complete meals is now offered to all students.

Fundraising food sales that competed with the school lunch program were eliminated by SFUSD's Wellness Policy. Even the City got on board with the idea that competition with the meal program drained away money which was badly needed to offer higher quality food. In 2007, a San Francisco city ordinance was passed keeping mobile food vendors 1,500 feet (about three blocks) from public middle and high schools.

But now, "The City that Knows How" may be poised to reverse course. Proposed legislation (<http://sfgsa.org/modules/showdocument.aspx?documentid=8394>) before the Board of Supervisors would shorten the distance mobile vendors must keep back from schools to just one block. The current law is doing its intended job of

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keeping “roach coaches” and other vendors away from SFUSD students, and helping to protect the school meal program. More middle and high school kids are eating school lunch now than five years ago. Bringing vendors closer to school will surely undo that progress.

For many reasons, San Francisco’s school meal program needs more protection than other communities. SFUSD meals contain whole grains, fresh fruit and vegetables, and lean meat (no “pink slime” (<https://beyondchron.org/news/index.php?itemid=9976>) served here!); middle and high schools have salad bars, meals contain 0g trans fat, no artificial colors or flavors, and nothing is fried – ever. Since 2010, all meals have met (<https://beyondchron.org/news/index.php?itemid=8504>) the Gold Standard under the USDA’s Healthier US Schools initiative.

SFUSD has eliminated a la carte, an additional revenue stream in other school districts, and serves only full meals, so that every choice is available to every student. Most other districts continue to allow the de facto economic segregation that happens when low-income students getting free lunch are offered one or two choices, while those with money have a whole buffet of a la carte offerings to choose from. When free lunch is viewed as “poor people’s food,” many students will choose to go hungry rather than bear the stigma of self-identifying as poor in front of their peers.

Some school districts turn away students with no money who get in the cafeteria line without being eligible for free lunch, while others give those kids a “meal of shame” of a cheese sandwich or cold cereal; SFUSD provides every child in line with a full meal, even if they cannot pay for it.

All of this adds to the cost of operating the meal program, which is already underfunded by the federal government. Nowhere is that underfunding more apparent than in San Francisco, where the high cost of living drives some of the highest labor costs in the country.

Currently, the school district contributes over \$3 million from its general fund to augment the insufficient government funding. It’s worth it to provide a better experience for students, with less stigma around eating school meals, and healthier choices. The school district’s primary mission is education, so it’s vital that students eat a midday meal, because hungry students can’t learn.

The proposal to shorten the distance mobile food vendors must stay from schools to one block (about 500 feet) aims to support the new gourmet food trucks which have sprung up recently, by allowing them more places to park in a congested city. However, the change would allow all mobile vendors, including the soda and chips dispensing roach coaches, to park a block from schools and sell to students all of the food that state laws have banned from campus.

Just because kids could walk to a corner store and buy junk food doesn’t mean that cities should undo existing legislation, and provide even more opportunities for kids to make poor food choices. Popular as the indie food trucks are, the interests of small business should not trump the interests of low income students, who should be able to enjoy a healthy free lunch with a side of dignity.

The current 1,500 foot limit, and SFUSD’s efforts to combat the stigma, are working. Almost 3,000 more middle and high school students ate school lunch last year than before the 2007 ordinance was enacted, despite the fact that California Department of Education records show (<http://dq.cde.ca.gov/dataquest/Enrollment/GradeEnr.aspx?cChoice=DistEnrGrd&cYear=2010-11&cSelect=3868478--SAN>) SFUSD middle and high school enrollment has declined by almost 2,400 students in that same time period.

But don't take my word for it that bringing mobile food vendors closer to schools is a bad idea. I spoke with a number of the nation's leading authorities on school lunch programs to get their opinion on the proposed San Francisco ordinance change.

Chef Ann Cooper, who fixed Berkeley's school food and now heads student nutrition in Boulder CO public schools, told me, "I believe that to repeal the food truck ban in SF would be to reverse the hard work and healthy food guidelines that the district nutrition services has implemented. Any vending food trucks, whether their food is healthy or not, potentially competes with the food served in the cafeteria, and could be a deterrent to sustainable healthy school food programs."

Marion Nestle, Professor in the Department of Nutrition, Food Studies, and Public Health, and Professor of Sociology at New York University, is the author of the seminal food policy book *Food Politics* (<http://www.foodpolitics.com/about/>); she also writes a monthly column on nutrition for the SF Chronicle. Her view: "If the current system isn't broke, why fix it? Food vendors can go plenty of other places. They need to leave schools in peace to get their school meals programs working, healthy, and functional."

Amy Kalafa, an award winning filmmaker, nutritionist and mom based in Connecticut, is one of the *Two Angry Moms* from the film about (http://www.snagfilms.com/films/title/two_angry_moms) school food of the same name; she is also the author of *LUNCH WARS: How to Start a School Food Revolution and Win the Battle for Our Children's Health* (<http://www.blogger.com/bookclub/now-reading-lunch-wars>). She said, "the current ordinance was hard-won and really doesn't impede business, it just doesn't encourage kids to eschew the school meal. If only the people supporting the food trucks, who are putting so much effort into this campaign, were as interested in improving the quality of school meals! I think the extra 1000 feet is great exercise for the students who are motivated to go the distance."

Mrs. Q, is the nom de plume of a special education teacher from Chicago who ate school lunch with her students every day for a year, blogged about it, and then wrote a book about her experience called *Fed Up with Lunch* (<http://abcnews.go.com/Nightline/book-excerpt-fed-lunch-mrs/story?id=14667895>). Asked about shortening the keep-back distance to one block, she opined, "definitely a big thumbs down."

Janet Poppendieck, author of *Free for All*, told me: "*I, too, love the indie food trucks, but I do not think they should be permitted to undermine the National School Lunch Program that we are all working so hard to improve. What troubles me about parking food trucks near schools is that these endearing vehicles inadvertently stigmatize the school lunch.*

"In short, they give students with money an opportunity to flash their cash — or debit cards — thus demonstrating their affluence to their peers. If going out to the food truck becomes the 'cool' thing to do, the students left behind in the lunchroom are likely to be perceived as 'uncool.' The old free lunch stigma that San Francisco has worked so hard to eliminate by removing a la carte meals from the cafeteria will rear its ugly head again."

Dana Woldow has been a school food advocate since 2002 and shares what she has learned at PEACHSF.org (<http://peachsf.org>). She supported the passage of San Francisco's existing ordinance keeping food trucks 1500 feet from public middle and high schools during the day. Follow her on Twitter @nestwife (<http://twitter.com/nestwife>).

(<https://beyondchron.org/author/>)

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Exhibit 6



FROM THE ASSOCIATION ADA REPORT | VOLUME 106, ISSUE 1, P122-133, JANUARY 01, 2006

Position of the American Dietetic Association: Local Support for Nutrition Integrity in Schools

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Abstract

It is the position of the American Dietetic Association that the schools and the community have a shared responsibility to provide all students with access to high-quality foods and school-based nutrition services as an integral part of the total education program. Educational goals, including the nutrition goals of the National School Lunch Program and the School Breakfast Program, should be supported and extended through school district wellness policies that create overall school environments that promote access to healthful school meals and physical activity and provide learning experiences that enable students to develop lifelong healthful eating habits. The National School Lunch and School Breakfast Programs are an important source of nutrients for school-age children, and especially for those of low-income status. The American Dietetic Association was actively involved in the 2004 reauthorization of these programs, ensuring access through continued funding, promoting nutrition education and physical activity to combat overweight and prevent chronic disease, and promoting local wellness policies. The standards established for school meal programs result in school meals that provide nutrients that meet dietary guidelines, but standards do not apply to foods and beverages served and sold outside of the school meal. Labeled as competitive foods by the US Department of Agriculture, there is a growing concern that standards should be applied to food in the entire school environment. Legislation has mandated that all school districts that participate in the US Department of Agriculture's Child Nutrition Program develop and implement a local wellness policy by the school year 2006-2007. Resources are available to assist



in the development of wellness policies, and dietetics professionals can assist schools in developing policies that meet nutrition integrity standards.

Position Statement

It is the position of the American Dietetic Association that the schools and the community have a shared responsibility to provide all students with access to high-quality foods and school-based nutrition services as an integral part of the total education program. Educational goals, including the nutrition goals of the National School Lunch Program and the School Breakfast Program, should be supported and extended through school district wellness policies that create overall school environments that promote access to healthful school meals and physical activity and provide learning experiences that enable students to develop lifelong healthful eating habits.

The American Dietetic Association (ADA) promotes access to food and nutrition programs for all children and adolescents, regardless of age; sex; socioeconomic status; racial, ethnic, or linguistic diversity; or health status (1). School meal programs are regarded as a safety net for ensuring that children and adolescents at risk for poor nutritional intakes have access to a safe, adequate, and nutritious food supply that promotes optimal physical, cognitive, and social growth and development. The ADA also recognizes that school nutrition services is one of eight essential components of the Coordinated School Health Program and as such can be used as a model for collaborating with other staff from the component areas in the school setting to improve the school health environment (2, 3).

Over 28 million children receive National School Lunch Program (NSLP) lunches daily, and approximately 8.9 million receive breakfasts in the School Breakfast Program (4). In a national study of school health policies and programs (5), nearly all (99%) schools offered lunch to students and 87.6% participated in the US Department of Agriculture's (USDA's) reimbursable NSLP. At that time, about 67.8% of the schools offered breakfast to students and 63.8% participated in the reimbursable School Breakfast Program.

School districts or independent schools that choose to participate in the school meal programs receive cash subsidies from the USDA for each meal served under the NSLP, School Breakfast Program, and/or Afterschool Snack educational or enrichment program. In addition, schools are also entitled to receive commodity foods for each lunch served (4). A larger proportion of these are served to children from low-income families, with 59.1% of the total lunches and 82.5% of al breakfasts served to free and reduced price eligible students (4). A nationally



representative study of the NSLP and the School Breakfast Program, the School Nutrition Dietary Assessment study, completed in school year 1991-1992, confirmed that school meals met a variety of important nutrition goals, but the study also found that school lunches were not consistent with Dietary Guidelines for Americans recommendations for total fat and saturated fat intake (6, 7, 8).

Subsequently, the USDA took action to improve the nutritional quality of school meals after passage of the Healthy Meals for Healthy Americans Act by requiring school meals to adhere to the Dietary Guidelines for Americans, which includes limits on total fat and saturated fat and calls for diets moderate in sodium (9). The nutrition standards established for school lunch and breakfast programs are based on the 1995 Dietary Guidelines (10) pending promulgation of new regulations in 2006 as required by Public Law 261-165 passed in June 30, 2004 (11). Current federal laws (12) also establish a standard for school lunches to provide one third and school breakfasts one fourth of the 1989 Recommended Dietary Allowances (13) of protein, vitamin A, vitamin C, iron, calcium, and food energy to be eligible for the NSLP and School Breakfast Program reimbursements (13).

The *Dietary Guidelines for Americans 2005* have key recommendations for Americans ages 2 years and older and includes recommendations for nutrition and physical activity specific for children and adolescents (14). Incorporation of these recommendations will include an updating of the school meal patterns.

In response to the increase in overweight and obesity, schools have been identified as one of the sectors in society that could address this trend by creating health-promoting programs that help children and adolescents adopt and maintain healthful eating and physical activity behaviors (2, 15, 16, 17, 18, 19, 20, 21). The prevalence of overweight among children 6 to 11 years of age doubled and among those 12 to 17 years of age tripled between the late 1970s and 2000 (22). When viewed as a public health issue with multiple factors, the need for addressing the problem by multiple stakeholders is evident (20).

The ADA has been a key participant in collaborative efforts at the national level to address school nutrition and the school environment (18, 23, 24), including issues of access, program integrity, and healthy children. The ADA, as a steering committee member of the National Alliance of Nutrition and Activity (23), was actively involved in the 2004 reauthorization of school nutrition programs, ensuring that children and adolescents have increased access to these programs through continued funding, promoting nutrition education and physical activity designed to combat overweight and prevent chronic disease, and promoting local wellness policies to address the total school environment.

Rationale for Position

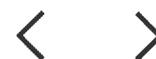
The Child Nutrition and WIC [Special Supplemental Nutrition Program for Women, Infants, and Children] Reauthorization Act of 2004 (25) requires local education agencies that participate in the USDA's Child Nutrition Programs to develop local wellness policies beginning in school year 2006-2007. The ADA, collaborating with the government, professional organizations, and the private sector (15), advocated for this provision. Local wellness policies are required to include goals for nutrition education, physical activity, nutrition guidelines for all foods available on school campuses during the school day, school-based activities, and the development of a plan for measuring implementation. The provision requires the involvement of parents, students, school food authorities, school boards, school administrators, and the public in developing the local wellness policy (25).

This wellness policy requirement for school districts provides an immediate and continuing opportunity for dietetics professionals at the federal, state, and local levels, along with industry, media, researchers, parents, and families, to become involved in assisting school districts in addressing healthful eating and physical activity through health-promoting changes in school environments (20).

Nutrition Integrity in Schools

Nutrition integrity is defined by the School Nutrition Association as “A level of performance that assures all foods and beverages available in schools are consistent with the Dietary Guidelines for Americans, and, when combined with nutrition education, physical activity, and a healthful school environment, contributes to enhanced learning and development of lifelong, healthful eating habits” (26). Nutrition integrity can be used as a basis to guide the process of creating healthful eating and physical activity in school environments.

The School Nutrition Association uses the nutrition integrity standard as a foundation for self-assessment and a benchmarking tool for child nutrition program personnel. In addition, the School Nutrition Association recognized the potential use of nutrition integrity to address the growing availability of foods and beverages offered outside of the school meal programs (26). The effect of increased sales of foods other than school meals was identified in a report to Congress by the USDA that stated, “While studies indicate that the school meal programs do contribute to better nutrition and healthier eating behaviors for children who participate, competitive foods undermine nutrition integrity of the programs and discourage participation” (27).



Food Choices at School and the Eating Environment

The shift in providing children with greater access to competitive foods has the potential to erode the positive influences of school meals (27, 28). Studies consistently show that for many children, meals and snacks consumed at school make a major contribution to many children's total daily consumption of food and nutrients (6, 29).

Although children may understand that good nutrition and good health are related, this understanding may not be reflected in their food choices and meal patterns while at school (19). Food choices at school are influenced by the total eating environment in the schools, including types of foods available throughout the school, nutrition information in the cafeteria and around the school, nutrition education provided in the classroom, and nutrition promotions that reach families (20, 24).

Children's eating habits are shaped by a variety of influences, and schools are a critical part of the social environment that shapes these behaviors (2, 20, 30). Other environmental issues that need to be considered in addition to competitive foods are the nutritional quality, variety, and acceptability of program meals, meal scheduling, and nutrition education (31). A commitment to physical activity and promotion of healthful eating are also factors contributing to an overall healthful school nutrition environment. There are also issues of foods served outside of the school meal programs, at classroom parties and other school events. The use of food as a reward for appropriate behavior in the classroom is being addressed in some schools as part of school food policies (27, 32). Children receive a mixed message when the value of healthful food choices is taught in the classroom and students then encounter school vending machines and other venues with a wide assortment of snack foods and beverages that are not based on meeting nutrition standards (27).

Nutrition Concerns Regarding School Meals and Competitive Foods

Although school meals have improved in nutritional quality since the initiation of the School Meal Initiative in the mid-1990s and the implementation of meal pattern requirements (7, 27), nutrition standards do not apply to the increasing sales of a la carte foods sold in the cafeteria and to foods sold in snack bars, school stores, or vending machines, foods and beverages labeled as competitive foods by the USDA (6, 27, 33, 34). These foods range from a second serving as part of the school meal to foods that are sold in addition to or in place of reimbursable school meals. Recent studies have documented these increases and changes in foods and beverages offered outside of the school meal programs (35, 36, 37, 38, 39, 40, 41, 42, 43, 44).

A USDA report to Congress concluded that competitive foods have lower nutritional quality than schools meals and that these foods may contribute to overconsumption of food energy, dietary fat, saturated fat, added sugars, and sodium and underconsumption of calcium, fiber, fruits and vegetables, and whole grains (27). According to USDA regulations 7 CFR §210.11(a) and 7 CFR §220.12(a), competitive foods are any foods sold in competition with school meal programs to children in foodservice areas during the meal service periods (45, 46). This includes all other foods offered for individual sale except for meals served through the USDA's school meal programs. The USDA further defined foods of minimal nutritional value as a food that provides less than 5% of the Recommended Dietary Allowances for each of the eight specified nutrients per 100 calories or per serving. This includes foods such as carbonated beverages, water ices, chewing gum, and certain candies. Under current program regulations, the sale of foods of minimal nutritional value is prohibited in the foodservice areas during the school meal periods. Regulations do not prohibit their sale outside the foodservice area at any time during the school day.

The School Health Policies and Programs Study (5) reported that 43% of elementary, 73.9% of middle/junior high, and 98.2% of senior high schools had a vending machine or a school store, canteen, or snack bar where students could purchase food or beverages in 2000 (5). In more recent Government Accountability Office surveys (44), using a nationally representative sample of schools, almost all schools sold competitive foods to students, and over the last 5 years, the availability has increased in both middle schools and in a la carte lines. The Government Accountability Office estimated that nearly nine of 10 schools offered competitive foods in 2003-2004, but middle and high schools were more likely to sell these foods than elementary schools (44).

Vending Sales and "Pouring Rights" Issues

Schools and districts have come to rely on income from competitive food sales, including vending machines, primarily from carbonated beverages but also bottled water, to support discretionary spending not related to school foodservice (5, 20, 33, 47, 48), and the practice of districts having exclusive agreements with beverage or other companies for vending sales has increased in the last few years (30, 40, 47, 49). Exclusive beverage contracts, granting a company exclusive rights to sell beverages to students in schools (44), require schools to provide beverages through the contracted company in other venues. In 2003-2004, nearly half of all schools had an exclusive beverage contract, many covering 5 years or more, with some covering at least 10 years (44, 49). Many of the "pouring rights" contracts have provisions to increase the percentage of profits schools receive when sales volume increases, and this is a substantial incentive for schools to promote soft drink
option by adding vending machines, increasing the times they are available, and marketing
products to students (27, 44, 49). Districts may also receive significant signing income < 3 a >

other perks (44, 49, 50). In a Texas survey of school vending, beverage company and school officials acknowledged that the true purpose of these contracts is to develop brand loyalty in students at an early age with exclusive vending contracts allowing unlimited advertising access to their students (49).

These practices of promoting consumption of carbonated and other beverages are of particular concern because adolescents have been reported to decrease consumption of milk that has not been replaced by other dairy-rich sources of calcium but rather by soft drinks and noncitrus juices and drinks (36, 51, 52). The displacement of milk as a beverage that contributes essential nutrients to children undergoing rapid growth may put girls at a higher risk for developing osteoporosis (35, 53). Researchers also have explored the connection between consumption of sugar-sweetened drinks and childhood obesity. Research has shown that each 1-oz decline in milk consumption resulted in a 4.2-oz increase in soft drink consumption and a net gain of 31 calories and a loss of 34 mg of calcium (54).

Because of the negative effect of soft drink consumption on meeting nutrient recommendations and the possible health consequences, nutrition education messages targeted to children and/or parents should encourage limited consumption of soft drinks, including carbonated beverages (30, 35). In addition, policies that limit children's access to soft drinks and carbonated beverages at school should be promoted (27, 30). Restrictions to competitive foods are advocated to promote healthful eating and preventing overweight and obesity (5, 17, 20, 24, 30, 55).

Schools often sell competitive foods in or near the cafeteria during lunchtime, and students are allowed to purchase these foods as their lunch or to supplement their lunch (44, 56). Revenues to schools from competitive food sales in the school year 2003-2004 were substantial, and were used to support foodservice operations and student activities (44). The Government Accountability Office study found that more than 30% of high schools generated the most revenue from competitive food sales and raised more than \$125,000 per school in 2003-2004. A Texas survey in 2003 estimated the total annual revenue statewide from vending contracts to be over \$54 million. The amount per year from vending contracts ranges from \$2.7 million per year in districts with over 100,000 students to \$25,000 per year in districts with fewer than 5,000 students (49).

Across all competitive food sales, school foodservices generated more revenue than other school groups, largely through a la carte sales, and they generally used this revenue to support overall foodservice operations (44). A la carte sales in the school cafeteria are seen as a competitive tool

ool foodservice personnel to counteract sales by principals, school groups, student stores
er nonschool foodservice purchase points (47). Those school districts that hav

of free and reduced priced eligible students to paying students have a challenge to financially maintain their programs. However, although some a la carte sales in school foodservice may be healthful choices, others may have a negative effect on diet quality based on foods selected by students (56).

A study on availability of a la carte programs for young adolescents showed that students from schools without an a la carte program reported intakes that met or came near to meeting dietary recommendations, whereas students exposed to a la carte programs reported lower intakes of fruits and vegetables and a higher percentage of calories from total and saturated fat (39). Another study showed that adolescents selecting a la carte items in addition to or instead of school meals increased intake of energy but decreased intake of certain nutrients (42).

Studies of school eating environments confirmed that there are competitive foods issues that need to be addressed in school districts, individual schools, and/or states as a public policy issue (38, 40, 43, 56). The practice of offering alternative foods and beverages as school meals to children at a critical stage of growth and development undermines the purpose of the “Healthy School Meals for Americans Act” (9), which requires school meals to meet the *Dietary Guidelines for Americans* (10). If a school’s setting is intended to be a learning environment for children, the issue of healthful food choices needs to be a priority.

Improving Quality, Variety, and Acceptability of School Meals

The School Health Policies and Programs 2000 study (5) reported that schools offer a variety of foods to students as part of school meals, approximately 84% offered five or more foods containing whole grains each week, 68% offered a choice between two or more fruits or types of 100% fruit juice each day for lunch, 66% offered a choice between two or more entrees or main courses each day for lunch, 62% offered spaghetti or other pasta, and 43% offered cheese pizza with no meat topping (5).

Almost half (47%) of elementary schools, 63% of middle/junior high schools, and 76% of high schools offered pizza, hamburgers, or sandwiches a la carte; 42% of elementary schools, 57% of middle/junior high schools, and almost 80% of high schools offered lettuce, vegetables, or bean salads a la carte; 30% of elementary schools, 46% of middle/junior high schools, and 69% of high schools offered vegetables a la carte; and 30% of elementary schools, 46% of middle/junior high schools, and 74% of high schools offered french fries a la carte (5).

Aspects of the school meal environment are subject to local control (31). The U.S. Economic Research Service summarized potential improvements to the school meal

and suggested approaches for improvement to increase NSLP quality and/or acceptance. Attractive school meals with choices of menu items are more likely to be eaten. Encouraging consumption of fruits, salad, and other vegetables served with meals are of particular importance because these foods are underconsumed by children and are also the components of USDA school meals most likely to be discarded uneaten by children as plate waste (31, 56). The “offer vs serve” provision has enabled some schools to increase food consumption by incorporating more choices as part of the school meal offerings (56). However, in other schools, offer vs serve may be compounding the problem of low fruit and vegetable consumption by students. Offer vs serve is required by federal school lunch and breakfast regulations (57) in senior high schools participating in school meal programs, and local school districts may choose to adopt the provision for lower grades (56). Offer vs serve has become the standard in high schools and middle/junior high schools, and the majority of elementary school also participate in the offer vs serve provision (56). The offer vs serve provision in schools that use the food-based menu planning systems must take a full portion of at least three of the five NSLP meal pattern items offered and three of the four food items for the School Breakfast Program (56). Under the offer vs serve provision, students may refuse up to two of the five food items on the food-based school lunch menu and one of the four required food items on the school breakfast menu. However, the meal must remain priced as a unit even with two or one less food items.

Thus, students selecting a school breakfast under the food-based menu planning system could select juice offered as a vegetable/fruit component and decline the milk. During lunch under the food-based menu planning system, when many schools offer alternative beverages to milk, students may refuse the milk that was part of the meal and purchase an alternate beverage and/or decline the fruit and/or vegetables. Schools that use nutrient-based systems must select two menu items of the foods offered in the NSLP. If the selected breakfast or lunch contains fewer food items than allowed under the offer vs serve provision and menu planning system, the food items selected are categorized as a la carte sales and cannot be claimed as a reimbursable school meal.

Meal Scheduling, Time to Eat, and Recess Scheduling

Another complicating issue in the competitive foods issue is the pressure to reduce the length of meal periods to allow more time for classroom subjects during the day (27). In many schools there is simply not enough time allocated for all students to go to the school foodservice area during a regularly scheduled lunch period. An adequate time to eat lunch around midday was identified as one of the 10 factors associated with developing healthful eating habits in school children (58). In

studies, the average time for kindergarten to 12th-grade students to consume lunch was typically between 7 and 10 minutes, but other elements important to the dining experience < clt >

socializing, service, and clean-up activities added to the time used for lunch. Based on the information from these time studies, it was determined that a reasonable lunch schedule allows students at least 20 minutes to eat after they have been served their meals and arrive at the table with their food (59). However, in some cases this allocation may not be feasible and would be a challenge to address. Based on recommendations from a task force report on student nutrition and physical activity, one state legislature mandated that all students in elementary schools have 20 minutes to eat lunch once served (60).

Several studies report that meals scheduled before recess encourage students to rush meals (31). Over 40% of elementary schools reported scheduling recess immediately after lunch (5). A study was conducted to determine the impact that scheduling recess before and after the lunch period had on nutrient consumption and plate waste for students in grades 3, 4, and 5 (61). When recess was scheduled before lunch, school children consumed significantly more food and had less plate waste than children who had recess after lunch. Also, when recess was scheduled before lunch, children consumed more calories and total nutrients, including calcium, vitamin A, and iron, than when recess was after lunch (61).

Other Nutrition Integrity Issues that Affect the School Environment

Other nutrition integrity aspects of the school environment include the use of food as a behavioral award for children, foods provided at school parties, food used for fundraisers, and food choices in after-school feedings and other school events (2, 3, 14, 18, 19, 20, 23, 32, 39, 51, 62).

Opportunities for physical education and physical exercise are also part of the school environment that support and promote learning experiences that enable students to develop lifelong, healthful habits and need to be assessed and promoted (2, 3, 18, 19, 20, 23, 24, 62). Developmentally, elementary children need a protected environment, whereas older students need to learn to make choices. Comprehensive, sequential nutrition education using the classroom and the lunchroom can reinforce healthful eating behaviors (3, 18, 19, 20, 32).

In the current school environment, children are offered food as a reward for good behavior. Often these foods have little or no nutritional value but are easy, inexpensive, and can bring about short-term behavior change (18, 19, 20, 24, 32, 38, 39, 51, 62). The disadvantages of these rewards are many, including undermining nutrition education lessons; encouraging overconsumption of foods high in added sugar and fat; and teaching using food as a reward, not as an intrinsic motivator (32). These issues need to be addressed in promoting a healthful school environment.



Most US students have access to the NSLP, but the number of school breakfasts served per day in schools under the School Breakfast Program is only 31% of the number of lunches served in the NSLP (4). Not all schools offer the School Breakfast Program, even though the program is permanently authorized and is available free or at a reduced price for income-eligible students. The School Breakfast Program is considered an underutilized program in some schools, which is considered an access problem.

In a report evaluating the impact of school nutrition programs using a nationally representative data set, researchers concluded that the availability of the School Breakfast Program had beneficial effects for children (63). Children who had the School Breakfast Program available consumed a better overall diet, consumed a lower percentage of calories from fat, were less likely to have a low intake of magnesium, and were less likely to have low serum levels of vitamin C and folate (63). Many of the benefits were concentrated at the middle and upper parts of the income distribution, and the researchers concluded that these results were based on the substitution aspect of the School Breakfast Program. School breakfasts were of higher nutritional quality than those consumed elsewhere. The data for this study included nutritional information based on actual serum levels rather than dietary recall information and an explicit and transparent identification strategy to uncover the causal impacts of the programs (63).

Congress authorized the USDA/Food and Nutrition Service to implement and evaluate a 3-year universal breakfast study of elementary schools in six school districts representing a range of demographic and economic characteristics (64). In this study, universal breakfasts were offered to all elementary students without regard to household income. The specific question the pilot study addressed was, "Would an increase in the School Breakfast Program by students in elementary schools offering universal free breakfasts result in improved dietary intakes and/or measures of academic performance?"

The availability of universal free school breakfast caused a substantial increase in school breakfast participation (64). School breakfast participation almost doubled in the first year, and this level was maintained in the second and third year. In control schools, school breakfast participation only increased slightly. The impact of the school breakfast program varied by treatment school, but breakfast participation was greater in treatment schools with classroom breakfast. The average food and nutrient intakes of treatment and control school students at breakfast over the course of the day, as determined by food recalls during the first year of the study, were essentially the same. The rate of breakfast skipping in treatment and control breakfast elementary school students was similar (4%). The availability of universal school breakfast shifted the source of breakfast (or elsewhere) to school in treatment schools (64).



Based on these study results, the availability of free universal breakfast increased participation but had little impact on other outcome measures, including academic achievement test scores, attendance, tardiness, health and discipline, and daily food and nutrient intakes (64). The USDA noted that these test results do not negate the importance of eating breakfast and that these findings suggested simply offering free school breakfast to all elementary school students would not, on average, be expected to improve academic or behavior outcomes beyond what occurs in the schools already offering the school breakfast program (64).

The USDA/Food and Nutrition Service reports that a larger proportion of school meals are served to children from low-income families (4). However, there is an issue of access to the school breakfast program based on the ratio of free and reduced price eligible students who eat school lunch compared with those who eat school breakfast. The Food Research Action Center publishes an annual School Breakfast Scorecard based on the previous school year's participation data (65). In the 2004 report, the percentage of schools offering school lunch and also operating school breakfast was 79.4% (2003-2004) (65). That left 21.6% schools with no school breakfast program. In seven states, almost all (97%) schools with the lunch program also had the breakfast program; and in six states, there were fewer than 60% of schools that had both lunch and breakfast programs. However, having a school breakfast program does not ensure that children will eat breakfast at school. Nationally the ratio of the number of children who ate free or reduced-price breakfasts to those who also ate school lunches was 43:100. In 12 states, the ratio was greater than 50:100; and in seven states, the ratio was less than 33:100 (65). Based on numbers of low-income students who eat lunch, the Food Research Action Center estimates that there were 9.4 million low-income children who could have been participating in school breakfast daily during 2003-2004 but who did not.

In the Food Research Action Center report, when state agencies were asked to list the most effective strategies for increasing school breakfast participation, 64.3% of those responding listed universal free breakfast and 50% listed breakfast in the classroom (65). This has been particularly effective in school districts that have a high percentage of free and reduced price eligible students.

The Food Research Action Center concluded that offering some form of universal free breakfast is the one way that states, school districts, and schools can expand school breakfast to ensure that every child starts the day with breakfast (65). Schools that offer breakfast in the classroom have seen significant increases in breakfast participation, and in a universal free program, almost all children participate. Schools that offer nonuniversal free breakfast in the classroom or other

alternative breakfast service have discovered that paid and reduced price eligible children participate at a higher level in an alternative breakfast program than in a traditional program.

which breakfast is served in the cafeteria before school. The numbers of paid and reduced price students participating will be lower, but not the number of free students participating when compared with a universal free breakfast. This is especially important because many children, and particularly adolescents, reported skipping breakfast. In a study of fourth-grade children from urban, suburban, and rural schools (66), 20% reported skipping breakfast and/or lunch at least three times per week.

In a study of middle school adolescents in grades six to eight, students reported skipping breakfast an average of 28% of the time and did not eat anything until lunch (67). A recent review and summary of the literature on breakfast consumption and nutritional adequacy, body weight, and academic performance in children and adolescents concluded that breakfast consumption is associated with the health and well-being of children and adolescents (68). The investigators therefore promoted the consumption of a healthful breakfast, at home or at school on a daily basis. For children who tend to skip breakfast because of a lack of time in the morning, reviewers advocated that students eat breakfast either at school or on their way to school and that health practitioners who work with children should encourage parents to investigate the availability of school feeding programs and encourage breakfast consumption in groups who may be more likely to skip breakfast (68). Because the school breakfast program is an entitlement program, as is the school lunch program, schools with 40% of free and reduced price eligible students who eat school lunch are eligible for severe need funding, which will offset program costs (69).

Efforts to Change School Environments Are Increasing

Concerned with these issues, several action groups have developed resources and organized efforts in which interested public and private organizations and individuals can participate in promoting healthful school environments that promote students' learning (15, 16, 18, 19, 23, 30, 62). The activities of the National Alliance of Nutrition and Activity is one example of how several organizations collaborated to promote positive changes in school nutrition environments by supporting legislative actions that not only addressed access to programs and nutrition education but also resulted in the Congressional requirement for local wellness policies (23). Figure 1, resources for changing school nutrition environment, provides a summary of selected materials and references including Web sites developed by government agencies and organizations.

 Figure thumbnail gr1

State Legislation and Other State Efforts

Momentum is increasing for addressing school-based nutrition issues legislatively. At the beginning of 2005, several states, notably Arkansas, California, North Carolina, Michigan, and Texas, had introduced and passed school-based state legislative interventions or policies at the state level to address the growing concern for the obesity epidemic (79). According to the Government Accountability Office (44), 28 states had taken legislative initiatives to restrict competitive foods beyond USDA regulations as of April 2005. Since that time, other states not identified in that report have passed relevant legislation indicating the dynamic nature of these activities.

By September 2005, over 200 bills addressing some form of school-based nutrition legislation had been introduced nationwide (80). Ongoing legislation initiatives are tracked and reported at a Centers for Disease Control and Prevention searchable Web site database (81). In addition, a growing number of state agencies and school nutrition associations are also addressing state legislative mandates and the local wellness policies.

Local Wellness Policies

As a result of the requirement that school districts develop and implement a local wellness policy by the beginning of the 2006-2007 school year, the USDA has formed an interagency working group with representatives from the USDA/Food and Nutrition Service, US Department of Education—Safe and Drug Free Schools, Centers for Disease Control and Prevention’s Division of School and Adolescent Health, and the National Food Service Management Institute to review and compile Web-based resources for schools and communities. The USDA’s local wellness policy Web site (82) was placed on the Team Nutrition Web site.

Other organizations, the National Alliance of Nutrition and Activity and the School Nutrition Association, also developed Web-based wellness documents. The National Alliance of Nutrition and Activity, representing over 300 organizations, developed Model School Wellness Policies (83), and the School Nutrition Association developed Local School Wellness Policy Guidelines (84). The Action for Healthy Kids has an interactive wellness policy tool Web site (85) that is searchable by state and provides suggested language for the required components of a school district’s wellness policy. It also includes other desired elements such as the use of food as rewards that could be used by wellness policies. This is a valuable resource that also provides model local wellness policy components.



Developing Local Wellness Policies

There are numerous resources available as well as strategies for individuals and/or groups to use in developing local wellness policies and promoting healthful school environments that will support access to healthful school meals and improve student nutrition and physical activity. Because of the influence of federal and state legislation, each school district may have a different set of requirements that must be met in addition to the federal requirements. There are evolving resources available for use by states and local communities. Figure 2, Local Wellness Policy Resources, provides a sample of readily available Web resources that may be particularly useful in developing local wellness policies.

 Figure thumbnail gr2

Figure 2 Local wellness policy resources.

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When considering the development of a local wellness policy, access to school meals and scheduling of adequate time for lunch could be included as part of a policy. Ensuring that schools have breakfast programs and exploring alternate ways to serve breakfasts that would reach more students at the beginning of the school day should also be considered. This position paper has provided many references and suggested actions to promote a healthful school environment that could be used by those involved in helping school districts to develop a local wellness policy.

The Role Of Dietetics Professionals

School districts are required to develop and implement local wellness policies in the school year beginning after June 30, 2006. ADA members and dietetics professionals are uniquely qualified to engage in helping schools in their communities to develop local policies based on nutrition integrity standards that will reflect the needs of the community. Directly involved in these efforts are members of the School Nutrition Services dietetics practice group, with over 900 ADA members. These members include federal and state governments, school districts and school cafeterias, consultants, dietetics and/or nutrition educators, and industry representatives. Dietetics

professionals can provide support to those who work at various levels of the School Nutrition Services or allied areas, or who have an interest in the nutrition integrity of school meals.

and the school nutrition environment. Dietetics professionals with school-aged children can be particularly influential in efforts to affect environmental changes in the schools attended by their children.

ADA members and dietetics professionals are encouraged to be proactive and to use their skills and knowledge to promote nutrition integrity in schools and to assist local school boards, principals, teachers, foodservice personnel, parent and teacher organizations, other health care professionals, and community members in the development of local wellness policies and programs.^{70, 71, 72, 73, 74, 75, 76, 77, 78, 86}

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ADA Position adopted by the House of Delegates on October 4, 1999, and reaffirmed on May 24, 2004. This position will be in effect until December 31, 2009. ADA authorizes republication of the position, in its entirety, provided full and proper credit is given. Requests to use portions of the position must be directed to ADA Headquarters at 800/877-1600, ext 4835 or ppapers@eatright.org.

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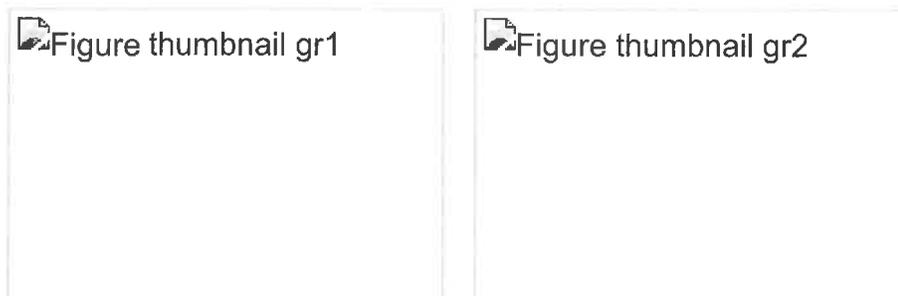
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Exhibit 7

Preventing Childhood Obesity

Health in the Balance

Committee on Prevention of Obesity in Children and Youth

Food and Nutrition Board
Board on Health Promotion and Disease Prevention

Jeffrey P. Koplan, Catharyn T. Liverman, Vivica I. Kraak, *Editors*

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The serpent has been a symbol of long life, healing, and knowledge among almost all cultures and religions since the beginning of recorded history. The serpent adopted as a logotype by the Institute of Medicine is a relief carving from ancient Greece, now held by the Staatliche Museen in Berlin.

*“Knowing is not enough; we must apply.
Willing is not enough; we must do.”*

—Goethe



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This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We wish to thank the following individuals for their review of this report:

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Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations nor did they see the final draft of the report before its release. The review of this report was overseen by **ENRIQUETA C. BOND**, Burroughs Wellcome Fund, and **GORDON H. DEFRIESE**, Department of Social Medicine, University of North Carolina at Chapel Hill. Appointed by the National Research Council, they were responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authoring committee and the institution.

Preface

In 2001, the U.S. Surgeon General issued the *Call to Action to Prevent and Decrease Overweight and Obesity* to stimulate the development of specific agendas and actions targeting this public health problem. In recognition of the need for greater attention directed to prevent childhood obesity, Congress, through the fiscal year 2002 Labor, Health and Human Services, Education Appropriations Act Conference Report, directed the Centers for Disease Control and Prevention (CDC) to request that the Institute of Medicine (IOM) develop an action plan targeted to the prevention of obesity in children and youth in the United States. In addition to CDC, this study was supported by the Department of Health and Human Services' Office of Disease Prevention and Health Promotion (ODPHP); National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK); the National Heart, Lung, and Blood Institute (NHLBI); the National Institute of Child Health and Human Development (NICHD); the Division of Nutrition Research Coordination of the National Institutes of Health; and The Robert Wood Johnson Foundation (RWJF).

The charge to the IOM committee was to develop a prevention-focused action plan to decrease the prevalence of obesity in children and youth in the United States. The primary emphasis of the study's task was on examining the behavioral and cultural factors, social constructs, and other broad environmental factors involved in childhood obesity and identifying promising approaches for prevention efforts. To address this charge, the IOM appointed a 19-member multidisciplinary committee with expertise in child health and development, obesity, nutrition, physical activity, economics,

education, public policy, and public health. Six meetings were held during the 24-month study and a variety of sources informed the committee's work. The committee obtained information through a literature review (Appendix C) and a commissioned paper discussing insights, strategies, and lessons learned from other public health issues and social change campaigns that might be relevant to the prevention of obesity in children and youth (Appendix D). The meetings included two workshops that were key elements of the committee's information-gathering process (Appendix E). Held in June 2003, the first workshop focused on strategies for developing school-based policies to promote nutrition and physical activity in children and youth. The second workshop was organized in December 2003 and addressed marketing and media influences on preventing childhood obesity and issues related to family dynamics. Each workshop included public forum sessions, and the committee benefited from the breadth of issues raised by nonprofit organizations, professional associations, and individuals.

Since the inception of this study, the committee recognized that it faced a broad task and a complex problem that has become an epidemic not only in the United States but also internationally. The committee appreciated the opportunity to develop an action plan on the prevention of obesity in children and youth and developed its recommendations to encompass the roles and responsibilities of numerous stakeholders and many sectors of society.

Children are highly cherished in our society. The value we attach to our children is fundamentally connected to society's responsibility to provide for their growth, development, and well-being. Extensive discussions will need to continue beyond this report so that shared understandings are reached and support is garnered for sustained societal and lifestyle changes that will reverse the obesity trends among our children and youth.

Jeffrey P. Koplan, *Chair*
Committee on Prevention of Obesity in
Children and Youth

Acknowledgments

It was a privilege to chair this Institute of Medicine (IOM) committee whose members not only brought their breadth and depth of expertise to this important topic but were actively engaged in the committee's work. This report represents the result of six meetings, two open sessions, numerous emails and phone conferences, and the extensive analysis and thoughtful writing contributed by the committee members who volunteered their time to work on this study. I thank each of the committee members for their dedication and perseverance in working through the diversity of issues in a truly interdisciplinary collaboration.

The committee greatly benefited from the opportunity for discussion with the individuals who made presentations and attended the committee's workshops and meetings, including: Neal Baer, Kelly Brownell, Harold Goldstein, Paula Hudson Collins, Mary Engle, Susan McHale, Alex Molnar, Eric Rosenthal, Mark Vallianatos, Jennifer Wilkins, and Judith Young, as well as all those who spoke during the open forums (Appendix E).

This study was sponsored by the U.S. Department of Health and Human Services' Centers for Disease Control and Prevention; Office of Disease Prevention and Health Promotion; National Heart, Lung, and Blood Institute; National Institute of Diabetes and Digestive and Kidney Diseases; National Institute of Child Health and Human Development; the Division of Nutrition Research Coordination of the National Institutes of Health; and The Robert Wood Johnson Foundation. The committee thanks Terry Bazzarre, William Dietz, Karen Donato, Gilman Grave, Van Hubbard,

Woodie Kessel, Kathryn McMurry, Pamela Starke-Reed, Susan Yanovski, and their colleagues for their support and guidance on the committee's task.

This study was conducted in collaboration with the IOM Board on Health Promotion and Disease Prevention (HPDP), and we wish to thank both Rose Martinez, director of the HPDP Board, for her thoughtful interactions and discussions with the committee, and Carrie Szlyk, who was of great assistance in the early phases of this study.

We appreciate the extensive analysis of lessons learned from other public health efforts and their relevance to preventing childhood obesity written by Michael Eriksen (Appendix D). Many thanks to Sally Ann Lederman and Lynn Parker for their technical review of sections of the report. Kathi Hanna's work as a consultant, financial oversight by Elisabeth Rimaud, and the editing work of Steven Marcus, Laura Penny, and Tom Burroughs are also greatly appreciated. The work of Rebecca Klima-Hudson and Stephanie Deutsch is also most appreciated. The report has been enhanced by the artwork of Becky Heavner, and we thank her for these creative efforts.

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Preventing Childhood Obesity: Health in the Balance presents a set of recommendations that, when implemented together, will catalyze synergistic actions among families, communities, schools, and the public and private sectors to effectively prevent the large majority of children and youth in the United States from becoming obese. Although the committee members have diverse backgrounds, over the course of this study we have gained a deeper appreciation for the difficulty and complexity of the steps necessary to prevent obesity in our nation's youth. We provide this guidance with the hope that it will benefit the health of our nation and future generations.

Jeffrey P. Koplan, *Chair*
Committee on Prevention of Obesity in
Children and Youth

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Executive Summary

Despite steady progress over most of the past century toward ensuring the health of our country's children, we begin the 21st century with a startling setback—an epidemic of childhood obesity. This epidemic is occurring in boys and girls in all 50 states, in younger children as well as adolescents, across all socioeconomic strata, and among all ethnic groups—though specific subgroups, including African Americans, Hispanics, and American Indians, are disproportionately affected. At a time when we have learned that excess weight has significant and troublesome health consequences, we nevertheless see our population, in general, and our children, in particular, gaining weight to a dangerous degree and at an alarming rate.

The increasing prevalence of childhood obesity¹ throughout the United States has led policy makers to rank it as a critical public health threat. Over the past three decades, its rate has more than doubled for preschool children aged 2 to 5 years and adolescents aged 12 to 19 years, and it has more than tripled for children aged 6 to 11 years. At present, approximately nine million children over 6 years of age are considered obese. These

¹Reflecting classification based on the readily available measures of height and weight, this report uses the term “obesity” to refer to children and youth who have a body mass index (BMI) equal to or greater than the 95th percentile of the age- and gender-specific BMI charts of the Centers for Disease Control and Prevention (CDC). In most children, such BMI values are known to indicate elevated body fat and to reflect the presence or risk of related diseases.

trends mirror a similar profound increase over the same approximate period in U.S. adults as well as a concurrent rise internationally, in developed and developing countries alike.

Childhood obesity involves immediate and long-term risks to physical health. For children born in the United States in 2000, the lifetime risk of being diagnosed with diabetes at some point in their lives is estimated at 30 percent for boys and 40 percent for girls if obesity rates level off. Young people are also at risk of developing serious psychosocial burdens related to being obese in a society that stigmatizes this condition.

There are also considerable economic costs. The national health care expenditures related to obesity and overweight in adults alone have been estimated to range from approximately \$98 billion to \$129 billion after adjusting for inflation and converting estimates to 2004 dollars. Understanding the causes of childhood obesity, determining what to do about them, and taking appropriate action require attention to what influences eating behaviors and physical activity levels because obesity prevention involves a focus on energy balance (calories consumed versus calories expended). Although seemingly straightforward, these behaviors result from complex interactions across a number of relevant social, environmental, and policy contexts.

U.S. children live in a society that has changed dramatically in the three decades over which the obesity epidemic has developed. Many of these changes—such as both parents working outside the home, longer work hours by both parents, changes in the school food environment, and more meals eaten outside the home, together with changes in the physical design of communities often affect what children eat, where they eat, how much they eat, and the amount of energy they expend in school and leisure time activities. Other changes, such as the growing diversity of the population, influence cultural views and marketing patterns. Use of computers and video games, along with television viewing, often occupy a large percentage of children's leisure time and potentially influence levels of physical activity for children as well as for adults. Many of the social and cultural characteristics that the U.S. population has accepted as a normal way of life may collectively contribute to the growing levels of childhood obesity. An understanding of these contexts, particularly regarding their potential to be modified and how they may facilitate or impede development of a comprehensive obesity prevention strategy, is essential for reducing childhood obesity.

DEVELOPING AN ACTION PLAN FOR OBESITY PREVENTION

The Institute of Medicine Committee on Prevention of Obesity in Children and Youth was charged with developing a prevention-focused action

plan to decrease the prevalence of obesity in children and youth in the United States. The primary emphasis of the committee's task was on examining the behavioral and cultural factors, social constructs, and other broad environmental factors involved in childhood obesity and identifying promising approaches for prevention efforts. The plan consists of explicit goals for preventing obesity in children and youth and a set of recommendations, all geared toward achieving those goals, for different segments of society (Box ES-1).

Obesity prevention requires an evidence-based public health approach to assure that recommended strategies and actions will have their intended effects. Such evidence is traditionally drawn from experimental (randomized) trials and high-quality observational studies. However, there is limited experimental evidence in this area, and for many environmental, policy, and societal variables, carefully designed evaluations of ongoing programs and policies are likely to answer many key questions. For this reason, the committee chose a process that incorporated all forms of available evidence—across different categories of information and types of study design—to enhance the biological, psychosocial, and environmental plausibility of its inferences and to ensure consistency and congruency of information.

Because the obesity epidemic is a serious public health problem calling for immediate reductions in obesity prevalence and in its health and social consequences, the committee believed strongly that actions should be based on the best *available* evidence—as opposed to waiting for the best *possible* evidence. However, there is an obligation to accumulate appropriate evidence not only to justify a course of action but to assess whether it has made a difference. Therefore, evaluation should be a critical component of any implemented intervention or change.

Childhood obesity prevention involves maintaining energy balance at a healthy weight while protecting overall health, growth and development, and nutritional status. The balance is between the energy an individual consumes as food and beverages and the energy expended to support normal growth and development, metabolism, thermogenesis, and physical activity. Although “energy intake = energy expenditure” looks like a fairly basic equation, in reality it is extraordinarily complex when considering the multitude of genetic, biological, psychological, sociocultural, and environmental factors that affect both sides of the equation and the interrelationships between these factors. For example, children are strongly influenced by the food- and physical activity-related decisions made by their families, schools, and communities. Furthermore, it is important to consider the kinds of foods and beverages that children are consuming over time, given that specific types and quantities of nutrients are required to support optimal growth and development.

BOX ES-1

Goals of Obesity Prevention in Children and Youth

The goal of obesity prevention in children and youth is to create—through directed social change—an environmental-behavioral synergy that promotes:

- **For the *population* of children and youth**
 - ◆ Reduction in the incidence of childhood and adolescent obesity
 - ◆ Reduction in the prevalence of childhood and adolescent obesity
 - ◆ Reduction of mean population BMI levels
 - ◆ Improvement in the proportion of children meeting Dietary Guidelines for Americans
 - ◆ Improvement in the proportion of children meeting physical activity guidelines
 - ◆ Achieving physical, psychological, and cognitive growth and developmental goals
- **For *individual* children and youth**
 - ◆ A healthy weight trajectory, as defined by the CDC BMI charts
 - ◆ A healthful diet (quality and quantity)
 - ◆ Appropriate amounts and types of physical activity
 - ◆ Achieving physical, psychosocial, and cognitive growth and developmental goals

Because it may take a number of years to achieve and sustain these goals, intermediate goals are needed to assess progress toward reduction of obesity through policy and system changes. Examples include:

- Increased number of children who safely walk and bike to school
- Improved access to and affordability of fruits and vegetables for low-income populations
- Increased availability and use of community recreational facilities
- Increased play and physical activity opportunities
- Increased number of new industry products and advertising messages that promote energy balance at a healthy weight
- Increased availability and affordability of healthful foods and beverages at supermarkets, grocery stores, and farmers markets located within walking distance of the communities they serve
- Changes in institutional and environmental policies that promote energy balance

Thus, changes at many levels and in numerous environments will require the involvement of multiple stakeholders from diverse segments of society. In the home environment, for example, incremental changes such as improving the nutritional quality of family dinners or increasing the time and frequency that children spend outside playing can make a difference.

Changes that lead to healthy communities, such as organizational and policy changes in local schools, school districts, neighborhoods, and cities, are equally important. At the state and national levels, large-scale modifications are needed in the ways in which society promotes healthful eating habits and physically active lifestyles. Accomplishing these changes will be difficult, but there is precedent for success in other public health endeavors of comparable or greater complexity and scope. This must be a national effort, with special attention to communities that experience health disparities and that have social and physical environments unsupportive of healthful nutrition and physical activity.

A NATIONAL PUBLIC HEALTH PRIORITY

Just as broad-based approaches have been used to address other public health concerns—including automobile safety and tobacco use—obesity prevention should be public health in action at its broadest and most inclusive level. **Prevention of obesity in children and youth should be a national public health priority.**

Across the country, obesity prevention efforts have already begun, and although the ultimate solutions are still far off, there is great potential at present for pursuing innovative approaches and creating linkages that permit the cross-fertilization of ideas. Current efforts range from new school board policies and state legislation regarding school physical education requirements and nutrition standards for beverages and foods sold in schools to community initiatives to expand bike paths and improve recreational facilities. Parallel and synergistic efforts to prevent adult obesity, which will contribute to improvements in health for the entire U.S. population, are also beginning. Grassroots efforts made by citizens and organizations will likely drive many of the obesity prevention efforts at the local level and can be instrumental in driving policies and legislation at the state and national levels.

The additional impetus that is needed is the political will to make childhood obesity prevention a national public health priority. Obesity prevention efforts nationwide will require federal, state, and local governments to commit adequate and sustained resources for surveillance, research, public health programs, evaluation, and dissemination. The federal government has had a longstanding commitment to programs that address nutritional deficiencies (beginning in the 1930s) and encourage physical fitness, but only recently has obesity been targeted. The federal government should demonstrate effective leadership by making a sustained commitment to support policies and programs that are commensurate to the scale of the problem. Furthermore, leadership in this endeavor will require coordination of federal efforts with state and community efforts, complemented by

engagement of the private sector in developing constructive, socially responsible, and potentially profitable approaches to the promotion of a healthy weight.

State and local governments have especially important roles to play in obesity prevention, as they can focus on the specific needs of their state, cities, and neighborhoods. Many of the issues involved in preventing childhood obesity—including actions on street and neighborhood design, plans for parks and community recreational facilities, and locations of new schools and retail food facilities—require decisions by county, city, or town officials.

Rigorous evaluation of obesity prevention interventions is essential. Only through careful evaluation can prevention interventions be refined; those that are unsuccessful can be discontinued or refocused, and those that are successful can be identified, replicated, and disseminated.

Recommendation 1: *National Priority*

Government at all levels should provide coordinated leadership for the prevention of obesity in children and youth. The President should request that the Secretary of the Department of Health and Human Services (DHHS) convene a high-level task force to ensure coordinated budgets, policies, and program requirements and to establish effective interdepartmental collaboration and priorities for action. An increased level and sustained commitment of federal and state funds and resources are needed.

To implement this recommendation, the federal government should:

- Strengthen research and program efforts addressing obesity prevention, with a focus on experimental behavioral research and community-based intervention research and on the rigorous evaluation of the effectiveness, cost-effectiveness, sustainability, and scaling up of effective prevention interventions
 - Support extensive program and research efforts to prevent childhood obesity in high-risk populations with health disparities, with a focus both on behavioral and environmental approaches
 - Support nutrition and physical activity grant programs, particularly in states with the highest prevalence of childhood obesity
 - Strengthen support for relevant surveillance and monitoring efforts, particularly the National Health and Nutrition Examination Survey (NHANES)
 - Undertake an independent assessment of federal nutrition assistance programs and agricultural policies to ensure that they pro-

mote healthful dietary intake and physical activity levels for all children and youth

- **Develop and evaluate pilot projects within the nutrition assistance programs that would promote healthful dietary intake and physical activity and scale up those found to be successful**

To implement this recommendation, state and local governments should:

- **Provide coordinated leadership and support for childhood obesity prevention efforts, particularly those focused on high-risk populations, by increasing resources and strengthening policies that promote opportunities for physical activity and healthful eating in communities, neighborhoods, and schools**
- **Support public health agencies and community coalitions in their collaborative efforts to promote and evaluate obesity prevention interventions**

HEALTHY MARKETPLACE AND MEDIA ENVIRONMENTS

Children, youth, and their families are surrounded by a commercial environment that strongly influences their purchasing and consumption behaviors. Consumers may initially be unsure about what to eat for good health. They often make immediate trade-offs in taste, cost, and convenience for longer term health. The food, beverage, restaurant, entertainment, leisure, and recreation industries share in the responsibilities for childhood obesity prevention and can be instrumental in supporting this goal. Federal agencies can strengthen industry efforts through general support, technical assistance, research expertise, and regulatory guidance.

Some leaders in the food industry are already making changes to expand healthier options for young consumers, offer products with reduced energy content, and reduce portion sizes. These changes must be adopted on a much larger scale, however, and marketed in ways that make acceptance by consumers (who may now have acquired entrenched preferences for many less healthful products) more likely. Coordinated efforts among the private sector, government, and other groups are also needed to create, support, and sustain consumer demand for healthful food and beverage products, appropriately portioned restaurant and take-out meals, and accurate and consistent nutritional information through food labels, health claims, and other educational sources. Similarly, the leisure, entertainment, and recreation industries have opportunities to innovate in favor of stimu-

lating physical activity—as opposed to sedentary or passive-leisure pursuits—and portraying active living as a desirable social norm for adults and children.

Children’s health-related behaviors are influenced by exposure to media messages involving foods, beverages, and physical activity. Research has shown that television advertising can especially affect children’s food knowledge, choices, and consumption of particular food products, as well as their food-purchase decisions made directly and indirectly (through parents). Because young children under 8 years of age are often unable to distinguish between information and the persuasive intent of advertising, the committee recommends the development of guidelines for advertising and marketing of foods, beverages, and sedentary entertainment to children.

Media messages can also be inherently positive. There is great potential for the media and entertainment industries to encourage a balanced diet, healthful eating habits, and regular physical activity, thereby influencing social norms about obesity in children and youth and helping to spur the actions needed to prevent it. Public education messages in multiple types of media are needed to generate support for policy changes and provide messages to the general public, parents, children, and adolescents.

Recommendation 2: *Industry*

Industry should make obesity prevention in children and youth a priority by developing and promoting products, opportunities, and information that will encourage healthful eating behaviors and regular physical activity.

To implement this recommendation:

- Food and beverage industries should develop product and packaging innovations that consider energy density, nutrient density, and standard serving sizes to help consumers make healthful choices.
- Leisure, entertainment, and recreation industries should develop products and opportunities that promote regular physical activity and reduce sedentary behaviors.
- Full-service and fast food restaurants should expand healthier food options and provide calorie content and general nutrition information at point of purchase.

Recommendation 3: *Nutrition Labeling*

Nutrition labeling should be clear and useful so that parents and youth can make informed product comparisons and decisions to achieve and maintain energy balance at a healthy weight.

To implement this recommendation:

- The Food and Drug Administration should revise the Nutrition Facts panel to prominently display the total calorie content for items typically consumed at one eating occasion in addition to the standardized calorie serving and the percent Daily Value.
- The Food and Drug Administration should examine ways to allow greater flexibility in the use of evidence-based nutrient and health claims regarding the link between the nutritional properties or biological effects of foods and a reduced risk of obesity and related chronic diseases.
- Consumer research should be conducted to maximize use of the nutrition label and other food-guidance systems.

Recommendation 4: *Advertising and Marketing*

Industry should develop and strictly adhere to marketing and advertising guidelines that minimize the risk of obesity in children and youth.

To implement this recommendation:

- The Secretary of the DHHS should convene a national conference to develop guidelines for the advertising and marketing of foods, beverages, and sedentary entertainment directed at children and youth with attention to product placement, promotion, and content.
- Industry should implement the advertising and marketing guidelines.
- The Federal Trade Commission should have the authority and resources to monitor compliance with the food and beverage and sedentary entertainment advertising practices.

Recommendation 5: *Multimedia and Public Relations Campaign*

The DHHS should develop and evaluate a long-term national multimedia and public relations campaign focused on obesity prevention in children and youth.

To implement this recommendation:

- The campaign should be developed in coordination with other federal departments and agencies and with input from independent experts to focus on building support for policy changes; providing information to parents; and providing information to children and youth. Rigorous evaluation should be a critical component.

- Reinforcing messages should be provided in diverse media and effectively coordinated with other events and dissemination activities.
- The media should incorporate obesity issues into its content, including the promotion of positive role models.

HEALTHY COMMUNITIES

Encouraging children and youth to be physically active involves providing them with places where they can safely walk, bike, run, skate, play games, or engage in other activities that expend energy. But practices that guide the development of streets and neighborhoods often place the needs of motorized vehicles over the needs of pedestrians and bicyclists. Local governments should find ways to increase opportunities for physical activity in their communities by examining zoning ordinances and priorities for capital investment.

Community actions need to engage child- and youth-centered organizations, social and civic organizations, faith-based groups, and many other community partners. Community coalitions can coordinate their efforts and leverage and network resources. Specific attention must be given to children and youth who are at high risk for becoming obese; this includes children in populations with higher obesity prevalence rates and longstanding health disparities such as African Americans, Hispanic Americans, and American Indians, or families of low socioeconomic status. Children with at least one obese parent are also at high risk.

Health-care professionals, including physicians, nurses, and other clinicians, have a vital role to play in preventing childhood obesity. As advisors both to children and their parents, they have the access and influence to discuss the child's weight status with the parents (and child as age appropriate) and make credible recommendations on dietary intake and physical activity throughout children's lives. They also have the authority to encourage action by advocating for prevention efforts.

Recommendation 6: *Community Programs*

Local governments, public health agencies, schools, and community organizations should collaboratively develop and promote programs that encourage healthful eating behaviors and regular physical activity, particularly for populations at high risk of childhood obesity. Community coalitions should be formed to facilitate and promote cross-cutting programs and community-wide efforts.

To implement this recommendation:

- Private and public efforts to eliminate health disparities should include obesity prevention as one of their primary areas of focus and should support community-based collaborative programs to address social, economic, and environmental barriers that contribute to the increased obesity prevalence among certain populations.
- Community child- and youth-centered organizations should promote healthful eating behaviors and regular physical activity through new and existing programs that will be sustained over the long term.
- Community evaluation tools should incorporate measures of the availability of opportunities for physical activity and healthful eating.
- Communities should improve access to supermarkets, farmers' markets, and community gardens to expand healthful food options, particularly in low-income and underserved areas.

Recommendation 7: *Built Environment*

Local governments, private developers, and community groups should expand opportunities for physical activity including recreational facilities, parks, playgrounds, sidewalks, bike paths, routes for walking or bicycling to school, and safe streets and neighborhoods, especially for populations at high risk of childhood obesity.

To implement this recommendation:

Local governments, working with private developers and community groups, should:

- Revise comprehensive plans, zoning and subdivision ordinances, and other planning practices to increase availability and accessibility of opportunities for physical activity in new developments
- Prioritize capital improvement projects to increase opportunities for physical activity in existing areas
- Improve the street, sidewalk, and street-crossing safety of routes to school, develop programs to encourage walking and bicycling to school, and build schools within walking and bicycling distance of the neighborhoods they serve

Community groups should:

- Work with local governments to change their planning and capital improvement practices to give higher priority to opportunities for physical activity

The DHHS and the Department of Transportation should:

- Fund community-based research to examine the impact of changes to the built environment on the levels of physical activity in the relevant communities and populations.

Recommendation 8: *Health Care*

Pediatricians, family physicians, nurses, and other clinicians should engage in the prevention of childhood obesity. Health-care professional organizations, insurers, and accrediting groups should support individual and population-based obesity prevention efforts.

To implement this recommendation:

- Health-care professionals should routinely track BMI, offer relevant evidence-based counseling and guidance, serve as role models, and provide leadership in their communities for obesity prevention efforts.
- Professional organizations should disseminate evidence-based clinical guidance and establish programs on obesity prevention.
- Training programs and certifying entities should require obesity prevention knowledge and skills in their curricula and examinations.
- Insurers and accrediting organizations should provide incentives for maintaining healthy body weight and include screening and obesity preventive services in routine clinical practice and quality assessment measures.

HEALTHY SCHOOL ENVIRONMENT

Schools are one of the primary locations for reaching the nation's children and youth. In 2000, 53.2 million students were enrolled in public and private elementary and secondary schools in the United States. In addition, schools often serve as the sites for preschool, child-care, and after-school programs. Both inside and outside of the classroom, schools present opportunities for the concepts of energy balance to be taught and put into practice as students learn about good nutrition, physical activity, and their relationships to health; engage in physical education; and make food and

physical activity choices during school meal times and through school-related activities.

All foods and beverages sold or served to students in school should be healthful and meet an accepted nutritional content standard. However, many of the “competitive foods” now sold in school cafeterias, vending machines, school stores, and school fundraisers are high in calories and low in nutritional value. At present, federal standards for the sale of competitive foods in schools are only minimal.

In addition, many schools around the nation have reduced their commitment to provide students with regular and adequate physical activity, often as a result of budget cuts or pressures to increase academic course offerings, even though it is generally recommended that children accumulate a minimum of 60 minutes of moderate to vigorous physical activity each day. Given that children spend over half of their day in school, it is not unreasonable to expect that they participate in at least 30 minutes of moderate to vigorous physical activity during the school day.

Schools offer many other opportunities for learning and practicing healthful eating and physical activity behaviors. Coordinated changes in the curriculum, the in-school advertising environment, school health services, and after-school programs all offer the potential to advance obesity prevention. Furthermore, it is important for parents to be aware of their child’s weight status. Schools can assist in providing BMI, weight, and height information to parents and to children (as age appropriate) while being sure to sensitively collect and report on that information.

Recommendation 9: *Schools*

Schools should provide a consistent environment that is conducive to healthful eating behaviors and regular physical activity.

To implement this recommendation:

The U.S. Department of Agriculture, state and local authorities, and schools should:

- **Develop and implement nutritional standards for all competitive foods and beverages sold or served in schools**
- **Ensure that all school meals meet the Dietary Guidelines for Americans**
- **Develop, implement, and evaluate pilot programs to extend school meal funding in schools with a large percentage of children at high risk of obesity**

State and local education authorities and schools should:

- Ensure that all children and youth participate in a minimum of 30 minutes of moderate to vigorous physical activity during the school day
- Expand opportunities for physical activity through physical education classes; intramural and interscholastic sports programs and other physical activity clubs, programs, and lessons; after-school use of school facilities; use of schools as community centers; and walking- and biking-to-school programs
- Enhance health curricula to devote adequate attention to nutrition, physical activity, reducing sedentary behaviors, and energy balance, and to include a behavioral skills focus
- Develop, implement, and enforce school policies to create schools that are advertising-free to the greatest possible extent
- Involve school health services in obesity prevention efforts
- Conduct annual assessments of each student's weight, height, and gender- and age-specific BMI percentile and make this information available to parents
- Perform periodic assessments of each school's policies and practices related to nutrition, physical activity, and obesity prevention

Federal and state departments of education and health and professional organizations should:

- Develop, implement, and evaluate pilot programs to explore innovative approaches to both staffing and teaching about wellness, healthful choices, nutrition, physical activity, and reducing sedentary behaviors. Innovative approaches to recruiting and training appropriate teachers are also needed

HEALTHY HOME ENVIRONMENT

Parents (defined broadly to include primary caregivers) have a profound influence on their children by fostering certain values and attitudes, by rewarding or reinforcing specific behaviors, and by serving as role models. A child's health and well-being are thus enhanced by a home environment with engaged and skillful parenting that models, values, and encourages healthful eating habits and a physically active lifestyle. Economic and time constraints, as well as the stresses and challenges of daily living, may make healthful eating and increased physical activity a difficult reality on a day-to-day basis for many families.

Parents play a fundamental role as household policy makers. They make daily decisions on recreational opportunities, food availability at home, and children's allowances; they determine the setting for foods eaten in the home; and they implement countless other rules and policies that influence the extent to which various members of the family engage in healthful eating and physical activity. Older children and youth, meanwhile, have responsibilities to be aware of their own eating habits and activity patterns and to engage in health-promoting behaviors.

Recommendation 10: *Home*

Parents should promote healthful eating behaviors and regular physical activity for their children.

To implement this recommendation parents can:

- Choose exclusive breastfeeding as the method for feeding infants for the first four to six months of life
- Provide healthful food and beverage choices for children by carefully considering nutrient quality and energy density
- Assist and educate children in making healthful decisions regarding types of foods and beverages to consume, how often, and in what portion size
- Encourage and support regular physical activity
- Limit children's television viewing and other recreational screen time to less than two hours per day
- Discuss weight status with their child's health-care provider and monitor age- and gender-specific BMI percentile
- Serve as positive role models for their children regarding eating and physical-activity behaviors

CONFRONTING THE CHILDHOOD OBESITY EPIDEMIC

The committee acknowledges, as have many other similar efforts, that obesity prevention is a complex issue, that a thorough understanding of the causes and determinants of the obesity epidemic is lacking, and that progress will require changes not only in individual and family behaviors but also in the marketplace and the social and built environments (Box ES-2). As the nation focuses on obesity as a health problem and begins to address the societal and cultural issues that contribute to excess weight, poor food choices, and inactivity, many different stakeholders will need to make difficult trade-offs and choices. However, as institutions, organizations, and individuals across the nation begin to make changes, societal norms are

BOX ES-2
Summary of Findings and Conclusions

- Childhood obesity is a serious nationwide health problem requiring urgent attention and a population-based prevention approach so that all children may grow up physically and emotionally healthy.
- Preventing obesity involves healthful eating behaviors and regular physical activity—with the goal of achieving and maintaining energy balance at a healthy weight.
- Individual efforts and societal changes are needed. Multiple sectors and stakeholders must be involved.

likely to change as well; in the long term, we can become a nation where proper nutrition and physical activity that support energy balance at a healthy weight will become the standard.

Recognizing the multifactorial nature of the problem, the committee deliberated on how best to prioritize the next steps for the nation in preventing obesity in children and youth. The traditional method of prioritizing recommendations of this nature would be to base these decisions on the strength of the scientific evidence demonstrating that specific interventions have a direct impact on reducing obesity prevalence and to order the evidence-based approaches based on the balance between potential benefits and associated costs including potential risks. However, a robust evidence base is not yet available. Instead, we are in the midst of compiling that much-needed evidence at the same time that there is an urgent need to respond to this epidemic of childhood obesity. Therefore, the committee used the best scientific evidence available—including studies with obesity as the outcome measure and studies on improving dietary behaviors, increasing physical activity levels, and reducing sedentary behaviors, as well as years of experience and study on what has worked in addressing similar public health challenges—to develop the recommendations presented in this report.

As evidence was limited, yet the health concerns are immediate and warrant preventive action, it is an explicit part of the committee's recommendations that all the actions and initiatives include evaluation efforts to help build the evidence base that continues to be needed to more effectively fight this epidemic.

From the ten recommendations presented above, the committee has identified a set of immediate steps based on the short-term feasibility of the actions and the need to begin a well-rounded set of changes that recognize the diverse roles of multiple stakeholders (Table ES-1). In discussions and interactions that have already begun and will follow with this report, each

community and stakeholder group will determine their own set of priorities and next steps. Furthermore, action is urged for all areas of the report's recommendations, as the list in Table ES-1 is only meant as a starting point.

The committee was also asked to set forth research priorities. There is still much to be learned about the causes, correlates, prevention, and treatment of obesity in children and youth. Because the focus of this study is on prevention, the committee concentrated its efforts throughout the report on identifying areas of research that are priorities for progress toward preventing childhood obesity. The three research priorities discussed throughout the report are:

- **Evaluation of obesity prevention interventions**—The committee encourages the evaluation of interventions that focus on preventing an increase in obesity prevalence, improving dietary behaviors, increasing physical activity levels, and reducing sedentary behaviors. Specific policy, environmental, social, clinical, and behavioral intervention approaches should be examined for their feasibility, efficacy, effectiveness, and sustainability. Evaluations may be in the form of randomized controlled trials and quasi-experimental trials. Cost-effectiveness research should be an important component of evaluation efforts.
- **Behavioral research**—The committee encourages experimental research examining the fundamental factors involved in changing dietary behaviors, physical activity levels, and sedentary behaviors. This research should inform new intervention strategies that are implemented and tested at individual, family, school, community, and population levels. This would include studies that focus on factors promoting motivation to change behavior, strategies to reinforce and sustain improved behavior, identification and removal of barriers to change, and specific ethnic and cultural influences on behavioral change.
- **Community-based population-level research**—The committee encourages experimental and observational research examining the most important established and novel factors that drive changes in population health, how they are embedded in the socioeconomic and built environments, how they impact obesity prevention, and how they affect society at large with regard to improving nutritional health, increasing physical activity, decreasing sedentary behaviors, and reducing obesity prevalence.

The recommendations that constitute this report's action plan to prevent childhood obesity commence what is anticipated to be an energetic and sustained effort. Some of the recommendations can be implemented immediately and will cost little, while others will take a larger economic investment and require a longer time for implementation and to see the benefits of the investment. Some will prove useful, either quickly or over the

longer term, while others will prove unsuccessful. Knowing that it is impossible to produce an optimal solution a priori, we more appropriately adopt surveillance, trial, measurement, error, success, alteration, and dissemination as our course, to be embarked on immediately. Given that the health of today's children and future generations is at stake, we must proceed with all due urgency and vigor.

TABLE ES-1 Immediate Steps

Federal government	<ul style="list-style-type: none"> • Establish an interdepartmental task force and coordinate federal actions • Develop nutrition standards for foods and beverages sold in schools • Fund state-based nutrition and physical-activity grants with strong evaluation components • Develop guidelines regarding advertising and marketing to children and youth by convening a national conference • Expand funding for prevention intervention research, experimental behavioral research, and community-based population research; strengthen support for surveillance, monitoring, and evaluation efforts
Industry and media	<ul style="list-style-type: none"> • Develop healthier food and beverage product and packaging innovations • Expand consumer nutrition information • Provide clear and consistent media messages
State and local governments	<ul style="list-style-type: none"> • Expand and promote opportunities for physical activity in the community through changes to ordinances, capital improvement programs, and other planning practices • Work with communities to support partnerships and networks that expand the availability of and access to healthful foods
Health-care professionals	<ul style="list-style-type: none"> • Routinely track BMI in children and youth and offer appropriate counseling and guidance to children and their families
Community and nonprofit organizations	<ul style="list-style-type: none"> • Provide opportunities for healthful eating and physical activity in existing and new community programs, particularly for high-risk populations
State and local education authorities and schools	<ul style="list-style-type: none"> • Improve the nutritional quality of foods and beverages served and sold in schools and as part of school-related activities • Increase opportunities for frequent, more intensive and engaging physical activity during and after school • Implement school-based interventions to reduce children's screen time • Develop, implement, and evaluate innovative pilot programs for both staffing and teaching about wellness, healthful eating, and physical activity
Parents and families	<ul style="list-style-type: none"> • Engage in and promote more healthful dietary intakes and active lifestyles (e.g., increased physical activity, reduced television and other screen time, more healthful dietary behaviors)



Introduction

AN EPIDEMIC OF CHILDHOOD OBESITY

Children's health in the United States has improved dramatically over the past century. Vaccines targeting previously common childhood infections—such as measles, polio, diphtheria, tetanus, rubella, and *Haemophilus influenza*—have nearly eliminated these scourges. Through the widespread availability of potable water, improved sanitation, and antibiotics, diarrheal diseases and infectious diseases such as tuberculosis and pneumonia have diminished in frequency and as primary causes of infant and child deaths in the United States (CDC, 1999). Pervasive food scarcity and essential vitamin and mineral deficiencies have largely disappeared in the U.S. population (IOM, 1991; Kessler, 1995). The net result is that infant mortality has been lowered by over 90 percent, contributing to the substantial increase in life expectancy—more than 30 years—since 1900 (CDC, 1999). Innovations such as seatbelts, child car seats, and bike helmets, meanwhile, have contributed to improved children's safety, and fluoridation of municipal drinking water has enhanced child and adolescent dentition (CDC, 1999).

Given this steady trajectory toward a healthier childhood and healthier children, we begin the 21st century with a startling setback—an epidemic¹

¹The term “epidemic” is used in reference to childhood obesity as there have been an unexpected and excess number of cases on a steady increase in recent decades.

of childhood obesity. This epidemic is occurring in boys and girls in all 50 states, in younger children as well as in adolescents, across all socioeconomic strata, and among all ethnic groups—though specific subgroups, including African Americans, Hispanics, and American Indians, are disproportionately affected (Ogden et al., 2002; Caballero et al., 2003). At a time when we have learned that excess weight has significant and troublesome health consequences, we nevertheless see our population, in general, and our children, in particular, gaining weight to a dangerous degree and at an alarming rate.

The increasing prevalence of childhood obesity throughout the United States has led policy makers to rank it as a critical public health threat for the 21st century (Koplan and Dietz, 1999; Mokdad et al., 1999, 2000; DHHS, 2001). Over the past three decades since the 1970s, the prevalence of childhood obesity (defined in this report as a gender- and age-specific body mass index [BMI] at or above the 95th percentile on the 2000 CDC BMI charts) has more than doubled for preschool children aged 2 to 5 years and adolescents aged 12 to 19 years, and it has more than tripled for children aged 6 to 11 years (see Chapter 2; Ogden et al., 2002). Approximately nine million American children over 6 years of age are already considered obese. These trends mirror a similar profound increase in U.S. adult obesity and co-morbidities over a comparable time frame, as well as a concurrent rise in the prevalence of childhood and adult obesity and related chronic diseases internationally, in developed and developing countries alike (WHO, 2002, 2003; Lobstein et al., 2004).

IMPLICATIONS FOR CHILDREN AND SOCIETY AT LARGE

Many of us consider our weight and height as personal statistics, primarily our own, and occasionally our physician's concern. Our weight is something we approximate on forms and applications requiring this information. Body size has been a cosmetic issue rather than a health issue throughout most of human history, but scientific study has changed this view. One's aesthetic preference for a lean versus a plump body type may be related to personal taste, cultural and social norms, and association of body type with wealth or well-being. However, the implications of a wholesale increase in BMIs are increasingly becoming a public health problem. Thus, we need to acknowledge the sensitive personal dimension of height and weight, while also viewing weight as a public health issue, especially as the weight levels of children, as a population, are proceeding on a harmful upward trajectory.

The as yet unabated epidemic of childhood obesity has significant ramifications for children's physical health, both in the immediate and long term, given that obesity is linked to several chronic disease risks. In a

population-based sample, approximately 60 percent of obese children aged 5 to 10 years had at least one physiological cardiovascular disease (CVD) risk factor—such as elevated total cholesterol, triglycerides, insulin, or blood pressure—and 25 percent had two or more CVD risk factors (Freedman et al., 1999).

The increasing incidence of type 2 diabetes in young children (previously known as adult onset diabetes) is particularly startling. For individuals born in the United States in 2000, the lifetime risk of being diagnosed with diabetes at some point in their lives is estimated at 30 percent for boys and 40 percent for girls if obesity rates level off (Narayan et al., 2003).² The estimated lifetime risk for developing diabetes is even higher among ethnic minority groups at birth and at all ages (Narayan et al., 2003). Type 2 diabetes is rapidly becoming a disease of children and adolescents. In case reports limited to the 1990s, type 2 diabetes accounted for 8 to 45 percent of all new childhood cases of diabetes—in contrast with fewer than 4 percent before the 1990s (Fagot-Campagna et al., 2000). Young people are also at risk of developing serious psychosocial burdens related to being obese in a society that stigmatizes this condition, often fostering shame, self-blame, and low self-esteem that may impair academic and social functioning and carry into adulthood (Schwartz and Puhl, 2003).

The growing obesity epidemic in children, and in adults, affects not only the individual's physical and mental health but carries substantial direct and indirect costs for the nation's economy as discrimination, economic disenfranchisement, lost productivity, disability, morbidity, and premature death take their tolls (Seidell, 1998). States and communities are obliged to divert resources to prevention and treatment, and the national health-care system is burdened with the co-morbidities of obesity such as type 2 diabetes, hypertension, CVD, osteoarthritis, and cancer (Ebbeling et al., 2002).

The obesity epidemic may reduce overall adult life expectancy (Fontaine et al., 2003) because it increases lifetime risk for type 2 diabetes and other serious chronic disease conditions (Narayan et al., 2003), thereby potentially reversing the positive trend achieved with the reduction of infectious diseases over the past century. The great advances of genetics and other biomedical discoveries could be more than offset by the burden of illness, disability, and death caused by too many people eating too much and moving too little over their lifetimes.

²These projections are based on data on the lifetime risk of diagnosed diabetes and do not account for undiagnosed cases. The data do not allow for differentiation between type 1 and type 2 diabetes. However, the major form of diabetes in the U.S. population is type 2, which accounts for an estimated 95 percent of diabetes cases (Narayan et al., 2003).

Aside from the statistics, we can see the evidence of childhood obesity in our community schoolyards, in shopping malls, and in doctors' offices. There are confirmatory journalistic reports of the epidemiologic trends in weight—from resizing of clothing to larger coffins to more spacious easy chairs to the increased need for seatbelt extenders. These would be of passing interest and minimal importance were it not for the considerable health implications of this weight gain for both adults and children. For example, compared with adults of normal weight, adults with a BMI of 40 or more have a seven-fold increased risk for diagnosed diabetes (Mokdad et al., 2003). Indeed, the obesity epidemic places at risk the long-term welfare and readiness of the U.S. military services by reducing the pool of individuals eligible for recruitment and decreasing the retention of new recruits. Nearly 80 percent of recruits who exceed the military accession weight-for-height standards at entry leave the military before they complete their first term of enlistment (IOM, 2003).

What might our population look like in the year 2025 if we continue on this course? In a land of excess calories ingested and insufficient energy expended, the inevitable scenario is a continued increase in average body size and an altered concept of what is “normal.” Americans with a BMI below 30 will be considered small and obesity will no longer be newsworthy but accepted as the social norm.

While the existence and importance of the increase in the population-wide obesity problem are no longer debated, we are still mustering the determination to forge effective solutions. We must remind ourselves that social changes to transform public perceptions and behaviors regarding seatbelt use, smoking cessation, breastfeeding, and recycling would have sounded unreasonable just a few decades ago (Economos et al., 2001), yet we have acted vigorously and with impressive results. How to proceed similarly in meeting the formidable childhood obesity challenge is the focus of this Institute of Medicine (IOM) report.

The 19-member IOM committee was charged with developing a prevention-focused action plan to decrease the prevalence of obesity in children and youth in the United States. The primary emphasis of the committee's task was on examining the behavioral and cultural factors, social constructs, and other broad environmental factors involved in childhood obesity and identifying promising approaches for prevention efforts. This report presents the committee's recommendations for many different segments of society from federal, state, and local governments (Chapter 4), to industry and media (Chapter 5), local communities (Chapter 6), schools (Chapter 7), and parents and families (Chapter 8).

CONTEXTS FOR ACTION

Investigating the causes of childhood obesity, determining what to do about them, and taking appropriate action must address the variables that influence both eating and physical activity. Seemingly straightforward, these variables result from complex interactions across a number of relevant social, economic, cultural, environmental, and policy contexts.

U.S. children live in a society that has changed dramatically in the three decades over which the obesity epidemic has developed. Many of these changes, such as both parents working outside the home, often affect decisions about what children eat, where they eat, how much they eat, and the amount of energy they expend in school and leisure time activities (Ebbeling et al., 2002; Hill et al., 2003).

Other changes, such as the increasing diversity of the population, influence cultural views and marketing patterns. Lifestyle modifications, in part the result of media usage and content together with changes in the physical design of communities, affect adults' and children's levels of physical activity. Many of the social and cultural characteristics that the U.S. population has accepted as a normal way of life may collectively contribute to the growing levels of childhood obesity. The broad societal trends that impact weight outcomes are complex and clearly multifactorial. With such societal changes, it is difficult to tease out the quantitative and qualitative role of individual contributing factors. While distinct causal relationships may be difficult to prove, the dramatic rise in childhood obesity prevalence must be viewed within the context of these broad societal changes.

An understanding of these contexts, particularly regarding their potential to be modified and how they may facilitate or impede development of a comprehensive obesity prevention strategy, is therefore essential. This next section provides a useful background to understand the multidimensional nature of the childhood obesity epidemic.

Lifestyle and Demographic Trends

The interrelated areas of family life, ethnic diversity, eating patterns, physical activity, and media use—discussed below—are all aspects of societal change that must be considered. Singly and in concert, the trends in these areas will strongly influence prospects for preventive and corrective measures.

Family Life

The changing context of American families includes several distinct trends such as the shifting role of women in society, delayed marriage,

childbearing outside of marriage, higher divorce rates, single parenthood, and work patterns of parents (NRC, 2003). Among the many important transformations that have occurred are expanded job opportunities for women, which have led to more women entering the workforce. Economic necessities have also prompted this trend. Moreover, married mothers are increasingly more likely than they were in the past to remain in the labor force throughout their childbearing years.

Women's participation in the labor force increased from 36 percent in 1960 to 58 percent in 2000 (Luckett Clark and Weismantle, 2003). Since 1975, the labor force participation rate of mothers with children under age 18 has grown from 47 to 72 percent, with the largest increase among mothers with children under 3 years of age (U.S. Department of Labor, 2004). Over the same period, men's labor force participation rates declined slightly from 78 percent to 74 percent (Population Reference Bureau, 2004b). In 2002, only 7 percent of all U.S. households consisted of married couples with children in which only the husband worked.

These trends, together with lower fertility rates, a decrease in average household size, and the shift in household demographics from primarily married couples with children to single person households and households without children, have caused the number of meal preparers in U.S. households who cook for three or more people to decline (Population Reference Bureau, 2003; Sloan, 2003).

It has been suggested that smaller households experience fewer economies of scale in home preparation of meals than do larger families. Preparing food at home involves a set amount of time for every meal that changes minimally with the number of persons served. Eating meals out involves the same marginal costs per person. Moreover, changes in salary and the lower prices of prepared foods may have reduced the value of time previously used to prepare at-home meals. Thus, incentives have been shifted away from home production toward eating more meals away from home (Sturm, 2004). Time-use trends for meal preparation at home reveal a gradual decline from 1965 to 1985 (44 minutes per day versus 39 minutes per day) and a steeper decline from 1985 to 1999 (39 minutes per day versus 32 minutes per day) (Robinson and Godbey, 1999; Sturm, 2004).

Ethnic Diversity

The racial and ethnic composition of children in the United States is becoming more diverse. In 2000, 64 percent of U.S. children were white non-Hispanic, 15 percent were black non-Hispanic, 4 percent were Asian/Pacific Islander, and 1 percent were American Indian/Alaska Native. The proportion of children of Hispanic origin has increased more rapidly than the other racial and ethnic groups from 9 percent of the child population in

1980 to 16 percent in 2000 (Federal Interagency Forum on Child and Family Statistics, 2003).

Differences among ethnic groups (e.g., African American, American Indian, Hispanic, and Asian/Pacific Islanders) include variations in household composition and size—particularly larger household size in Hispanic and Asian populations (Frey, 2003)—and in other aspects of family life such as media use and exposure, consumer behavior, eating, and physical activity patterns (Tharp, 2001; Nesbitt et al., 2004).

Ethnic minorities are projected to comprise 40.2 percent of the U.S. population by 2020 (U.S. Census Bureau, 2001), and the food preferences of ethnic families are expected to have a significant impact on consumers' food preferences and eating patterns (Sloan, 2003). The higher-than-average prevalence of obesity in several ethnic minority populations may indicate differences in susceptibility to unfavorable lifestyle trends and the consequent need for specially designed preventive and corrective strategies (Kumanyika, 2002; Nesbitt et al., 2004).

Eating Patterns

As economic demands and the rapid pace of daily life increasingly constrain people's time, food trends have been marked by convenience, shelf stability, portability, and greater accessibility of foods throughout the entire day (Food Marketing Institute, 1996, 2003; French et al., 2001; Sloan, 2003). Food has become more available wherever people spend time. Because of technological advances, it is often possible to acquire a variety of highly palatable foods, in larger portion sizes, and at relatively low cost. Research has revealed a progressive increase, from 1977 to 1998, in the portion sizes of many types of foods and beverages available to Americans (Nielsen and Popkin, 2003; Smiciklas-Wright et al., 2003); and the concurrent rise in obesity prevalence has been noted (Nestle, 2003; Rolls, 2003).

Foods eaten outside the home are becoming more important in determining the nutritional quality of Americans' diets, especially for children (Lin et al., 1999b; French et al., 2001). Consumption of away-from-home foods comprised 20 percent of children's total calorie intake in 1977-1978 and rose to 32 percent in 1994-1996 (Lin et al., 1999b). In 1970, household income spent on away-from-home foods accounted for 25 percent of total food spending; by 1999, it had reached nearly one-half (47 percent) of total food expenditures (Clason, 1999; Kennedy et al., 1999).

The trend toward eating more meals in restaurants and fast food establishments may be influenced not only by simple convenience but also in response to needs such as stress management, relief of fatigue, lack of time, and entertainment. According to a 1998 survey conducted by the National Restaurant Association, two-thirds of Americans indicated that patronizing

a restaurant with family or friends allowed them to socialize and was a better use of their leisure time than cooking at home and cleaning up afterward (Panitz, 1999).

For food consumed at home, never has so much been so readily available to so many—that is, to virtually everyone in the household—at low cost and in ready-to-eat or ready-to-heat form (French et al., 2001; Sloan, 2003). Increased time demands on parents, especially working mothers, have shifted priorities from parental meal preparation toward greater convenience (French et al., 2001), and the effects of time pressures are seen in working mothers' reduced participation in meal planning, shopping, and food preparation (Crepinsek and Burstein, 2004). Industry has endeavored to meet this demand through such innovations as improved packaging and longer shelf stability, along with complementary technologies, such as microwaves, that have shortened meal preparation times.

Another aspect of this trend toward convenience is an increased prevalence, across all age groups of children and youth, of frequent snacking and of deriving a large proportion of one's total daily calories from energy-dense snacks (Jahns et al., 2001). At the same time, there has been a documented decline in breakfast consumption among both boys and girls, generally among adolescents (Siega-Riz et al., 1998) and in urban elementary school-age children as compared to their rural and suburban counterparts (Gross et al., 2004); further, children of working mothers are more likely to skip meals (Crepinsek and Burstein, 2004).

There are also indications that children and adolescents are not meeting the minimum recommended servings of five fruits and vegetables daily recommended by the Food Guide Pyramid (Cavadini et al., 2000; American Dietetic Association, 2004). This trend is partially explained by the limited variety of fruits and vegetables consumed by Americans. In 2000, five vegetables—iceberg lettuce, frozen potatoes, fresh potatoes, potato chips, and canned tomatoes—accounted for 48 percent of total vegetable servings and six fruits (out of more than 60 fruit products)—orange juice, bananas, apple juice, apples, fresh grapes, and watermelon—accounted for 50 percent of all fruit servings (Putnam et al., 2002).

These trends have contributed to an increased availability and consumption of energy-dense foods and beverages. As summarized in Table 1-1 and Figures 1-1 through 1-3, trends in the dietary intake of the general U.S. population parallel trends in the dietary intake of children and youth. A more in-depth discussion of caloric intake, energy balance, energy density, Dietary Guidelines for Americans, and the Food Guide Pyramid is included in Chapters 3, 5, and 7.

Physical Activity

Physical activity is often classified into different types including recreational or leisure time, utilitarian, household, and occupational. The direct surveillance of physical activity trends in U.S. adults began only in the 1980s and was limited to characterizing leisure-time physical activity. In 2001, CDC began collecting data on the overall frequency and duration of time spent in household, transportation, and leisure-time activity of both moderate and vigorous intensity in a usual week through the state-based Behavioral Risk Factor Surveillance System (BRFSS) (CDC, 2003c).

National surveys conducted over the past several decades suggest an increase in population-wide physical activity levels among American men, women, and older adolescents; however, a large proportion of these populations still do not meet the federal guidelines for recommended levels of total daily physical activity.³ The data for children's and youth's leisure time and physical activity levels reveal a different picture than the adult physical activity trend data that are summarized in Table 1-2.

Trend data collected by the Americans' Use of Time Study, through time-use diaries, indicated that adults' free time increased by 14 percent between 1965 and 1985 from 35 hours to an average total of nearly 40 hours per week (Robinson and Godbey, 1999). Data from other population-based surveys, including the National Health Interview Survey, National Health and Nutrition Examination Survey (NHANES), BRFSS, and the Family Interaction, Social Capital and Trends in Time Use Data (1998-1999), together with trend data on sports and recreational participation, suggest minor to significant increases in reported leisure-time physical activity among adults (Pratt et al., 1999; French et al., 2001; Sturm, 2004).

Data from the 1990-1998 BRFSS⁴ revealed only a slight increase in self-reported physical activity levels among adults (from 24.3 percent in 1990 to 25.4 percent in 1998), and a decrease in respondents reporting no physical activity at all (from 30.7 percent in 1990 to 28.7 percent in 1998) (CDC, 2001).

Women, older adults, and ethnic minority populations have been identified as having the greatest prevalence of leisure-time physical inactivity (CDC, 2004b). In general, the prevalence of self-reported, no leisure-time physical activity was highest in 1989, and declined to its lowest level in 15 years among all groups in 35 states and the District of Columbia based on

³The Surgeon General's report on physical activity and health suggests that significant health benefits can be obtained by Americans who include a moderate amount of physical activity (e.g., 30 minutes of brisk walking) on most if not all days of the week (DHHS, 1996).

⁴The BRFSS is a population-based, randomly selected, self-reported telephone survey conducted among the noninstitutionalized U.S. adult population aged 18 years and older throughout the 50 states (CDC, 2003c).

TABLE 1-1 Trends in Food Availability and Dietary Intake of the U.S. Population and of U.S. Children and Youth^a

Dietary Intake Trend	U.S. Population	U.S. Children and Youth
Portion sizes of foods	Portion sizes of most foods consumed by adults both at home and away from home (except pizza) increased between 1977 and 1996 (Nielsen and Popkin, 2003).	Portion sizes for children aged 2 years and older increased for most foods consumed both at home and away from home between 1977 and 1996 (Nielsen and Popkin, 2003).
Total energy intake derived from away-from-home sources	Total energy intake increased from 18% to 34% for adults between 1977-1978 and 1995 (Lin et al., 1999a).	Total energy intake increased from 20% to 32% for children between 1977-1978 and 1994-1996 (Lin et al., 1999b).
Total energy intake	Between 1971 and 2000, average energy intake increased from 2,450 to 2,618 calories for men and 1,542 to 1,877 kcal for women (CDC, 2004a). Between 1989 and 1991 and 1994-1996, total energy increased 8.6% and 9.5%, according to food supply and CSFII data, respectively (Chanmugam et al., 2003). Between 1983 and 2000, calories per capita increased by 20% (USDA, 2003) (Figure 1-1).	No significant increased trends in energy intake were observed in children aged 6-11 years between 1977-1978 and 1994-1996, 1998 (Enns et al., 2002). Total calories consumed by adolescent boys aged 12 to 19 years increased by 243 between 1977-1978 and 1994-1996 from 2,523 to 2,766 calories (Enns et al., 2003). Total calories consumed by adolescent girls aged 12 to 19 years increased by 123 between 1977-1978 and 1994-1996 from 1,787 to 1,910 calories (Enns et al., 2003).
Total fat consumption	Between 1971 and 2000, the percentage of calories from total fat decreased for men (from 36.9% to 32.8%) and women (from 36.1% to 32.8%) (CDC, 2004a). However, the intake of grams of total fat increased among women and decreased among men (CDC, 2004a) (Figure 1-2).	Between 1965 and 1996, the proportion of energy from total fat consumed by children decreased from 39% to 32%, and saturated fat from 15% to 12% (Cavadini et al., 2000). Children aged 6 to 11 years in 1994-1996, 1998 consumed 25% of calories from discretionary fat (USDA, 2000; Enns et al., 2002).

For adolescents aged 12 to 19 years, girls consumed 2.5% and boys consumed 2.6% of their calories from added fat (USDA, 2000; Enns et al., 2003).

Added dietary sweeteners

Between 1977 and 2000, an 83 calorie/day increase in caloric sweeteners was observed in the U.S. for all individuals 2 years and older, representing a 22% increase in the proportion of energy derived from caloric sweeteners (Popkin and Nielsen, 2003).

Between 1982 and 1997, per capita consumption of sweeteners increased 28% (34 pounds) (Putnam and Gerrior, 1999).

Dairy and milk consumption

Between 1970 and 1997, the consumption of milk per capita decreased from 31 gallons to 24 gallons, while cheese consumption increased 146% from 11 pounds/person in 1970 to 28 pounds/person in 1997 (French et al., 2001).

Americans consumed 2.5 times as much cheese and drank 23% less milk per capita in 1997 than in 1970 (Putnam and Gerrior, 1999).

Children aged 6 to 11 years in 1994 to 1996 and 1998 consumed 21-23 teaspoons of added sugars in a 1,800-2,000 calorie diet which exceeded the Food Guide Pyramid recommendation of 6-12 teaspoons for a 1,600-2,200 calorie diet (USDA, 1996; Enns et al., 2002).

Milk consumption decreased by 37% in adolescent boys and 30% in adolescent girls between 1977-1978 and 1994 (Cavadini et al., 2000).

In 1977-1978, children aged 6 to 11 years consumed four times as much milk as any other beverage, and adolescents aged 12 to 19 years drank 1.5 times as much milk as any other beverage. In 1994-1996 and 1998, children aged 6 to 11 consumed 1.5 times as much milk as soft drinks, and by 1994-1996 adolescents consumed twice as much soft drinks as milk (French et al., 2001).

TABLE 1-1 Continued

Dietary Intake Trend	U.S. Population	U.S. Children and Youth
Fruit and vegetable consumption	In 1997, Americans consumed 24% more fruit and vegetables per capita than they did in 1970 (French et al., 2001).	Adolescent intake of whole milk decreased while cheese increased. In 1994-1996, for adolescents aged 12 to 19 years, only 12% of girls and 30% of boys consumed the number of dairy servings recommended by the Food Guide Pyramid (USDA, 2000; Enns et al., 2002, 2003). In 1977-1978 children aged 6 to 11 years consumed more total vegetables than children in 1994-1996, 1998 (Enns et al., 2002). In 1994-1996, 1998, only 24% of girls and 23% of boys consumed the number of Food Guide Pyramid recommended fruit servings (USDA, 2000; Enns et al., 2002).
Meat, poultry, and fish consumption	Total meat consumption per capita increased by 19 lbs from 1970 to 2000. In 2000, individual Americans consumed 16 pounds less red meat than in 1970, 32 lbs more poultry, and 3 lbs more fish and shellfish (Putnam et al., 2002).	In 1994-1996 adolescents aged 12 to 19 years, only 18% of girls and 14% of boys consumed the number of Food Guide Pyramid recommended fruit servings (USDA, 2000; Enns et al., 2003). In 1994-1996 and 1998 the percentages of children aged 6 to 11 years and adolescents aged 12 to 19 years consuming meat, poultry, fish, and eggs were lower than in 1977-1978 (USDA, 2000; Enns et al., 2002, 2003).

Beverage consumption	Annual soft drink consumption increased from 34.7 to 44.4 gallons per capita between 1987-1991 and 1997 (French et al., 2001). Portion sizes of soft drinks increased by 49 calories (from 13.1 to 19.9 fl oz) between 1977 and 1996 (Nielsen and Popkin, 2003).	Soft drink consumption nearly tripled among adolescent boys from 7 to 22 ounces per day between 1977-1978 and 1994 (Guthrie and Morton, 2000; French et al., 2003). By 14 years of age, 32% of adolescent girls and 52% of adolescent boys consume three or more 8-ounce servings of soda daily (Gleason and Suiitor, 2001). Children as young as 7 months old are consuming soda (Fox et al., 2004).
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NOTE: CSFII = Continuing Survey of Food Intakes by Individuals.

^aFood availability (per capita intake) is based on food supply data; dietary intake trends are based on measured or self-reported food consumption data.

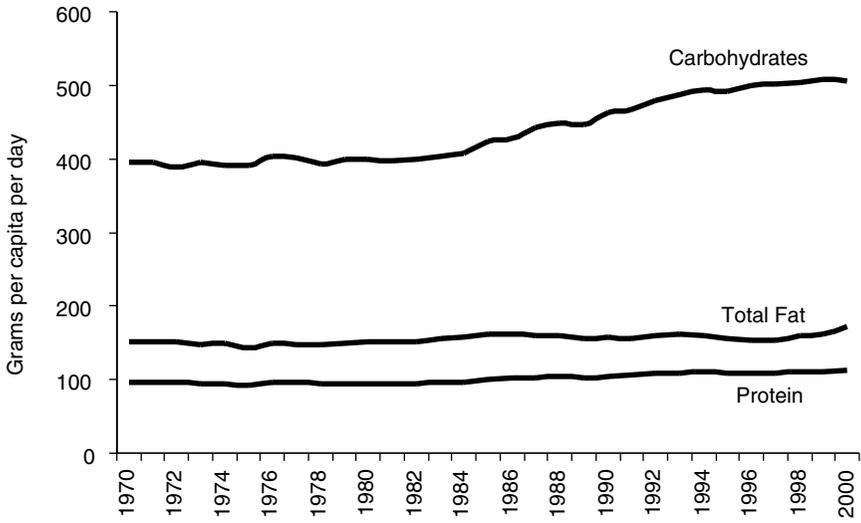


FIGURE 1-1 U.S. macronutrient food supply trends for carbohydrates, protein, and total fat, 1970-2000.

SOURCES: Putnam et al., 2002; USDA, 2003.

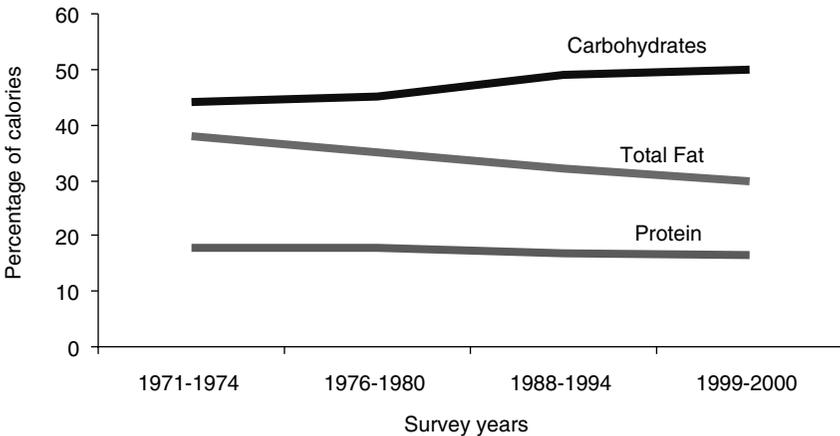


FIGURE 1-2 Percentage of calories from macronutrient intake for carbohydrates, protein, and total fat among adult men and women, 1970-2000.

SOURCE: CDC, 2004a.

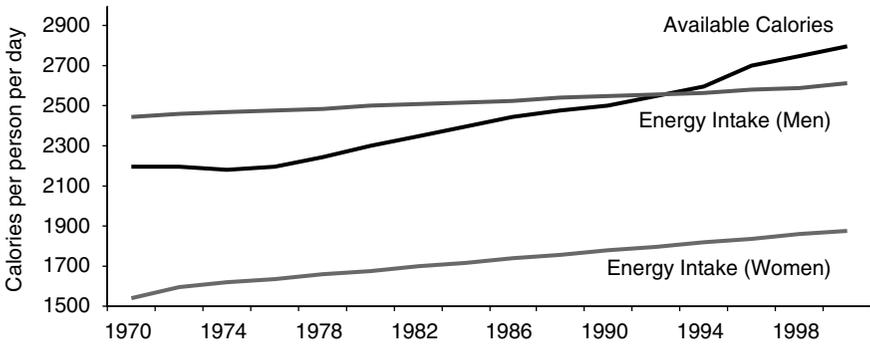


FIGURE 1-3 Available calories from the U.S. food supply, adjusted for losses,^a and average energy intake for adult men and women,^b 1970-2000. SOURCES: Putnam et al., 2002; CDC, 2004a.

^aBased on USDA food supply data, calories from the U.S. food supply adjusted for spoilage, cooking losses, plate waste, and other losses increased by 20 percent between 1983 and 2000 (Putnam et al., 2002; USDA, 2003).

^bDietary intake trends and percentage of calories from macronutrient intake are based on a CDC analysis of four NHANES, by survey year, for adult men and women aged 20 to 74 years from 1971 to 2000 for energy intake (kilocalories), protein, carbohydrates, total fat, and saturated fat (CDC, 2004a).

BRFSS data, although it is unclear why this occurred (CDC, 2004b). In 2001, BRFSS respondents were asked to report the overall frequency and duration of time spent in household, transportation, and leisure-time activity of both moderate and vigorous intensity (CDC, 2003c). Although 45.4 percent of adults reported having engaged in physical activities consistent with the recommendation of a minimum of 30 minutes of moderate intensity activity on most days of the week in 2001, more than one-half of U.S. adults (54.6 percent) were not sufficiently active to meet these recommendations (CDC, 2003c).

The physical activity trend data for children and youth are even more limited than for adults. Most available information is on the physical activity levels of high school youth, with limited data available on levels in younger children. Based on the Youth Risk Behavior Survey (YRBS), daily enrollment in physical education classes declined among high school students from 42 percent in 1991 to 25 percent in 1995 (DHHS, 1996) and increased slightly to 28.4 percent in 2003 (CDC, 2004c). Cross-sectional data collected through the YRBS for 15,214 high school students indicated that one-third (33.4 percent) of 9th to 12th graders nationwide are not engaging in recommended levels of moderate or vigorous physical activity

TABLE 1-2 Trends in Leisure Time and Physical Activity of U.S. Adults, Children, and Youth

Trend	Adults	Children and Youth
Available leisure time	Adults' free time increased by 14% between 1965 and 1985 to an average of nearly 40 hours per week based on Americans' Use of Time Study (Robinson and Godbey, 1999).	From 1981 to 1997, children aged 3 to 12 years experienced a decline in their free time by seven hours per week (Sturm, 2005a).
Leisure-time physical activity	<p>There have been increases in reported leisure-time physical activity among U.S. adults based on NHES, NHANES, BRFSS, and trend data on sports and recreational participation (Pratt et al., 1999; French et al., 2001).</p> <p>There was a slight increase in self-reported physical activity levels among adults, based on the 1990-1998 BRFSS, from 24.3% in 1990 to 25.4% in 1998 (CDC, 2001).</p> <p>There was a slight decrease in adults reporting no physical activity at all (from 30.7% in 1990 to 28.7% in 1998) (CDC, 2001).</p>	<p>An estimated 61.5% of children aged 9 to 13 years do not participate in any organized physical activity during their nonschool hours and 22.6% do not engage in any free-time physical activity based on the 2002 YMCLS (CDC, 2003a).</p> <p>From 1981 to 1997, children aged 3 to 12 years experienced an increase in time spent in organized sports and outdoor activities (Sturm, 2005a).</p>
Moderate to vigorous physical activity	Based on the 2001 BRFSS, 45.4% of adults reported having engaged in physical activities consistent with the recommendation of a minimum of 30 minutes of moderate-intensity activity on most days of the week in 2001. However, 54.6% of U.S. adults were not sufficiently active to meet these recommendations (CDC, 2003c).	High school students in grades 9 to 12 are not engaging in recommended levels of moderate or vigorous physical activity based on the YRBS (CDC, 2003b, 2004c; see Chapter 7).

TABLE 1-2 Continued

Trend	Adults	Children and Youth
Physical education classes	Not applicable	Daily enrollment in physical education classes declined among high school students from 42% in 1991 to 25% in 1995 (DHHS, 1996) and 28.4% in 2003 (CDC, 2004c).
Travel to and from school	Not applicable	<p>From 1977 to 2001, there was a marked decline in children's walking to school as a percentage of total school trips made by children aged 5 to 15 years from 20.2% to 12.5% (Sturm, 2005b).</p> <p>An estimated 25% of children aged 5 to 15 years who lived within a mile of school walked or bicycled at least once during the previous month based on the 1999 HealthStyles Survey (CDC, 2002).</p>

NOTE: BRFSS = Behavioral Risk Factor Surveillance System. NHES = National Health Examination Survey. NHANES = National Health and Nutrition Examination Surveys. YMCLS = Youth Media Campaign Longitudinal Survey. YRBS = Youth Risk Behavior Survey.

and an estimated 10 percent report that they are inactive (CDC, 2003b, 2004c; see Chapter 7).

In 2002, the CDC collected baseline data through the Youth Media Campaign Longitudinal Survey (YMCLS), a nationally representative survey of children aged 9 to 13 years and their parents, which revealed that 61.5 percent of youth in this age group do not participate in any organized physical activity during their nonschool hours and 22.6 percent do not engage in any free-time physical activity (CDC, 2003a).

Shifts in transportation patterns can affect energy balance. Many technological innovations have occurred over the past several decades such as the increased availability of labor-saving devices in the home, a decline in physically active occupations, and the dominance of automobiles for commuting to work and personal travel (Cutler et al., 2003). National data tracking trends on the physical activity levels and leisure or discretionary

time of younger children and pre-adolescents are limited. However, an analysis of the available data for children aged 3 to 12 years from 1981 to 1997 (Hofferth and Sandberg, 2001) suggests a decline in their free time by six hours per week—attributed to an increase in time away from home in structured settings—and an increase in time spent in organized sports and outdoor activities over this time frame (Sturm, 2005a). However, it is not possible to determine the overall impact of these changes on children's physical activity levels.

One factor that has influenced overall transportation patterns in the United States is the change in the built environment. Through a number of mediating factors, the built environment can either promote or hinder physical activity, although the role and influence of the built environment on physical activity levels is a relatively new area of investigation. The ways in which land is developed and neighborhoods are designed may contribute to the level of physical activity residents achieve as a natural part of their daily lives (Frank, 2000).

There have been many changes in the built environment over the past century or more. For a variety of reasons, Americans moved away from central cities to lower density suburbs, many of the most recent of which necessitate driving for transportation.

In these areas, streets were often built without sidewalks, residential areas were segregated from other land uses, and shopping areas were designed for access by car. These characteristics discourage walking and biking as a means of transportation, historically an important source of physical activity.

Indeed, the amount of time that adults spend walking and biking for transportation has declined in the past two decades, largely because people are driving more (Sturm, 2004). In addition, the more time that Americans spend traveling, the less time they have available for other forms of physical activity. In 2000, Americans spent nearly 26 minutes commuting to their jobs, an increase from 22 minutes in 1990, and the average commuting time was 30 minutes or more in 25 of the 245 cities with at least 100,000 population (Population Reference Bureau, 2004a).

Children's motorized vehicle travel to and from school has increased, though this represents a small proportion of their overall travel. The 2001 National Household Travel Survey (NHTS) indicated that less than 15 percent of children aged 5 to 15 years walked to or from school and 1 percent bicycled (Bureau of Transportation Statistics, 2003). Even children living relatively close to school do not walk to this destination. The 1999 HealthStyles Survey found that among participating households, 25 percent of children aged 5 to 15 years who lived within a mile of school either walked or bicycled at least once during the previous month (CDC, 2002).

From 1977 to 2001, there was a marked decline in children's walking

to school as a percentage of total school trips made by 5- to 15-year-olds from 20.2 percent to 12.5 percent (Sturm, 2005b). Based on data collected through the National Personal Transportation Surveys for 1977 and 1990, and the NHTS for 2001, there is little evidence of changes in walking trip length although distance traveled by bicycle has decreased (Sturm, 2005b). Although reduced physical activity has been identified as an unintended consequence of dependence on motorized travel, it is unclear how changes in children's transportation patterns have reduced their overall physical activity levels (Sturm, 2005b).

Media

The presence of electronic media in children's lives, and their time spent with such media, has grown considerably and has increased the time spent in sedentary pursuits, often with reduced outside play time. In 1999, the average American child lived in a home with three televisions, three radios, three tape players, two video cassette recorders (VCRs), one video game player, two compact disc players, and one computer (Roberts et al., 1999) (Figure 1-4). In 2003, nearly all children (99 percent) aged zero to six years lived in a home with a television set and the average number of VCRs or digital video discs (DVDs) in these young children's homes was 2.3 (Rideout et al., 2003). Television dominates the type of specific media used by children and youth and is the only form of electronic media for which trend data are available. In 1950, approximately 10 percent of U.S. households had a television (Putnam, 1995) in comparison with 98 percent in 1999 (Nielsen Media Research, 2000). The percent of American homes with more than one television set rose from 35 percent in 1970 (Lyle and Hoffman, 1972) to 88 percent in 1999 (Roberts et al., 1999). Moreover, there has been a ten-fold increase over the same period in the percent of American homes with three or more television sets (Rideout et al., 2003). In 2003, one-half (50 percent) of children aged zero to six years had three or more televisions, one-third (36 percent) had a television in their bedrooms, and nine out of ten children in this age range had watched television or DVDs (Rideout et al., 2003).

During a typical day, 36 percent of children watch television for one hour or less, 31 percent of children watch television for one to three hours, 16 percent watch television for three to five hours, and 17 percent watch television for more than 5 hours (Roberts et al., 1999) (Figure 1-5).

Two separate national data sources have tracked children's and adolescents' discretionary time spent watching television. Results indicate that the extent of television viewing differs by age, but also suggest an observed decline in television watching by children under 12 years by approximately four hours per week between 1981 and 1997 (Hofferth and Sandberg,

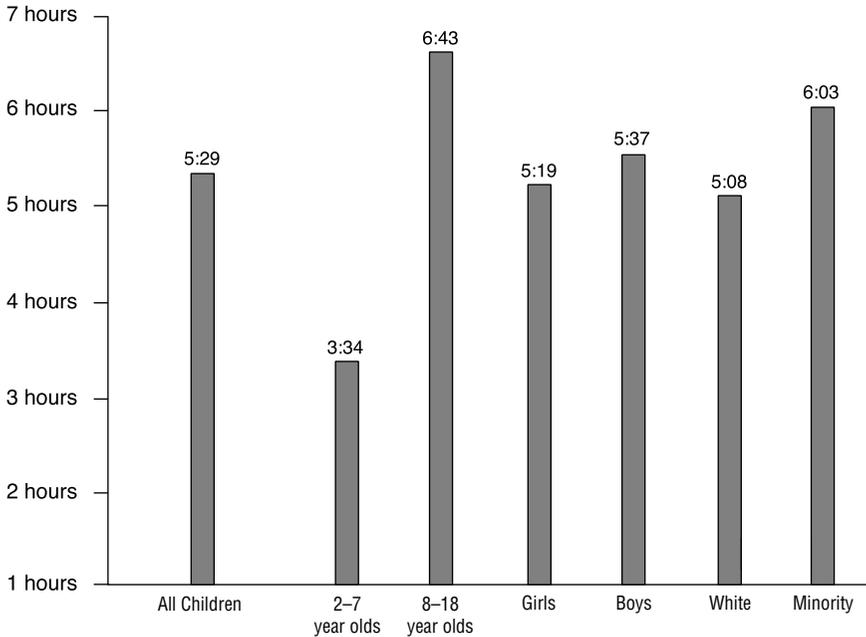


FIGURE 1-4 Daily media use among children by age. Media use includes television, video games, radios, cassette tape players, VCRs, compact disc players, and computers.

SOURCE: Rideout et al., 1999. This information was reprinted with permission from the Henry J. Kaiser Family Foundation.

2001). Based on the Monitoring the Future Survey from 1990 to 2001, there was a steady decrease in heavy television watching (three hours or more) among adolescents yet an observed increase in television viewing for one hour or less (Child Trends, 2002). Although children are using other types of electronic media including video games and computers (Roberts et al., 1999; Rideout et al., 2003), television viewing represents a significant amount of discretionary time among children and youth, which is a sedentary and modifiable activity (see Chapter 8).

Consumer Attitudes and Public Awareness

Trends in media coverage suggest a striking increase in public interest in obesity. The International Food Information Council (IFIC) has been following U.S. and international media coverage of the obesity issue since

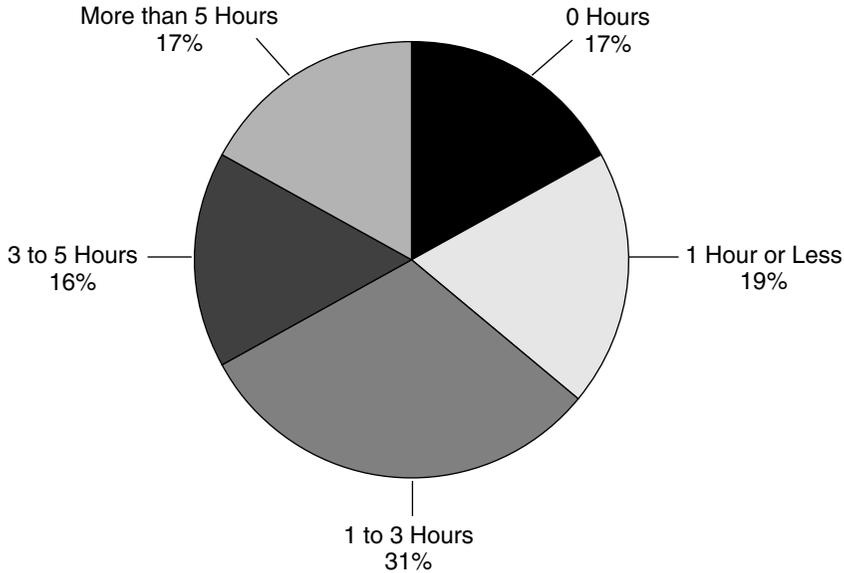


FIGURE 1-5 Daily television viewing by children and youth in hours.
 SOURCE: Rideout et al., 1999. This information was reprinted with permission from the Henry J. Kaiser Family Foundation.

1999 and has tracked a steady upward trend in the volume and breadth of issues covered (IFIC, 2004) (Figure 1-6).

This media focus, independent of the longstanding popularity of weight control as a consumer issue (Serdula et al., 1999), includes obesity-related topics ranging from popular diets and quick weight loss strategies to litigation against fast food restaurants to reports of new programs, policies, and research findings.

The media coverage on obesity is viewed by the public, parents, and other stakeholder groups in a variety of ways, depending on their personal beliefs regarding issues such as personal responsibility, the role of government and other institutions in promoting personal freedoms, media influences, free speech and the rights of advertisers, and the ways in which parents should raise their children, as well as on consequent responses to various population level approaches being proposed to address obesity.

While some people place a high value on the individual's right to choose what, when, where, and how to eat and be active, others are looking for advice, information, and enhanced opportunities, and may even favor government interventions that facilitate healthier choices (Kersh and Morone, 2002).

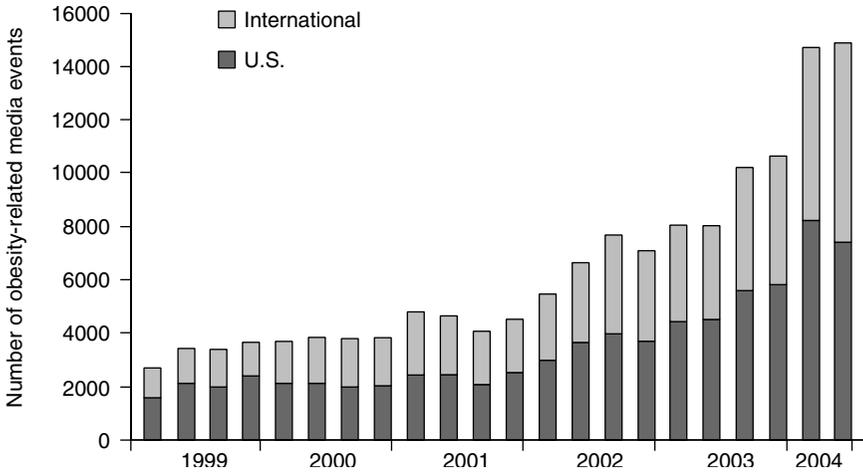


FIGURE 1-6 Trends in obesity-related media coverage, 1999-2004.
 SOURCE: IFIC, 2004. Reprinted, with permission. Copyright 2004 by the International Food Information Council.

Recent opinion polls indicate that a large number of adults and parents are very concerned or somewhat concerned about childhood obesity (Field Research Corporation, 2003; Widmeyer Polling & Research, 2003). For example, a recent telephone survey of 1,068 randomly selected California residents suggested that for one out of three respondents, obesity-related behaviors, especially unhealthy eating habits or the lack of physical activity, represent the greatest risk to California children (Field Research Corporation, 2003). Although obesity is considered a health problem comparable to smoking, some research suggests that it remains low on the list of Americans' perceptions of serious health problems, which remain dominated by cancer, HIV/AIDS, and heart disease (Oliver and Lee, 2002; Lake Snell Perry & Associates, 2003; San Jose Mercury News/Kaiser Family Foundation, 2004). More recent national research shows that Americans are perceiving childhood obesity to be a serious problem, similar to tobacco use, underage drinking, and violence, but not as serious as drug abuse (Evans et al., 2004).

Families may vary in the value they place on different health outcomes related to obesity, and the merits they attribute to certain benefits or drawbacks of changing behaviors to address it (Whitaker, 2004). Research suggests that some parents do not perceive weight, per se, to be a health issue for their children (Baughcum et al., 2000; Jain et al., 2001; Borra et al., 2003), independent of their child's physical and social functioning. They

think of their child as healthy if he or she has no serious medical conditions, and they embrace the hope that the overweight child will outgrow the problem. They may also hesitate to raise weight-related issues due to their concerns that this may lower the child's self-esteem and potentially encourage him or her to develop an eating disorder. School-age children, however, do not generally view obesity as a health problem as long as it does not significantly affect appearance and performance (Borra et al., 2003). Being obese, whether as a child or an adult, is highly stigmatized and viewed as a moral failing, among some educators (Price et al., 1987), health professionals (Teachman and Brownell, 2001), and even very young children (Cramer and Steinwert, 1998; Latner and Stunkard, 2003).

Further, individuals and consumers vary in the priority they place on healthy eating and an active lifestyle, and they hold a spectrum of views on health regarding weight management, weight control, and wellness (Buchanan, 2000; Strategy One, 2003). Consumer research reveals that Americans express not having enough time to fit everything into their day that they would like to, with the consequence that their health may be neglected (Strategy One, 2003).

In a recent national poll of 1,000 U.S. adult respondents, half of the respondents viewed obesity as a public health problem that society needs to solve while the other half considered it a personal responsibility or choice that should be dealt with privately (Lake Snell Perry & Associates, 2003).

However, Americans do appear more uniformly willing to support proactive actions to reduce obesity in children and youth, especially in the school setting (Lake Snell Perry & Associates, 2003; Robert Wood Johnson Foundation, 2003; Widmeyer Polling & Research, 2003). Childhood obesity presumably engenders more support for societal-level approaches because children, who are thought to have less latitude in food and activity choices than adults, are unlikely to be blamed by society for becoming obese. Understanding consumer perceptions and knowledge of public awareness about obesity will be essential in order to design an effective multimedia and public relations campaign supporting obesity prevention (see Chapter 5).

Emerging Programs and Policies

As it has done with many other child health concerns, from whooping cough, polio, and measles to use of toddlers' seats in automobiles, the United States is now addressing the growing problem of childhood obesity. State legislatures, federal agencies, school boards, teachers, youth programs, parents, and others are mobilizing to address the array of interrelated issues associated with the development, and potential prevention, of childhood obesity. Because adult overweight and obesity rates are even higher than

those of children, many efforts focus on improving eating habits and encouraging physical activity for people of all ages.

The range of these efforts is quite broad, and many innovative approaches are under way. As discussed throughout the report, many of these efforts are occurring at the grassroots level—neighborhood-specific or community-wide programs and activities encouraging healthy eating and promoting regular physical activity. A number of U.S. school districts, for instance, have established new standards for the types of food and beverages that will be available in their school systems (Prevention Institute, 2003). Many communities are examining the local availability of opportunities for physical activity and are working to expand bike paths and improve the walkability of neighborhoods. Further, community child- and youth-centered organizations (such as the Girl Scouts and the Boys and Girls Clubs of America) are adding or expanding programs focused on increasing physical activity. A national cross-sector initiative, *Shaping America's Youth*, supported by the private sector (industry), nonprofit organizations, and the Department of Health and Human Services, is working to compile a registry of the relevant ongoing research and intervention programs across the country as well as funding sources. Evaluating these efforts and disseminating those that are most effective will be the challenge and goal for future endeavors.

In many other countries where childhood obesity is a growing problem, including the United Kingdom, Sweden, Germany, France, Canada, and Australia, a broad array of national and community-level efforts and policy options are being pursued. Among these are the banning of vending machines in schools, developing restrictions for television advertising to children, and using taxes derived from energy-dense foods to support physical activity programs.

PUBLIC HEALTH PRECEDENTS

Public health problems of comparably broad scope and complexity have been successfully addressed in the past (Economos et al., 2001), and this experience gives us not only the confidence that childhood obesity too can be moderated, even prevented, but supplies us with some of the needed tools. This solid public health history of achievements is exemplified in Box 1-1 (CDC, 1999; Appendix D).

Many of these problems were not apparent at first, and grew to become an accepted part of life before they were recognized and subsequently addressed. For example, in 1900, with only approximately 8,000 cars on the roads, it was surely inconceivable that motor vehicle deaths could reach a peak of 56,278 per year in 1972 (U.S. Department of Transportation, 1995; Waller, 2002). Multifocal interventions on vehicular safety and high-

BOX 1-1
Ten Great Public Health Achievements
United States, 1900-1999

- Vaccination
- Motor vehicle safety
- Safer workplaces
- Control of infectious disease
- Decline in deaths from coronary heart disease and stroke
- Safer and healthier foods
- Healthier mothers and babies
- Family planning
- Fluoridation of drinking water
- Recognition of tobacco use as a health hazard

SOURCE: CDC, 1999.

way improvements have enabled us to make great progress in reducing motor vehicle deaths from this peak (Bolen et al., 1997; NSC, 1997). As the number of miles driven in the United States rose from 206 billion in 1930 to 2,467 billion in 1996, the death rate per 100 million miles declined dramatically from 15.97 in 1930 to 1.76 in 1996 (NSC, 1997; IOM, 1999). Even with this progress, however, we continue to record over 42,000 deaths a year from motor vehicle collisions (U.S. Department of Transportation, 2004).

Early in the 20th century, when cigarettes were hand-rolled, few would have predicted that cigarette smoking would become the major preventable cause of death in the United States a century later. Tobacco reform efforts can be traced back to the late 19th and early 20th century and were strengthened in the 1940s and 1950s as epidemiological studies began to convince the medical community and public about the health hazards of tobacco (Fee et al., 2002). In 1964, nearly 70 million people in the U.S. consumed tobacco on a regular basis; and according to the 1955 Current Population Survey, two-thirds of men (68 percent) and one-third of women (32.4 percent) 18 years and older were regular smokers of cigarettes. As revealed by these data, cigarette smoking was the social norm, its link with heart and lung diseases was not widely accepted, and the desire or ability to quit smoking in that era was very low (DHHS, 1964). The reduction in national prevalence of cigarette smoking from 41.9 percent in 1965 to 23 percent in 2001 (Kochanek and Smith, 2004) reflects changes in the social norms and the positive influence of public health and policy interventions (Public Health Service, 1994; Economos et al., 2001).

Recently, intensive effort has been devoted to reviewing the evidence of the effectiveness of community preventive services. The Guide to Community Preventive Services (Task Force on Community Preventive Services, 2004) has completed an analysis of the evidence in nine major areas (two health behaviors, six specific health conditions, and one addressing the social environment). Additional reports, including those central to preventing childhood obesity (e.g., school-based programs, community fruit and vegetable consumption, consumer literacy, and food and nutrition policy) are forthcoming. In the nine health areas examined to date, the Task Force found that certain categories of interventions appear to have strong evidence of effectiveness for multiple health behaviors and problems (Table 1-3). Further, based on the experience to date from the Guide

TABLE 1-3 Recommended Public Health Interventions Common to Multiple Health Behaviors and Conditions

Type of Intervention	Health Behavior or Condition
Community-wide campaigns	Physical activity** Motor vehicle occupant injuries* Oral health (water fluoridation)**
School-based interventions	Physical activity** Oral health (sealants)** Vaccine preventable diseases (requirement for school admission)* Skin cancer*
Mass media strategies	Tobacco initiation and cessation** Motor vehicle occupant injuries**
Laws and regulations	Reducing exposure to secondhand smoke** Motor vehicle occupant injuries**
Provider reminder systems	Vaccine preventable diseases** Tobacco cessation*
Reducing costs to patients	Tobacco cessation* Vaccine preventable diseases**
Home visits	Vaccine preventable diseases* Violence prevention**

* Sufficient Evidence.

** Strong Evidence.

SOURCE: Task Force on Community Preventive Services, 2004.

to Community Preventive Services, it appears that comprehensive programs that involve communities, schools, mass media, health providers, and laws and regulations are most likely to be effective for a number of health problems (see also Appendix D).

There is a general pattern to the interventions that have successfully addressed many of these public health problems (CDC, 1999). In nearly all cases, policy changes were followed by the emergence of new government leadership structures to effectively enforce the policies and oversee the development and implementation of pertinent programs. Such direction was aided by improved surveillance methods, control measures, technologies, and treatments, together with expanding systems of service delivery and provider education. By organizing the experiences, principles, and strategies underlying these multiple achievements into conceptual frameworks, we may likewise develop successful approaches to childhood obesity prevention.

SUMMARY

After working throughout the 20th century to improve children's physical health by reducing the incidence of disease and widening margins of safety, we now find ourselves bringing children into environments with some decidedly less-than-healthy features—fewer opportunities to be physically active and socially interactive, more opportunities to be sedentary and passively entertained, and frequent temptations to consume in the absence of hunger or need and to engage in other risky behaviors.

A complex of interacting cultural, social, economic, familial, and psychological issues have set the stage for these growing obesity risks for children. Although the need to take action to curb the epidemic is widely acknowledged, the debate about what to do and how to do it is just beginning in earnest. Important insights can potentially be obtained from an examination of past successes in overcoming, or at least alleviating, some other problems that also seemed insurmountable at first. Such insights are presented as part of the committee's charge to use theoretical and empirical findings to assess the potential utility of specific approaches within a comprehensive childhood obesity prevention strategy.

This report provides a broad-based examination of the problem of obesity in children and youth, and it presents an action plan—with recommendations on the roles and responsibilities of numerous stakeholders and many sectors of society—for addressing this problem. The committee hopes that the report will produce shared understandings and stimulate sustained societal and lifestyle changes so that the current obesity trends among our children and youth may be reversed.

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Extent and Consequences of Childhood Obesity



Overall trend data clearly indicate that obesity prevalence in U.S. children and youth has risen to distressing proportions, but many questions remain about the nature, extent, and consequences of this problem. How much do we really know about how this epidemic is unfolding? Which population groups are most affected? What does the available evidence tell us about how to address this problem? Finally, what are the potential consequences of inaction with respect to social, developmental, and health outcomes and the associated health-care system costs? This chapter's discussion of these questions informs the recommendations throughout the remainder of this report.

PREVALENCE AND TIME TRENDS

Because direct measures of body fat are neither feasible nor available for nationwide assessments of the prevalence of obesity, the National Health and Nutrition Examination Surveys (NHANES),¹ conducted by the National Center for Health Statistics, have been using body mass index (BMI) as a surrogate measure for body fatness. The prevalence of childhood and

¹NHANES is a series of cross-sectional, nationally representative examination surveys that became a continuous survey in 1999. Previous surveys include NHANES III (conducted from 1988 to 1994), NHANES II (conducted from 1976 to 1980), NHANES I (conducted from 1971 to 1974), the National Health Examination Survey (NHES) cycle 3 (conducted from 1966 to 1970), and the NHES cycle 2 (conducted from 1963 to 1965).

adolescent obesity is equated to the proportion of those who are in the upper end of the BMI distribution—specifically, at or above the age- and gender-specific 95th percentile of the Centers for Disease Control and Prevention’s (CDC’s) BMI charts for children and youth aged 2 through 19 years² (Kuczmarski et al., 2000) (see Chapter 3 for a more extensive discussion about the use of terms for childhood overweight and childhood obesity).

If BMI is normally distributed and survey-specific percentile distributions are presented, then by definition, 5 percent of children in each survey will be above the 95th percentile BMI of the survey sample. Thus, reports based on the survey-specific BMI percentiles would always designate 5 percent of children as obese and would fail to detect any true increasing prevalence of obesity across surveys. The CDC therefore developed a revised growth reference in 2000 that established the age- and gender-specific 95th percentile of BMI. The growth reference data were based on BMI distributions from national surveys between 1963 and 1980 for children aged 6 to 19 years, and between 1971 and 1994 for children aged 2 through 5 years (Kuczmarski et al., 2002; Ogden et al., 2002b). There are no BMI-for-age references or accepted definitions for children younger than 2 years of age. However, the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) has defined the term overweight for children under 2 years who are at or above the 95th percentile of weight-for-length and uses this standard for determining WIC program eligibility (Ogden et al., 2002a).

Overall Burden

The term “epidemic” suggests a condition that is occurring more frequently and extensively among individuals in a community or population than is expected. This characterization clearly appears to apply to childhood obesity. In 2000, obesity was two to three times more common in children and youth than in a reference period in the early 1970s. **The increase in obesity prevalence has been particularly striking since the late 1970s. The obesity epidemic affects both boys and girls and has occurred in all age, race, and ethnic groups throughout the United States (Ogden et al., 2002a).**

The 1999-2000 NHANES found that approximately 10 percent of 2- to 5-year-old children were at or above the 95th percentile of BMI, repre-

²The NHANES series use the term “overweight” rather than “obese” to describe all children who are at or above the age- and gender-specific 95th percentile of BMI. However, this report uses the term “obese” to refer to those children (see Chapter 3).

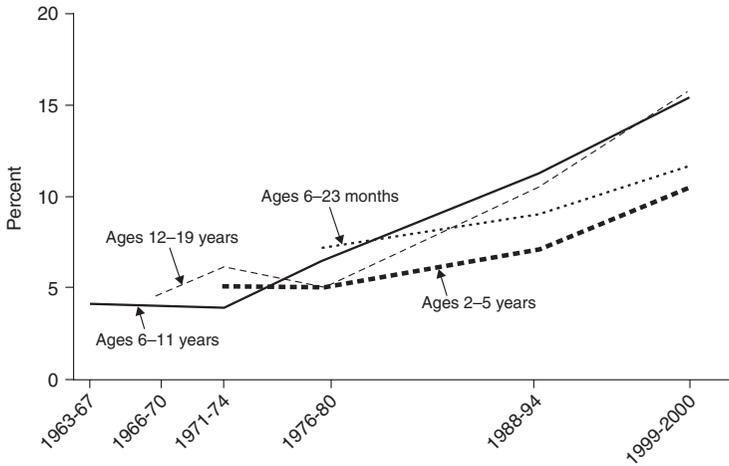


FIGURE 2-1 Age-specific trends in child and adolescent obesity.

NOTE: Obesity is defined as a BMI at or above the age- and gender-specific 95th percentile cutoff points from the 2000 CDC BMI charts. Weight-for-length is used to track children aged 6 to 23 months (under 2 years of age).

SOURCES: Ogden et al., 2002a; CDC, 2003.

senting twice the expected percentage; and that more than 15 percent of 6- to 19-year-olds met this criterion, representing about three times the expected percentage (Ogden et al., 2002a). No significant increases in obesity prevalence were reported between the 1999-2000 and the 2001-2002 NHANES (Hedley et al., 2004).

A significant, unabated increase in the prevalence of childhood obesity across all age groups is clearly seen in an analysis of serial national surveys from the early 1970s through the year 2000 (Figure 2-1). In the nearly 30 years between the 1971-1974 NHANES and the 1999-2000 NHANES, the prevalence of childhood obesity more than doubled for youth aged 12 to 19 years (from 6.1 percent to 15.5 percent) and more than tripled for children aged 6 to 11 years (4 percent to 15.3 percent). Even for preschool children, aged 2 to 5 years, the prevalence also more than doubled (5 percent to 10.4 percent) between these two national surveys (Ogden et al., 2002a). Data for children younger than 2 years of age, based on weight-for-length data available from NHANES II (6-23 months) onward also suggest an upward trend (Ogden et al., 2002a).

The same trends, stratified by gender, are shown in Figure 2-2 for infants and preschool children and in Figure 2-3 for school-aged children and adolescents. Among children older than 2 years of age, the increased prevalence of obesity over time has occurred to a similar degree in both

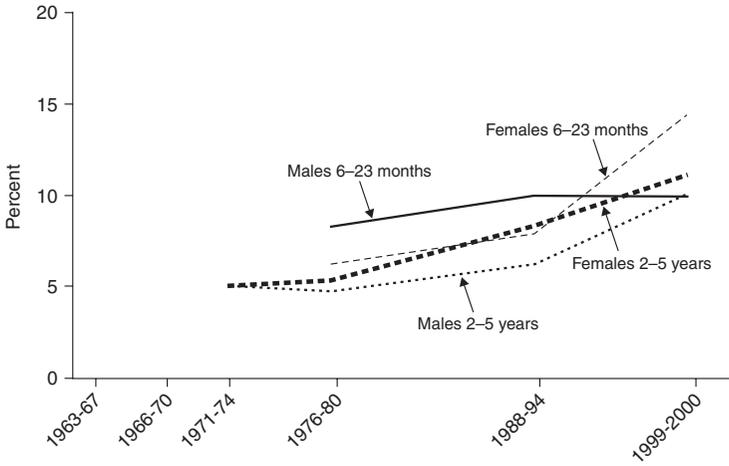


FIGURE 2-2 Trends in infant and child obesity, boys and girls aged 6 months through 5 years.

NOTE: Obesity is defined as a BMI at or above the age- and gender-specific 95th percentile cutoff points from the 2000 CDC BMI charts. Weight-for-length is used to track children aged 6 to 23 months (under 2 years of age).

SOURCE: Ogden et al., 2002a.

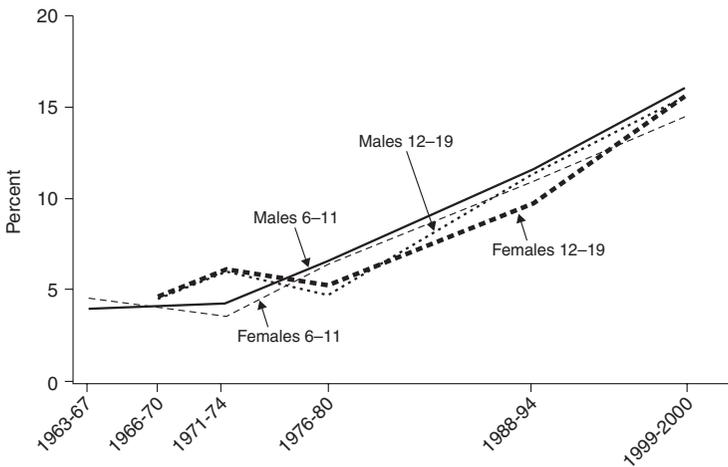


FIGURE 2-3 Trends in child and adolescent obesity, girls and boys aged 6 through 19 years.

NOTE: Obesity is defined as a BMI at or above the age- and gender-specific 95th percentile cutoff points from the 2000 CDC BMI charts.

SOURCES: Ogden et al., 2002a; CDC, 2003.

boys and girls. However, in those children under 2 years of age,³ the increased prevalence is more marked in girls than in boys.

High-Risk Population Subgroups

Although no demographic group in the United States has been untouched by the childhood obesity epidemic, there is evidence that some subgroups of the U.S. population have been affected more than others. As discussed below, certain ethnic minority populations, children in low-socio-economic-status families, and children in the country's southern region tend to have higher rates of obesity than the rest of the population. Either the factors driving the obesity epidemic are more pronounced in these high-risk populations and communities, or their children and adolescents may be more sensitive to, or less able to avoid, the causal factors when present. Additional efforts will be needed to identify the nature of the risk for obesity in these high-risk population subgroups.

High-Risk Ethnic Groups

Cross-sectional population-based estimates of obesity prevalence at 6 to 19 years of age are available for U.S. children and adolescents overall, and specifically for non-Hispanic blacks, non-Hispanic whites, and Mexican Americans (Figure 2-4).⁴

Although obesity is prevalent among children and youth throughout the entire population, Hispanic, non-Hispanic black, and Native-American children and adolescents are disproportionately affected when compared to the general population (Ogden et al., 2002a). With both sexes combined, up to 24 percent of non-Hispanic black and Mexican-American adolescents are above the 95th percentile. Among boys, the highest prevalence of obesity is observed in Mexican Americans and among girls, the highest prevalence is observed in non-Hispanic blacks (Ogden et al., 2002a). American-

³There are no BMI-for-age references or accepted definitions for children younger than 2 years of age. Weight-for-length greater than the 95th percentile is used by the CDC and the WIC program to define overweight in children under 2 years of age (see Chapter 3).

⁴Standard terms used in the NHANES series include non-Hispanic whites, non-Hispanic blacks, and Mexican Americans. The ethnic and racial categories discussed throughout this chapter use those that specific researchers used for different data sets. This report generally uses the terms African Americans to refer to non-Hispanic blacks; Hispanics to refer to Mexican Americans and populations from other Latin-American countries of Hispanic descent; American Indians to refer to Native Americans; and whites to refer to non-Hispanic whites. The report also uses the term Asian/Pacific Islanders (which includes Native Hawaiians).

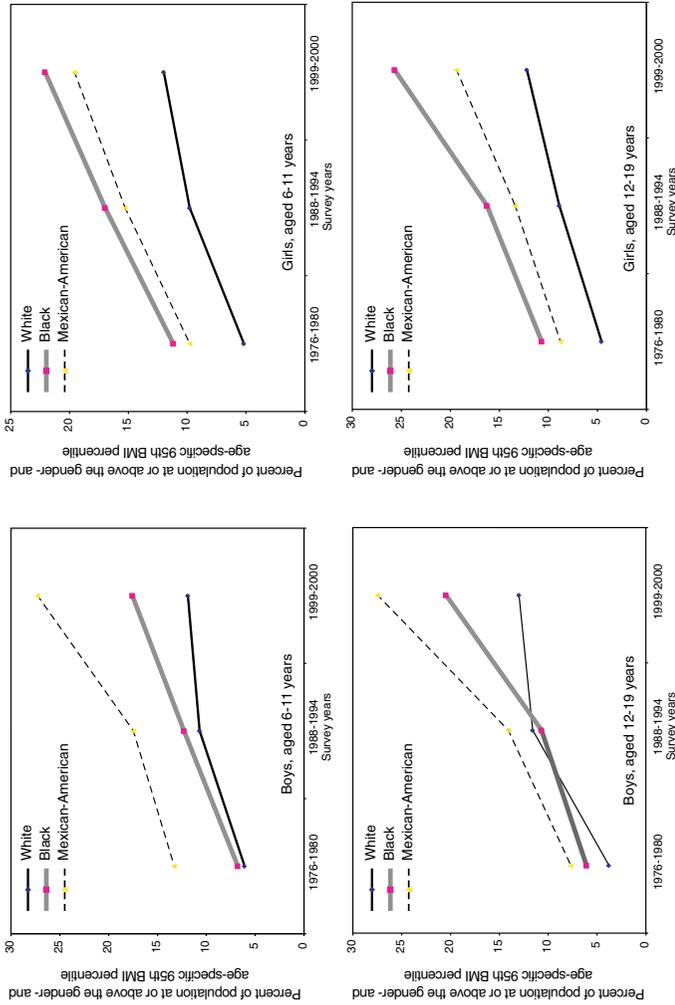


FIGURE 2-4 Trends in obesity prevalence for non-Hispanic white, non-Hispanic Black, and Mexican-American boys and girls.
NOTE: Obesity is defined as a BMI at or above the age- and gender-specific 95th percentile cutoff points from the 2000 CDC BMI charts. The following datapoints have a relative standard error of 20 to 30 percent: 1999-2000 boys, aged 6 to 11 years (white); 1999-2000 girls, aged 6 to 11 years (white); 1988-1994 girls, aged 6 to 11 years (white); 1988-1994 girls, aged 12 to 19 years (Mexican American).

Indian children and youth, although not reported separately in the NHANES data, are also particularly affected by obesity (Caballero et al., 2003). For example, the prevalence of obesity in 7-year-old American-Indian children has been estimated recently at nearly 30 percent, representing twice the current estimated prevalence among all U.S. children of that age (Caballero et al., 2003).

Moreover, ethnicity-specific plots of the cross-sectional NHES and NHANES data for children aged 6 to 19 years suggest accelerated rates of increase in obesity prevalence for non-Hispanic black and Mexican-American children of both sexes (Figure 2-4), creating a disparity in obesity prevalence between non-Hispanic white and black children (particularly among girls) (CDC, 2003).

Additional evidence that some ethnic disparities for obesity are increasing over time is drawn from the National Longitudinal Survey of Youth (NLSY). Between 1986 and 1998, the prevalence of obesity increased 120 percent among African Americans and Hispanics while it increased 50 percent among non-Hispanic whites (Strauss and Pollack, 2001).

Socioeconomic Difference

Evidence also suggests significant variation in BMI as a function of both socioeconomic status and ethnicity based on NHANES III in girls aged 6 to 9 years (Winkelby et al., 1999). An increase in obesity prevalence among African Americans appears greatest for those at the lowest income (Strauss and Pollack, 2001). But uncertainties remain. These disparities are not the same across ethnic groups and they do not emerge at comparable times during childhood. Also, there is almost no consensus, despite many theories, about the mechanisms by which they occur. For instance, analysis of the data from the 1988-1994 NHANES shows that the prevalence of obesity in white adolescents is higher among those in low-income families but there is no clear relationship between family income and obesity in other age or ethnic subgroups (Troiano and Flegal, 1998; Ogden et al., 2003).

Nonetheless, two analyses of nationally representative longitudinal data—the NLSY (Strauss and Knight, 1999; Strauss and Pollack, 2001) and the National Longitudinal Study of Adolescent Health (Goodman, 1999; Goodman et al., 2003)—have suggested that family socioeconomic status is inversely related to obesity prevalence in children and that the effects of socioeconomic status and race or ethnicity were independent of other variables.

One explanation is insurance status, which is related to socioeconomic status; the uninsured may face barriers to accessing health care (Haas et al., 2003). Insurance coverage has been associated with the prevalence of obe-

sity in youth. An analysis of the 1996 Medical Expenditure Panel Survey Household Component found that a combination of lacking health insurance and having public insurance (Medicaid, Medicare, or other public hospital coverage) were directly associated with obesity among adolescents (Haas et al., 2003).

Regional Differences

Regional differences in the prevalence of U.S. childhood obesity were already apparent in 1998 based on NLSY data (10.8 percent in western states and 17.1 percent in southern states) (Strauss and Pollack, 2001). However, most data available for regional differences are for adults. In 1998, adult obesity prevalence based on the CDC Behavioral Risk Factor Surveillance System (BRFSS) exceeded 20 percent in several states—Alabama (20.7 percent), Alaska (20.7 percent), Louisiana (21.3 percent), South Carolina (20.2 percent) and West Virginia (22.9 percent)—predominantly in the Southeast (Mokdad et al., 1999). By 2002, BRFSS data revealed that seven states had adult obesity prevalence rates greater than 25 percent: Alabama, Louisiana, Michigan, Mississippi, South Carolina, Texas, and West Virginia (CDC, 2002). Systematic data reflecting regional differences in obesity prevalence for children and youth are currently not available.

Shifts in the Population BMI Distribution

Researchers can monitor changes in the nature of the obesity epidemic by comparing the BMI distribution curves derived from population-based surveys and noting shifts in any particular distribution over time. A shift toward higher BMIs over the entire distribution would indicate that virtually everyone is becoming heavier, with lean individuals gradually moving into the overweight range, overweight individuals moving into the obese range, and the number of obese individuals becoming more severely obese. However, a graphical analysis comparing NHANES III (1988-1994) with earlier data found that the distributional patterns of BMIs differed among age groups (Flegal and Troiano, 2000).

For adults, there was a general shift upward in the BMI distribution, with the greatest shift occurring at the upper end of the distribution, reflected by the heaviest subgroups becoming heavier. For younger children aged 6 to 11 years, and to a lesser extent in adolescents, the distributions of BMI values were characterized by little or no difference in the lower part of the distribution, though there was also a greater shift at the upper end, as shown schematically in Figures 2.5a and 2.5b (Flegal and Troiano, 2000). The results of this study indicate that the heaviest children and youth were heavier in NHANES III than in earlier surveys; the authors caution, how-

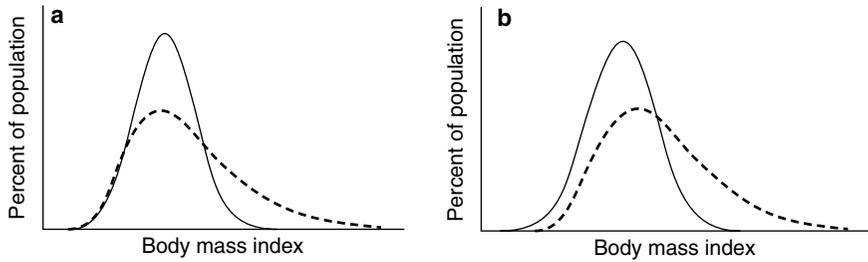


FIGURE 2-5 Schematic representations of BMI distribution models.

NOTE: **Figure 2-5a** shows a schematic representation of increased skewness (lack of symmetry) at the upper end of the BMI distribution with little change at the lower end, as has been observed in U.S. children and adolescents. **Figure 2-5b** shows a schematic representation of both a rightward shift in the distribution and increased skewness at the upper end of the distribution, as has been observed in U.S. adults.

SOURCE: Reprinted, with permission, from Flegal and Troiano, 2000. Copyright 2000 by the *International Journal of Obesity and Related Metabolic Disorders*.

ever, that the unweighted sample sizes for 6- to 17-year-olds, particularly for adolescents, are small (Flegal and Troiano, 2000). Strauss and Pollack (2001) came to a similar conclusion based on their analyses of NLSY data.

Changes in BMI distributions have impacts on the population's health. In adults, the major health-related co-morbidities that occur with obesity do not have a linear relationship with BMI. For example, although relationships between BMI and hypertension, diabetes, dyslipidemia, and even death occur across a wide range of BMIs, these relationships strengthen considerably at the highest levels of BMI (Solomon and Manson, 1997; Must et al., 1999).

Similarly, children at the highest levels of BMI are generally at the greatest risk of adverse health outcomes. Elevated blood pressure and insulin were both observed to be twice as common in children with BMIs above the 97th percentile as in children within the 95th to 97th percentile (Freedman et al., 1999). But the prevalence of these health outcomes is low between the 25th and 75th BMI percentiles, increasing modestly, if at all, across that span. Thus, with the childhood obesity epidemic characterized by a disproportionate number of children at the extreme ranges of BMI, there are likely to be higher obesity-related morbidity rates in children than if the epidemic mostly resulted from an upward shift in BMI across their entire population.

Relationship Between the Childhood and Adult Obesity Epidemics

The obesity epidemic that began in the early 1970s and escalated after 1980 for children and youth has progressed similarly in adults over the same time period. As depicted in Figures 2-6 and 2-7, between the 1971-1974 NHANES and the 1999-2000 NHANES the prevalence of obesity—defined as a BMI at or above 30 kg/m²—more than doubled (from 14.5

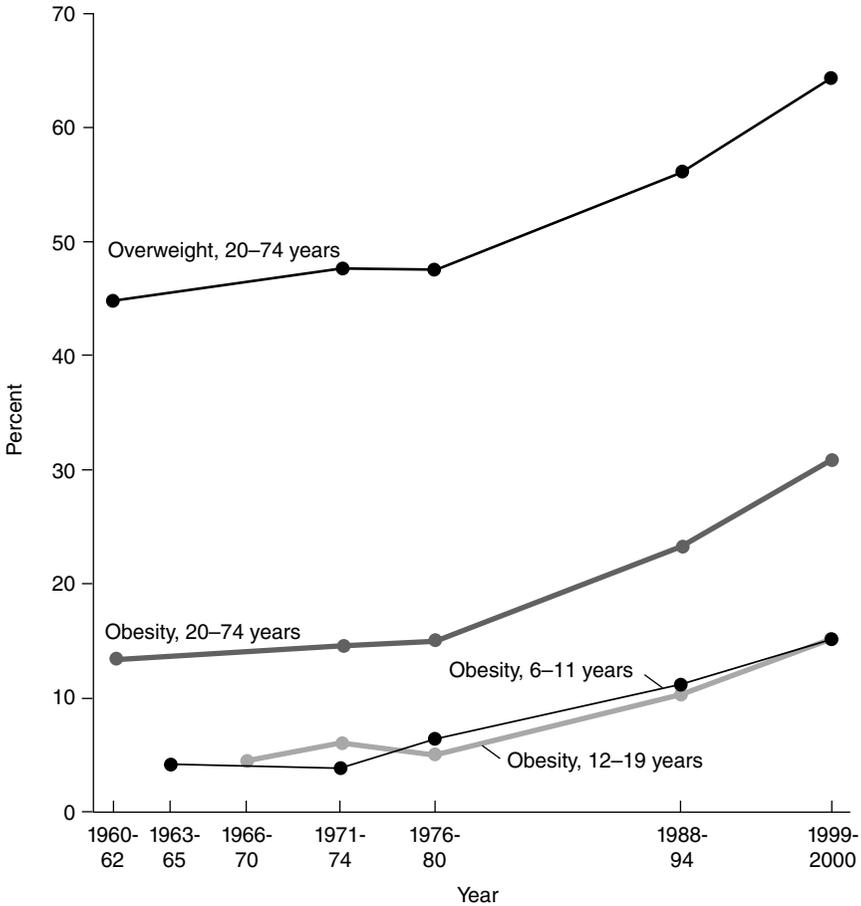


FIGURE 2-6 Overweight and obesity by age in the United States, 1960-2000.
 NOTE: Percents for adults are age-adjusted. Obesity for children is defined as a BMI at or above the age- and gender-specific 95th percentile BMI cutpoints from the 2000 CDC BMI charts. Obesity for adults is defined as a BMI greater than or equal to 30. Obesity is a subset of the percent of overweight.
 SOURCE: CDC, 2003.

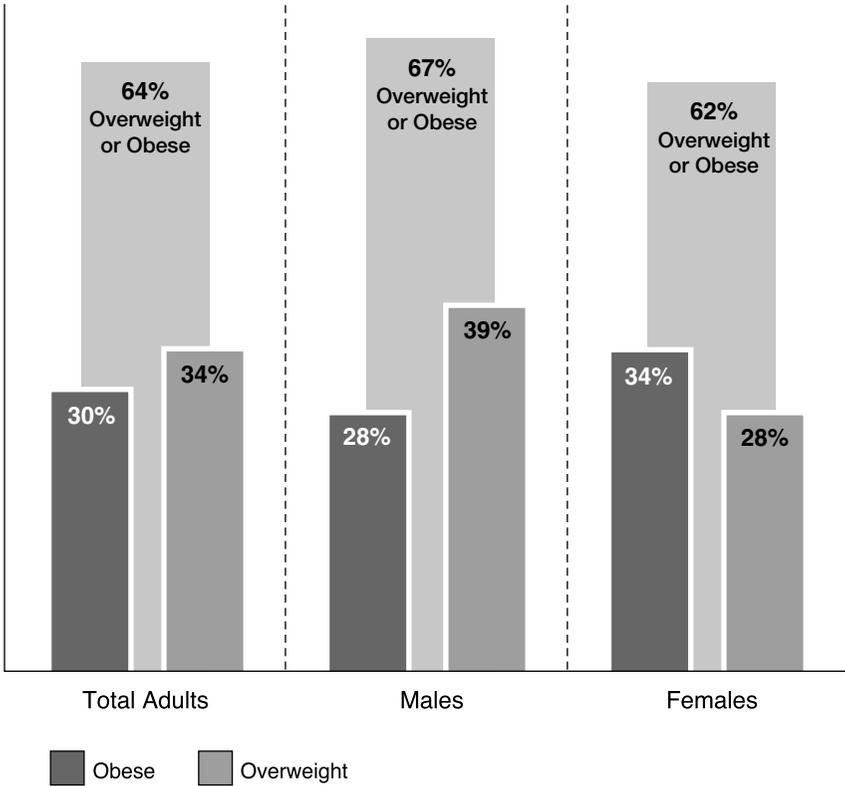


FIGURE 2-7 Prevalence of overweight and obesity among adults 20 years of age and older, NHANES 1999-2000.

SOURCE: CDC, 2003. Reprinted with permission from Salinsky and Scott, 2003. Copyright by the National Health Policy Forum.

percent to 30.5 percent) among 60 million U.S. adults. Between 1999-2000 and 2001-2002 there were no significant changes in the prevalence of obesity in adults (30.5 percent versus 30.6 percent) (Hedley et al., 2004). These trends, underscored by similar findings at the state level (Mokdad et al., 2001), have paralleled childhood and youth obesity prevalence, suggesting that the epidemics may be linked.

The observation that children and adults are both experiencing epidemics of obesity over the same time frame has important implications for understanding causes and formulating prevention interventions. Many of the same sociocultural factors that have contributed to the adult obesity epidemic have likely contributed to the childhood obesity epidemic.

The average parents today are twice as likely to be obese as 30 years

ago, even though their genetic susceptibility and that of their child has not changed over this period. Parental obesity more than doubles the risk of adult obesity among both obese and nonobese children under 10 years of age (Whitaker et al., 1997). For example, an obese preschool child with normal weight parents has approximately a 25 percent chance of being obese as an adult. However, this same preschool child with an obese parent has more than a 60 percent chance of being an obese adult (Whitaker et al., 1997). An additional implication of the adult and childhood obesity co-epidemics relates to intergenerational transmission. There are a number of potential mechanisms by which maternal obesity in pregnancy may promote offspring obesity (Whitaker and Dietz, 1998; Levin, 2000; Oken and Gillman, 2003), and further research is needed to examine these mechanisms.

Children can inherit obesity susceptibility genes from an obese parent or parents, or can be exposed, after birth, to diet and activity patterns that promote obesity. Moreover, recent research suggests that an altered intrauterine environment may be a third mechanism (see Chapter 8). For example, obese mothers are more likely to experience diabetes in pregnancy, and some evidence suggests that the offspring of mothers who have diabetes in pregnancy may have an increased risk of developing obesity later in life (Silverman et al., 1998).

In a study of low-income families enrolled in the WIC program, children born to mothers who were obese at the time of conception were twice as likely to be obese at 4 years of age (Whitaker, 2004b). Although much remains to be learned about the mechanisms of intergenerational obesity, these data suggest that it may be important to consider the promotion of healthy body weights among pregnant mothers as part of childhood obesity prevention efforts, and obesity research efforts should examine prevention interventions for pregnant mothers who are obese as well as for their children.

CONSIDERING THE COSTS FOR CHILDREN AND FOR SOCIETY

The primary concern about childhood obesity is its potential impact on well-being, not only in childhood but into adulthood, with the term “well-being” reflecting the committee’s view that social and emotional health is as important as physical health. As discussed in Chapter 1, families may differ in the value they place on the different health outcomes of obesity, and the merits they attribute to certain benefits or drawbacks of changing behaviors to address it (Whitaker, 2004a). Research suggests that some parents do not perceive weight to be a health issue for their children (Baughcum et al., 2000; Jain et al., 2001; Borra et al., 2003), independent of their child’s physical and social functioning. Thus, individuals may differ in the value

they place on various aspects of their well-being (Buchanan, 2000). Depending on these values, childhood obesity may represent a greater concern to some than to others. Failing to reverse the trend in childhood obesity means that many obese children, over their lifetimes, could experience significant impairments in multiple domains of functioning. They are more likely to be chronically ill, to have a negative impact on their earning potential, and to even die prematurely.

Social and Emotional Health

While childhood obesity may not result in recognized clinical symptoms until later in life, the social and emotional correlates often have immediate effects on children's lives. Research on the short- and long-term impacts of obesity on children's emotional and social functioning has been extensively reviewed (French et al., 1995; Dietz, 1998b; Must and Strauss, 1999; Puhl and Brownell, 2001; Styne, 2001; Must and Anderson, 2003; Schwartz and Puhl, 2003), and the collective body of research clearly indicates that obese children and youth are stigmatized, and subject to negative stereotyping and discrimination by their peers (Schwartz and Puhl, 2003; Strauss and Pollack, 2003).

This sort of treatment, which is hypothesized to produce adverse emotional consequences such as low self-esteem, negative body image, and depressive symptoms for obese children, is not limited to peers; it may also come from adults, including parents, teachers, and health-care providers (Strauss et al., 1985). Even though obesity in children has become more common, such negative treatment has not diminished (Latner and Stunkard, 2003), as revealed by obese children who continue to be socially marginalized by their peers (Strauss and Pollack, 2003).

The results of studies on the emotional well-being of obese children are difficult to succinctly summarize, given the differences between studies. Variations include the outcome measures used, the characteristics of the study subjects (particularly age, gender, racial/ethnic status, and degree of obesity), and whether the samples were clinical or community-based. Furthermore, because many of the study designs are cross-sectional, it is often impossible to distinguish between time course, and impossible to determine whether the associations are causal. Nonetheless, a few general statements can be made.

In one longitudinal study, associations between obesity and low self-esteem appear to emerge by early adolescence and were strongest in Hispanic and white adolescent girls but not in African-American girls (Strauss, 2000). The emotional consequences are somewhat stronger in girls than in boys, increase with age, and may be greater in those obese children who seek treatment (Schwartz and Puhl, 2003). Having concerns about being

obese, regardless of actual body weight, appears to be a primary factor associated with depressive symptoms among preadolescent girls (Erickson et al., 2000).

The social and emotional impacts of obesity can also be long term. In a longitudinal U.S. cohort with a seven-year follow-up, women 16 to 24 years of age at baseline who had been overweight completed fewer years of school, earned less money, and were less likely to be married (Gortmaker et al., 1993). The impact of adolescent obesity on the subsequent lower earnings of women was also demonstrated in a British cohort study (Sargent and Blanchflower, 1994).

Physical Health

Several thorough reviews (Dietz, 1998a,b; Must and Strauss, 1999; Deckelbaum and Williams, 2001; Styne, 2001; Must and Anderson, 2003) have found childhood obesity to be associated with a wide array of disorders that affect multiple organ systems. These disorders include hypertension, dyslipidemia, glucose intolerance/insulin resistance, hepatic steatosis, cholelithiasis, sleep apnea, menstrual abnormalities, impaired balance, and orthopedic problems. Some of these conditions produce clinical symptoms in obese children, while others do not; however, the metabolic and physiologic changes associated with childhood obesity, along with the obesity itself, tend to track into adult life and eventually enhance the risks of disease, disability, and death.

In 2000, it was estimated that 400,000 deaths were attributed to poor diet and physical inactivity in the United States (Mokdad et al., 2004), an increase of one-third from 300,000 annual deaths attributed to diet and sedentary activities in 1990 (McGinnis and Foege, 1993). Although these risk factors represent the second leading cause of deaths among Americans, diet and physical inactivity are predicted to exceed tobacco as the leading cause of deaths in the future (Mokdad et al., 2004).

Of the multiple health correlates of the childhood obesity epidemic, perhaps the one that has received greatest attention is the increased prevalence of type 2 diabetes in children.⁵ By one population-based estimate from southwestern Ohio, a ten-fold increase in the prevalence of type 2 diabetes in children between 1982 and 1994 accounted for one-third of all new cases of diabetes (including type 1 and type 2) in children by 1994 (Pinhas-Hamiel et al., 1996). For individuals born in the United States in 2000, the lifetime risk of being diagnosed with diabetes at some point in their lives is estimated at 30 percent for boys and 40 percent for girls if

⁵Type 2 diabetes was previously referred to as adult-onset diabetes and type 1 diabetes was previously called juvenile-onset diabetes.

obesity rates level off (Narayan et al., 2003). Nearly all children with type 2 diabetes are obese, and a disproportionate number are Native American, African American, Hispanic, or Asian/Pacific Islander (Fagot-Campagna et al., 2000; Goran et al., 2003; Davis et al., 2004).

Several risk factors—including increased body fat (especially abdominal fat), insulin resistance, ethnicity, and the onset of puberty—have been identified as contributors to the development of type 2 diabetes, and they appear to have an additive influence (Goran et al., 2003). Accurate estimates of the prevalence of diabetes in U.S. children are difficult to determine. It has been estimated that the prevalence of diabetes is 0.41 percent in U.S. youth aged 12-19 years (approximately 100,000 U.S. adolescents) and the prevalence of impaired fasting glucose is 1.76 percent (approximately 500,000 U.S. adolescents) (Fagot-Campagna et al., 2001). Better estimates for children are not possible because the prevalence of type 2 diabetes in this population is still relatively low. NHANES is the only current national data collection effort that could potentially make such an estimate. However, the sample sizes from NHANES are not large enough to make a stable point estimate of the prevalence.

The childhood obesity epidemic may result in increased risk of type 2 diabetes. One study found that for each adolescent diagnosed with type 2 diabetes, there are 5 others with impaired fasting glucose, an indicator of insulin resistance below the diagnostic threshold for type 2 diabetes (Fagot-Campagna et al., 2001). Furthermore, the degree of insulin resistance in children increases with the severity of body fatness, as it does in adults (ADA, 2000). Thus, the combination of more obese children and the increased severity of obesity suggests that larger numbers of children will reach the diagnostic threshold for type 2 diabetes. Finally, it is estimated that approximately three-fourths of obese adolescents will be overweight as young adults (Guo et al., 2002) and will likely face the persistent risk of developing type 2 diabetes.

The increased prevalence of obesity among adults of all ages also has been associated with a similar increase in the prevalence of diabetes (Mokdad et al., 2001). In fact, the increase in diabetes prevalence has been greatest in young adults aged 30 to 39 years, with prevalence almost doubling between 1990 and 2001 (Mokdad et al., 2000, 2003). Moreover, the development of all of the major complications of diabetes, including retinopathy, nephropathy, and neuropathy, are related to duration of disease. Those who develop diabetes earlier in life generally will develop costly complications earlier with the potential for premature mortality. For example, among 79 individuals in a Canadian referral clinic who were diagnosed with type 2 diabetes before the age of 17 and who were followed up from ages 18 to 33 years, two had died suddenly while on dialysis and three more were currently receiving dialysis (Dean and Flett, 2002).

A potentially even more important complication of childhood obesity may be the metabolic syndrome, diagnosed when a person has at least three of five metabolic abnormalities: glucose intolerance, abdominal obesity, hypertriglyceridemia, low high-density lipoprotein (HDL) cholesterol, and high blood pressure (NHLBI, 2002). The metabolic syndrome is now present in approximately one-quarter of all U.S. adults (Ford et al., 2002; Park et al., 2003) and in nearly 30 percent of U.S. children and youth who are obese (Cook et al., 2003).

Among adults, the metabolic syndrome is associated not only with type 2 diabetes (Haffner et al., 1992; Cook et al., 2003) but also with cardiovascular disease (Isomaa et al., 2001; Cook et al., 2003) and a higher mortality rate (Lakka et al., 2002; Cook et al., 2003). Even among those obese youth who do not yet have clinical diabetes, components of the metabolic syndrome appear to contribute to the development of atherosclerosis (Mahoney et al., 1996; Berenson et al., 1998; McGill et al., 2002). Ultimately, it may be the association of childhood obesity with the metabolic syndrome, rather than exclusively with diabetes, that may comprise the greatest physical health threat of childhood obesity.

It is possible that if the childhood obesity epidemic continues at its current rate, conditions related to type 2 diabetes—such as blindness, amputation, coronary artery disease, stroke, and kidney failure—will become ordinary in middle-aged people. Additionally, risk factors for cancer in obese adults, such as hormone alterations, may be present in obese children and contribute to a higher incidence of certain types of cancer later in life (Gascon et al., 2004). Thus, these conditions may affect a greater proportion of the population than current morbidity. This is a serious prospect given that obesity accounts for a level of morbidity comparable to that of smoking and poverty (Sturm and Wells, 2001).

Integrated View of the Consequences of Childhood Obesity

In reviews of the correlates of childhood obesity, discussions of the physical impacts and of the social and emotional impacts are often separate. But this distinction may be artificial. First, although the brain plays a central role in the regulation of energy balance and obesity (Schwartz et al., 2000), it is also the central organ for integrating social stimuli, regulating emotion, and executing social interaction. Not surprisingly, cues that affect both eating and activity behaviors are often social in nature, ranging from sadness to anxiety to boredom.

Social and emotional factors must therefore be recognized not only as potential consequences of obesity but also as potential causes. For example, depressed mood in children and adolescents may precede the development of obesity and not just follow it (Pine et al., 2001; Goodman and Whitaker,

2002; Richardson et al., 2003). In a nationally representative sample of 8- to 11-year-olds, clinically meaningful behavioral problems have been shown to be associated with the development of obesity over a 2-year period among children not obese at baseline (Lumeng et al., 2003). Affective factors, such as depressive symptoms, are also the likely mediators of the observed association between adult obesity and traumatic childhood experiences (e.g., physical abuse, sexual abuse) (Williamson et al., 2002).

There is accruing evidence that even the metabolic syndrome itself may be a consequence of how the brain processes environmental stimuli that are social in nature. For instance, the brain's response to stress may alter the hypothalamic-pituitary-adrenal (or gonadal) axis in a way that promotes central fat deposition and insulin resistance in adults (Bjorntorp, 2001). Because children also experience stress, the part of the brain that regulates emotion may not only influence whether a child overeats, but also the metabolic consequences of that excess energy.

The fact that the physiologic response to stress is conditioned in childhood (Gunnar and Donzella, 2002) emphasizes the potential importance of optimizing the social and emotional health of children as a strategy for preventing obesity over a lifetime. Failure to recognize this connection between social or emotional health and physical health could result in prevention strategies that are poorly conceptualized, and underscores the need to consider the broadest possible definition of health to include the physical, mental, and emotional aspects (Table 2-1), because the foundations of all three develop during childhood and are interconnected.

Health-Care Costs

A RAND study has calculated that the costs imposed on society by people with sedentary lifestyles (i.e., the "external" costs generated) may be greater than those imposed by smokers (Keeler et al., 1989). More recent computations of national health-care expenditures related to obesity and overweight in adults showed large lifetime external costs related to these conditions. After adjusting for inflation and converting estimates to 2004 dollars, the national direct and indirect health-care costs related to overweight and obesity range from \$98 billion (Finkelstein et al., 2003) to \$129 billion (DHHS, 2001a).⁶ It has been suggested that overweight and obesity may account for nearly one-third (27 to 31 percent) of total direct costs related to 15 co-morbid diseases (Lewin Group, 2000) and account for 9

⁶The \$98 billion is based on an estimate of \$93 billion in year 2002 dollars (Finkelstein et al., 2003) and the \$129 billion is based on an estimate of \$117 billion in year 2000 dollars (DHHS, 2001a) calculated from the 2004 Consumer Price Index (U.S. Bureau of Labor Statistics, 2004).

TABLE 2-1 Physical, Social, and Emotional Health Consequences of Obesity in Children and Youth

Physical Health

- Glucose intolerance and insulin resistance
- Type 2 diabetes
- Hypertension
- Dyslipidemia
- Hepatic steatosis
- Cholelithiasis
- Sleep apnea
- Menstrual abnormalities
- Impaired balance
- Orthopedic problems

Emotional Health

- Low self-esteem
- Negative body image
- Depression

Social Health

- Stigma
 - Negative stereotyping
 - Discrimination
 - Teasing and bullying
 - Social marginalization
-

percent of total U.S. medical spending (Finkelstein et al., 2003). Less than a decade ago, by contrast, the estimated direct health-care costs attributable to obesity ranged from 1 to 6 percent of total health-care expenditures, depending on the definition of obesity and the methods of calculation used (Seidell, 1995; Wolf and Colditz, 1998). Annual medical expenditures in the United States related to obesity are estimated at \$75 billion (in 2003 dollars) with approximately half of the expenditures financed by Medicaid and Medicare (Finkelstein et al., 2004). California, the most populous state, spent the most in public funds on health care for obese people in that year, a total of \$7.7 billion (Finkelstein et al., 2004).

The direct health-care costs of physical inactivity, which contribute to the obesity epidemic, have been estimated to exceed \$77 billion annually (Pratt et al., 2000). In addition, there are indirect costs of physical inactivity, such as those associated with dependence on motorized travel. For example, the national cost of traffic congestion in 2002 was estimated at 3.5 billion hours of delay, costing the nation \$69.5 billion—an increase of \$4.5 billion from the previous year (Schrank and Lomax, 2003).

Additionally, the estimated national health-care expenditures for Americans with diabetes exceeded \$132 billion in 2002, and it has been suggested

that people with diabetes have health-care costs that are on average 2.4 times higher than those of people without diabetes (ADA, 2003). Obesity-linked type 2 diabetes, by far the most common form of the disease, is largely preventable. The cost of obesity has recently been compared to other health-care costs, and research suggests that it outranks both smoking and drinking in adverse health effects and health-care costs, adding an average of \$395 per patient per year to health-care costs (Sturm, 2002).

The direct economic burden of obesity in youth aged 6 to 17 years has been estimated, based on the 1979-1999 National Hospital Discharge Survey (Wang and Dietz, 2002). Obesity-associated hospital costs were determined from hospital discharges that listed obesity as either the primary or secondary diagnosis. Results indicate that the percentage of discharges with obesity-related diseases increased dramatically from 1979-1981 to 1997-1999. Discharges for diabetes doubled, gallbladder disease tripled, and sleep apnea increased five-fold during this time frame. In 2001 dollars, obesity-associated annual hospital costs for children and youth were estimated to have more than tripled from \$35 million (1979-1981) to \$127 million (1997-1999) (Wang and Dietz, 2002).

In 2000, the United States spent approximately 14 percent of its gross national product on health care—representing the largest share for any developed country over the past decade—and its per capita health-care expenditures were greater than those of any other nation (OECD Health Data, 2003). But although it is estimated that preventive measures could impact 70 percent of the causes of early deaths in the United States (McGinnis et al., 2002), most of the \$1.4 trillion that the United States spends per year on health is used for direct medical care service. The national investment in preventing disease and promoting health is estimated to be only 5 percent of the total annual health-care costs (DHHS, 2001b; Kelley et al., 2004). This imbalance underscores the need for the health-care systems in the United States to establish a greater preventive orientation (Mokdad et al., 2004), particularly for childhood obesity, a largely preventable condition that has been shown to be a major determinant of health-care costs.

SUMMARY

Representative population surveys have found significant increases in the prevalence of obesity in U.S. children and youth. In 2000, childhood obesity was two to three times more common than in the early 1970s. Certain subpopulations of children, including those in several ethnic minority populations, in low-socioeconomic-status families, and in the southern region of the United States, tend to be most affected. Furthermore, there are

particular concerns that the heaviest children are becoming heavier (i.e., a skewing of the population BMI distribution).

Obesity can have adverse impacts on a child's physical, social, and emotional well-being. It increases the incidence of type 2 diabetes and other chronic medical and psychosocial conditions. Furthermore, the metabolic and physiologic changes associated with childhood obesity, along with obesity itself, tend to track into adult life and eventually increase the individual's risk of disease, disability, and death.

Poor diet and physical inactivity contributed to an estimated 400,000 deaths that occurred in the U.S. population in 2000 (Mokdad et al., 2004); predictions indicate that diet and physical inactivity will ultimately overtake tobacco as the leading cause of death in the future. Obesity-associated annual hospital costs for children and youth were estimated to have more than tripled over a two-decade period, rising from \$35 million (1979-1981) to \$127 million (1997-1999).⁷ Meanwhile, after adjusting for inflation and converting estimates to 2004 dollars, the national direct and indirect health-care expenditures related to adult obesity and overweight range from \$98 billion to \$129 billion. These figures clearly implicate obesity as a major determinant of health-care costs.

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⁷This estimate is based on 2001 dollars.

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Developing an Action Plan



The committee was charged with developing an action plan focused on preventing obesity in children and youth in the United States. The aim of the plan was to identify the most promising approaches for prevention, including policies and interventions for immediate action and in the longer term. The critical elements of the action plan’s development, described in this and subsequent chapters, were as follows:

- Clarifying definitions related to key concepts
- Developing a framework to guide the type and scope of data gathered
 - Articulating obesity prevention goals for children and youth
 - Identifying criteria for conducting an in-depth review of the available evidence
 - Translating the findings from the best available evidence into specific recommendations that comprise an integrated action plan.

DEFINITIONS AND TERMINOLOGY

Childhood and Adolescent Obesity

Body mass index (BMI) is an indirect measure of obesity based on the readily determined measures of height and weight. This report uses the term “obese” to refer to children and youth with BMIs equal to or greater than the 95th percentile of the age- and gender-specific BMI charts developed by

the Centers for Disease Control and Prevention (CDC) (Kuczmarski et al., 2000). In most children, values at this level are known to indicate excess body fat, which itself is difficult to measure accurately in either clinical or population-based settings.

What constitutes “excess” is an amount of body fat (often expressed as a percentage of body mass) that is sufficient to cause adverse health consequences. The exact percentage of body fat at which adverse consequences occur can vary widely across individuals and the consequences themselves—ranging from low self-esteem or mild glucose intolerance to major depression or nephropathy—show considerable variation as well.

BMI—calculated as weight in kilograms divided by the square of height measured in meters (kg/m^2)—is the recommended indicator of obesity-related risks in both children and adults. For adults, overweight is defined as a BMI between 25 and 29.9 kg/m^2 and obesity is defined as a BMI equal to or greater than 30 kg/m^2 (NHLBI, 1998). The BMI cut-off points were based on epidemiological data that show increasing mortality above a BMI of 25 kg/m^2 , with greater increases above 30 kg/m^2 (NHLBI, 1998).

Because children’s development varies with age, and because boys and girls develop at different rates, the use of BMI to assess body weight in children requires growth and gender considerations. Thus, BMI values for children and youth are specific to both age and gender (Barlow and Dietz, 1998; Dietz and Robinson, 1998).

The committee recognizes that it has been customary to use the term “overweight” instead of “obese” to refer to children with BMIs above the age- and gender-specific 95th percentiles (Himes and Dietz, 1994; Barlow and Dietz, 1998; DHHS, 2001a; Kuczmarski et al., 2002; AAP, 2003). Obese has often been considered to be a pejorative term, despite having a specific medical meaning. There have also been concerns about misclassification, as BMI is only a surrogate measure of body fatness in children as in adults. Furthermore, children may experience functional impairment (physical or emotional) at different levels of body fatness.

However, the term “obese” more effectively conveys the seriousness, urgency, and medical nature of this concern than does the term “overweight,” thereby reinforcing the importance of taking immediate action. Further, BMI in children correlates reasonably well to direct measures of body fatness (Mei et al., 2002), and high BMIs in children have been associated with many co-morbidities such as elevated blood pressure, insulin resistance, and increased lipids (Freedman et al., 2001). These are the same co-morbidities that often worsen in adult life and contribute to premature death from obesity.

The committee recognizes, however, that the term obese is probably not well suited for children younger than 2 years of age because the relationships among BMI, body fat, and morbidity are less clear at these ages.

Additionally, a high BMI in children younger than 2 years of age is less likely to persist than a high BMI in older children (Guo et al., 1994). BMI reference values are not established for children less than 2 years of age. Weight-for-length greater than the 95th percentile is used by CDC and the Special Supplemental Nutrition Program for Women, Infants, and Children to define overweight for children in this age group.

It is important that government agencies, researchers, health-care providers, insurers, and others agree on the same definition of childhood obesity. Although varying definitions have arisen from many uses of the term in public health, clinical medicine, insurance coverage, government programs and other settings, to the extent possible, there should be concurrence on definitions and terminology.

In this report, the term “obese” refers to children and youth between the ages of 2 and 18 years who have BMIs equal to or greater than the 95th percentile of the age- and gender-specific BMI charts developed by CDC.¹

Prevention

To “prevent” means simply to take prior anticipatory action to hinder the occurrence of a course or event. Prevention efforts related to health traditionally have focused on preventing disease, particularly infectious disease. Conceptual frameworks have been developed that categorize health-related prevention efforts based on the segment of the population to which they are directed: the entire population (universal or population-based prevention); those who are at high risk of developing a disease (selective or high-risk prevention); or those who have a disease (targeted or indicated prevention) (Gordon, 1983; Rose, 1992; IOM, 1994; WHO, 2000).

Another traditional approach categorizes prevention according to disease progression: primary prevention involves avoiding the occurrence of a disease in a population; secondary prevention is aimed at early detection of the disease to limit its occurrence; and tertiary prevention is focused on limiting the consequences of the disease (DHHS, 2000).

A more recent framework conceptualizes a spectrum of prevention based on where—from the individual to the broader environment—the prevention actions are directed. Approaches include strengthening individual knowledge and skills, providing community education, educating

¹This definition is consistent with current CDC recommendations with the exception of the terminology. International references such as the International Obesity Task Force or Cole BMI values allow for cross-cultural comparisons. These references use different populations and slightly differing techniques for developing cut-off points (Flegal et al., 2001).

providers, fostering coalitions and networks, changing institutional practices, and influencing policy (Cohen and Swift, 1999).

The prevention frameworks discussed lend themselves relatively easily to infectious diseases in which there are clear endpoints and progressions. But the frameworks can be more complex to apply to health outcomes (e.g., childhood obesity) in which the progression is a continuum and the condition is both a risk factor for other chronic diseases and a health outcome in itself. The committee concluded that the well-established concept of primary prevention was most amenable to its assigned task of developing a broad-based action plan that addresses the social, cultural, and environmental factors associated with childhood obesity.

A primary prevention approach emphasizes efforts that can help the majority of children who are at a healthy weight to maintain that status and not become obese. Within this approach, the committee developed the majority of its recommendations as “population-based” actions—directed to the entire population instead of high-risk individuals. However, the committee acknowledges that obesity prevention will need to combine population-based efforts with targeted approaches for high-risk individuals and subgroups. Consequently, the report also contains specific actions aimed at high-risk populations affected by obesity, such as children and adolescents in particular ethnic groups with higher than average obesity-prevalence rates and communities in which there are recognizable social and economic disparities. Subpopulations of children warranting special consideration also include children with disabilities or special health-care needs. The complex medical, psychological, physical, and psychosocial difficulties that these children encounter may well put them at elevated risk for low physical activity levels and unhealthful dietary behaviors.

The committee acknowledges that although population-based prevention approaches may be theoretically or conceptually the most useful approaches for addressing a society-wide problem, the practical challenge is in determining how best to implement these interventions to achieve broad outreach and maximal coverage. These issues will be discussed further in the sections on local communities and evaluation of interventions (see Chapters 4 and 6).

The committee was not charged with, nor did it develop, recommendations directed specifically at obesity treatment or reducing excess weight in children and youth. However, it is likely that many of the suggested actions will also benefit children and youth who are already obese, even if the interventions are insufficient to produce enough short-term weight loss for achieving normal weight status. For example, obese children can benefit from healthful choices in the school cafeteria.

Prevention of obesity, particularly among those at high risk, may seem very similar to treatment in that screening is involved and individualized

intervention is often delivered in clinical settings. However, there are several important differences between prevention and treatment approaches (Kumanyika and Obarzanek, 2003). The targeted outcomes are different: prevention of weight gain is a satisfactory outcome for prevention approaches, whereas weight loss is the desired outcome for treatment. Motivations to maintain a healthful rate of weight gain for growing children may differ in nature and intensity from motivations to lose weight. Although treatment approaches may include relatively extreme behavioral changes over the short term, preventive strategies usually necessitate long-term continuation.

The committee's approach to obesity prevention is similar to the range of prevention efforts that have been used to address many other public health problems. Some efforts directly change the physical environment but require no purposeful action on the part of the target population (e.g., fluoridation of community drinking water and food fortification); others directly require behavior change in targeted high-risk populations (e.g., immunization of children); and some require environmental change to facilitate behavioral change (e.g., zoning and land-use regulations to encourage physical activity). The majority of efforts require multiple approaches; for example, efforts to reduce underage drinking and tobacco control have involved legislation, media campaigns, counseling, and many other mechanisms (NRC and IOM, 2003; Mensah et al., 2004).

Appendix B provides a glossary of terms used throughout this report.

FRAMEWORK FOR ACTION

Using an ecological perspective, the committee developed a framework to depict the behavioral settings and leverage points that influence both sides of the energy balance² equation—energy intake and energy expenditure. An ecological systems theory model postulates that changes in individual characteristics are affected not only by personal factors (e.g., age, gender, genetic profile) but also by interactions with the larger social, cultural, and environmental contexts in which they live (e.g., family, school, community) (Figure 3-1) (Davison and Birch, 2001; Lobstein et al., 2004).

Building on this ecological model and drawing upon concepts from several relevant frameworks (Swinburn et al., 1999; Booth et al., 2001; Kumanyika et al., 2002; Swinburn and Egger, 2004), the committee developed a framework that shows layers of ecologic factors as influences on energy *imbalance*, which is shown as the typical graphic in which energy

²Energy balance, as discussed in detail below, refers to a state in which energy intake is equivalent to energy expenditure, resulting in no net weight gain or weight loss.

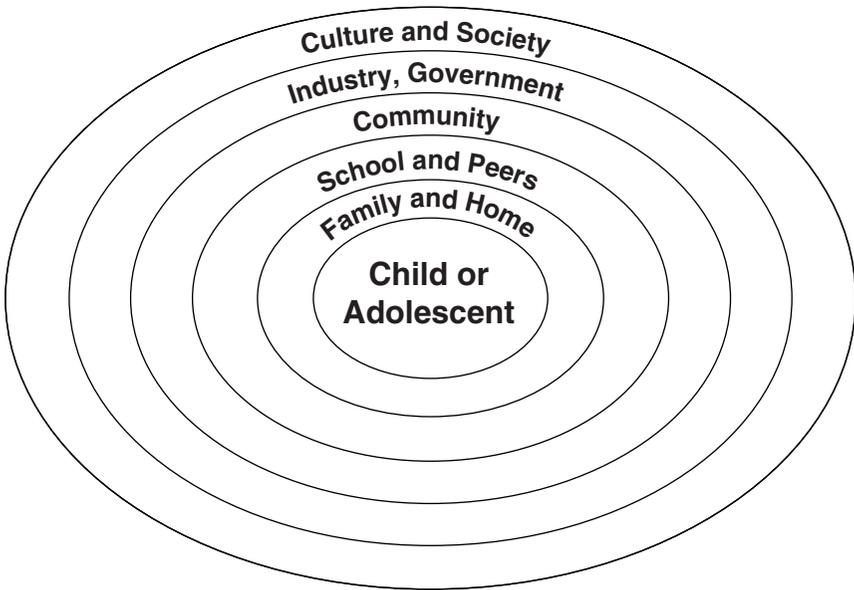


FIGURE 3-1 Simplified ecological systems theory model.

intake exceeds energy expenditure (Figure 3-2). Both aspects of energy imbalance (i.e., food and beverage intake and physical activity) interact with and are affected by multiple factors within each of the four ecological layers. The two innermost layers describe factors operating within the individual (including genetic factors, ethnic identity and culturally determined attitudes and beliefs, psychosocial factors, and current health status) and those operating within the physical and social locations and situations that define daily behavioral settings (Booth et al., 2001). The key behavioral settings for children and youth are the home, school, and community. As noted in the framework developed by the Partnership to Promote Healthy Eating and Active Living, behavioral settings are affected either directly or indirectly by a variety of other factors that potentially constitute primary and secondary leverage points for effecting changes (Booth et al., 2001). These leverage points include the major sectors that affect the food system, opportunities for physical activity or sedentary behavior, and information and education regarding dietary behaviors and physical activity. The outermost layer on the framework in Figure 3-2 reflects the critical concept of an overlay of social norms and values, that is, the social fabric that cuts across all the layers and processes below. Social norms and values both determine and respond to collective social and institutional processes within the con-

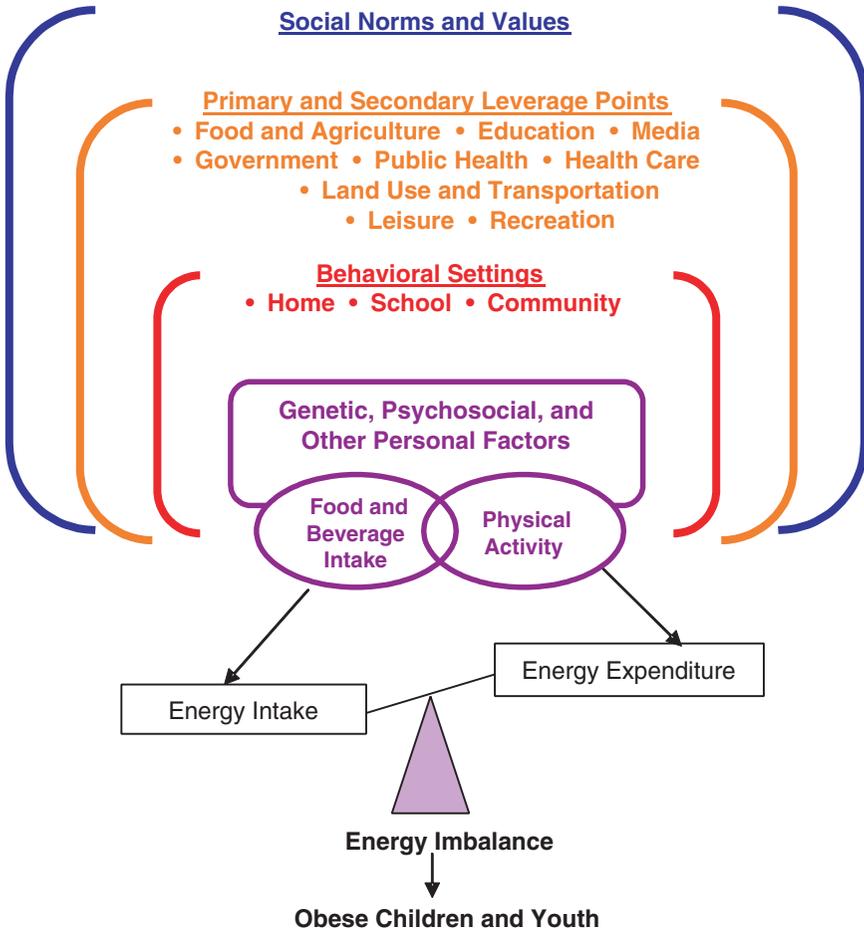


FIGURE 3-2 Framework for understanding obesity in children and youth.
NOTE: In this diagram energy intake is depicted as excessive when compared to energy expenditure, leading to a positive energy balance (or energy imbalance) resulting in obesity.

text of the larger U.S. culture. This framework, which emphasizes the need for obesity prevention efforts to leverage the interests and actions of a number of stakeholders working within and across multiple settings and sectors, guided the review of evidence and the development of recommendations in this report.

OBESITY PREVENTION GOALS

Clear specification of obesity prevention goals is essential in shaping an action plan and evaluating its success. Pertinent issues for setting obesity prevention goals for populations include concepts of optimum population BMI and healthy weight levels, potential effects on food intake and patterns of physical activity and inactivity (the primary modifiable determinants of obesity), as well as attitudes and social norms related to food and eating, physical activity and inactivity, body size, and dietary restrictions (WHO, 2000; Kumanyika et al., 2002). For children and youth, these considerations must be framed not only within the context of healthy physical, psychological, and cognitive development but in recognition that the increased prevalence of childhood obesity has broadened the emphasis of dietary guidance to address the overconsumption of energy-dense foods and beverages and physical activity patterns (ADA, 2003, 2004).

For individual children and youth, obesity prevention goals focus on maintaining energy balance (calories consumed versus calories expended). As discussed in greater detail later in the chapter, this involves engaging in healthful dietary behaviors and regular physical activity. Healthful dietary behaviors include choosing a balanced diet, eating moderate portion sizes, and heeding the body's own satiety cues that indicate physiological fullness. It is currently recommended that children and adolescents accumulate a minimum of 60 minutes of moderate to vigorous physical activity each day (see section on physical activity).

Children's food and beverage intake and their physical activity and sedentary behavior patterns can be influenced by a variety of environmental factors, including the availability and affordability of healthful foods, advertising messages, and opportunities to participate in physical activity within communities (Richter et al., 2000). Although individuals and families are embedded within broader social, economic, and political environments that influence their behaviors and may either promote or constrain the maintenance of health (IOM, 2001), such environments may also serve as contexts for change. These are the settings in which relationships are formed (e.g., home environment and support networks), and they represent a collection of formal and informal community institutions that monitor the behavior and safety of residents (Leventhal and Brooks-Gunn, 2001).

As will be noted throughout this report, changing the social, physical, and economic environments that contribute to the incidence and prevalence of childhood obesity—especially in populations in which the problem is longstanding and highly prevalent—may take many years to achieve. Therefore, the committee acknowledges that numerous intermediate goals, involving step-by-step improvements in diet patterns and physical activity levels of children and youth, are necessary for assessing progress. The ulti-

BOX 3-1

Goals of Obesity Prevention in Children and Youth

The goal of obesity prevention in children and youth is to create—through directed social change—an environmental-behavioral synergy that promotes:

- **For the *population* of children and youth**
 - ◆ Reduction in the incidence of childhood and adolescent obesity
 - ◆ Reduction in the prevalence of childhood and adolescent obesity
 - ◆ Reduction of mean population BMI levels
 - ◆ Improvement in the proportion of children meeting the Dietary Guidelines for Americans
 - ◆ Improvement in the proportion of children meeting physical activity guidelines
 - ◆ Achieving physical, psychological, and cognitive growth and developmental goals
- **For *individual* children and youth**
 - ◆ A healthy weight trajectory, as defined by the CDC BMI charts
 - ◆ A healthful diet (quality and quantity)
 - ◆ Appropriate amounts and types of physical activity
 - ◆ Achieving physical, psychosocial, and cognitive growth and developmental goals

Because it may take a number of years to achieve and sustain these goals, intermediate goals are needed to assess progress toward reduction of obesity through policy and system changes. Examples include:

- Increased number of children who safely walk and bike to school
- Improved access to and affordability of fruits and vegetables for low-income populations
- Increased availability and use of community recreational facilities
- Increased play and physical activity opportunities
- Increased number of new industry products and advertising messages that promote energy balance at a healthy weight
- Increased availability and affordability of healthful foods and beverages at supermarkets, grocery stores, and farmers markets located within walking distance of the communities they serve
- Changes in institutional and environmental policies that promote energy balance

mate aim of obesity prevention in children and youth, however, is to create, through directed social change, an environmental-behavioral synergy that promotes positive outcomes both at the population and individual levels. Box 3-1 summarizes these long-term and intermediate goals, which will be discussed in greater detail throughout the report.

Optimum BMI and Healthy Weight

The concept of optimum BMI can be applied to populations. For countries such as the United States, where undernutrition is not as common as in developing countries,³ a BMI-distribution median of around 21 kg/m² may be optimal (WHO, 2000). Population weight goals for obesity prevention in adults can also be stated in terms of decreasing the proportion that exceed the threshold of 30 kg/m², although this goal includes both preventing new cases of obesity and reducing weight among those already over the threshold.

The same principles are appropriate for assessing the population of children in the United States in pursuit of the committee's primary objective: to stop, and eventually reverse, current trends toward higher BMI levels. Also, as discussed in Chapter 2, there are particular concerns about the population of obese children becoming heavier. Achieving this objective would have the effects of reducing the mean BMI as well as decreasing the proportion of children and youth in the population that exceeds the threshold definition of obesity.

Available research does not currently allow the committee to define an optimum BMI for children and youth. It suggests, however, that future research toward this aim should be focused on defining the associations between BMI and objective measures of concurrent and future growth and between BMI and physiological and psychological morbidity, mortality, and health (Robinson, 1993; Robinson and Killen, 2001).

Analogous to the current practice for adults, the committee recommends the use of BMI for assessing individual and population changes in children and youth over time and in response to interventions. Population weight goals for childhood obesity prevention should be stated in terms of changes in the mean BMI and in the shape of the entire BMI distribution. Alternatively, goals can be stated in terms of decreasing the proportion of children or youth who exceed particular thresholds—e.g., 75th, 85th, 90th, 95th, or 97th percentiles of BMI for age and gender on the CDC BMI charts. In the absence of an appropriate evidence base, however, threshold goals are necessarily somewhat arbitrary and sacrifice substantial information about the rest of the distribution as well as substantial statistical power to detect differences between groups and over time (Robinson and Killen, 2001).

³Hunger and food insecurity persist in the United States. In 2002, 35 million individuals including 13.1 million children lived in food insecure households (an estimated 11 percent of all U.S. households); 3.5 percent (3.8 million) of U.S. households were food insecure with hunger (Nord et al., 2003). Additionally, rates of micronutrient deficiencies remain unacceptably high in certain subgroups of the U.S. population (Wright et al., 1998; Ballew et al., 2001; Ganji et al., 2003; Hampl et al., 2004).

The current CDC guidelines for healthy weight in children and youth are in the range of the 5th to 85th percentiles of the age- and gender-specific BMI charts. Therefore, a child whose weight tracks in that range—that is, he or she does not cross to lower than the 5th or higher than the 85th percentiles—would be considered to be in the healthy weight range according to these definitions.

The CDC BMI charts are mathematically smoothed curves of the pooled growth parameters of children and adolescents sampled in cross-sectional national health surveys conducted from 1963 to 1994. An analogy would be to consider the curves as compiled from a series of “snapshots” of large national samples made at different times over three decades. But because the sample sizes at each age level get much smaller at the extremes of the distributions, the growth curves may be more prone to errors at the upper and lower ends.

Because of the increases in body weight that occurred in the 1980s and 1990s—after the second National Health and Nutrition Examination Survey (NHANES II) conducted in 1976-1980—a decision was made not to include the NHANES III (1988-1994) body-weight data in the revised 2000 BMI charts for children aged 6 years or older. The NHANES III data would have shifted the affected curves (weight-for-age and BMI-for-age) upward, which was considered to be biologically and medically undesirable. However, the fact that the CDC BMI charts were developed from data for a prior time period in which children were leaner, on average, leads to an occasionally confusing situation—for example, where more than 5 percent of the population is above the 95th percentile—but this is readily clarified in the context of the charts’ historical source.

The CDC BMI charts are derived from cross-sectional samples of children (data for different age groups are based on different children). That is, they do not directly represent the longitudinal growth trajectory for the same set of children who have been measured as they age.⁴ Therefore, it is not known whether an individual child’s height, weight, or BMI should be expected to follow along the same percentile curve over time in order to maintain health or whether there are health implications of variations throughout childhood (e.g., crossing percentiles by going from the 20th percentile at age 1 to the 60th percentile at age 5 to the 40th percentile at age 12). Mei and colleagues (2004) found that shifts in growth rates were

⁴The latter approach has been used to develop longitudinal growth charts that are used in several other countries (Tanner and Davies, 1985; Cameron, 2002). These types of charts are generally developed from smaller, and potentially less representative, samples.

common during birth to 6 months and less common in children aged 2 to 5 years. More research is needed to determine whether there is an increased prevalence of “crossing” percentiles in different populations or during different age intervals and whether there are associations between crossing percentiles and health-related outcomes.

The problem is how to proceed despite this lack of certainty. The committee concluded that because the CDC BMI charts are based on large national samples of the U.S. population of children and youth, they are the best available tools for assessing growth in clinical and public health settings. Although there are many unknowns about how to apply this information to individual children, and clinicians face difficulties in making generalizations regarding normal growth trajectories, experience suggests that children who demonstrate rapid changes—that is, frequently crossing up or down percentiles—may require special health-care attention. Health- and medical-care professionals should be consulted regarding growth-related questions for individual children as they can assess a child’s own growth trajectory in context (see Chapter 6).

ENERGY BALANCE

Obesity prevention involves maintaining energy balance at a healthy weight while protecting overall health, growth and development, and nutritional status. **Energy balance refers to the state in which energy intake is equivalent to energy expenditure, resulting in no net weight gain or weight loss.** In adults, who have stopped growing, this relationship between energy intake and output must be equal and reach a zero net energy balance to prevent body storage of extra calories⁵ from food as fat and result in weight gain, which represents a positive energy balance. **Strictly speaking, growing children, even those at a healthy body weight, must be in a slightly positive energy balance to satisfy the additional energy needs of tissue deposition for normal growth.** However, for the purpose of simplicity in this report, the committee uses the term “energy balance” in children to indicate an equality between energy intake and energy expenditure that supports normal growth without promoting excess weight gain.

In children, energy expenditure constitutes the calories used for basal metabolism, processing of food, maintenance and repair of the body, and daily physical activity—in addition to the calories required for normal growth and development. Inappropriate weight gain (excess fat storage) results when energy expenditure is consistently exceeded by energy intake over time.

⁵In this report the term “calories” is used synonymously with “kilocalories.”

Energy intake is the calories ingested in the form of food and beverages. Children require a dietary pattern consisting of a variety of foods that provide all the necessary nutrients to support normal growth and development, as well as regular physical activity. Thus, a balanced diet refers to the consumption of appropriate amounts of a wide variety of nutrient-dense foods that provide adequate amounts and proportions of macronutrients (protein, fat, and carbohydrates) as well as sufficient essential micronutrients (vitamins, minerals) and dietary fiber, in addition to providing adequate energy to meet the needs of maintenance, growth, and development.

Although “energy intake = energy expenditure” looks like a fairly basic equation, in reality it is extraordinarily complex when considering the multitude of genetic, biological, psychological, sociocultural, and environmental factors that affect both sides of the energy balance equation and the interrelationships among these factors (Figure 3-2). For example, the amount, type, and intensity of physical activity influence body composition and physical fitness, which in turn influence the energy cost of physical activity (Hill et al., 2004).

There are several concepts regarding energy balance and weight gain in children and youth that the committee determined were important to clarify:

- Genetics is a factor in excess weight but it is not the explanation for the recent epidemic of obesity (Koplan and Dietz, 1999). Although inherited tendencies toward weight gain may be a partial explanation for excess weight in children, as discussed below, there have been no measurable changes in the genetic composition of the population during the recent decades that could explain the significant increases in obesity.
- Growth spurts do occur at several points throughout childhood and adolescence, but it cannot be assumed that a child will lose his or her excess weight at those times. Many experienced clinicians assess an individual child’s relative weight status by examining the consistency of that child’s weight or BMI percentiles over time. Thus, for example, after the age of about 4 years, normally growing children who are in the 20th or 50th or 65th percentile for weight would be expected to remain around these same percentiles for weight, during the remainder of their childhood. However, what can be considered normal variation to that pattern is not yet known, and is an important research question.
- Physiological reasons for a child’s excess weight should be carefully explored by health-care professionals. However, the identifiable medical conditions that cause childhood obesity are rare and are not the principal underlying causes of the current obesity epidemic in the population.
- The perceptions of what healthy children should “look like” differ among generations, cultures, and individuals. However, it is important that obesity not become the norm in society for children and youth as it poses

BOX 3-2
Balancing Food Intake and Physical Activity

- One small chocolate chip cookie (50 calories) is equivalent to walking briskly for 10 minutes.
- The difference between a large chocolate chip cookie and a small chocolate chip cookie is estimated to be about 200 calories or about 40 minutes of raking leaves.
 - One hour of walking at a moderate pace (20 minutes/mile) uses about the same amount of energy that is in one jelly-filled doughnut (300 calories).
 - A fast food meal containing a double patty cheeseburger, extra-large fries, and a 24 ounce soft drink is equal to running 2½ hours at a 10 minute/mile pace (1500 calories).

SOURCE: DHHS, 2001b.

serious health risks during childhood that can continue throughout adult life.

In the simplest terms, energy balance represents calories consumed versus calories expended, although as noted above, many individual variables can affect that balance. The discretionary variables under an individual's control on a daily basis are dietary energy intake and the energy expended during physical activity.⁶ Daily energy intake is determined by the calorie content of the specific food and beverages consumed. Energy expenditure above resting metabolism is largely dependent on the nature and intensity of the activity and is often measured in calories per minute of activity (e.g., walking at a moderate or brisk pace of 3 to 4.5 miles per hour on a level surface expends between 3.5 and 7 calories per minute as measured in adults [CDC, 2004]). Knowing this, it is possible to determine the amount of physical activity that would be required to “burn off” the energy contained in a given food (Box 3-2). The relatively high amount of physical activity required to balance the calories in many preferred foods highlights the challenges of maintaining energy balance under conditions of a sedentary lifestyle and when surrounded by abundant food in large portions at relatively low cost. Much remains to be learned regarding the interactive effects of diet and physical activity—for example, the

⁶Resting metabolism also contributes to daily energy expenditure but it is not subject to modification by the individual in the short term. Resting metabolic rate changes as a function of body mass and composition which generally takes weeks or months to change under an applied regimen.

extent to which increased physical activity or decreased dietary intake might improve the body's own ability to regulate energy balance.

Furthermore, greater understanding is needed regarding the relative contribution of energy intake and energy expenditure to the energy imbalance that is driving the obesity epidemic. The increasing prevalence of obesity among children and youth in the United States could be the result of an upward shift in energy intake, a downward shift in energy expenditure, or the occurrence of both trends concurrently (Hill and Peters, 1998; Harnack et al., 2000; Hill et al., 2003). Some researchers have suggested that most of the effect is attributable to excessive energy intake (Sturm, 2005), while others have focused on the decline in regular physical activity and the increase in sedentary behaviors (Cutler et al., 2003).

It has been hypothesized that obesity can result from very small excesses in energy intake relative to expenditure and that the average weight gain in U.S. adults could be prevented if chronic energy expenditure exceeded intake by only 100 calories per day (Hill and Peters, 1998; Hill et al., 2003). However, estimates in a population of Hispanic children have shown greater potential energy gaps, ranging from approximately 200 to 500 calories per day (Butte and Ellis, 2003). This is an area requiring further research.

The following sections provide a brief overview of the context for energy balance and the complexities that researchers and policy makers face in these areas.

Genetic Variation and Biological Considerations

Obesity has long been recognized to occur in families, and having overweight or obese parents increases a child's risk of being obese. After age 3, parental obesity is a stronger predictor of a child's future obesity as an adult than is the child's current weight (Whitaker et al., 1997).

Nonetheless, the familial clustering of obese individuals does not alone predict an individual's weight characteristics, which reflect the combined effects of genetic variations, the common or shared environmental variations within family (which may include both intrauterine and infant feeding factors), and the environmental variations external to the family (Bouchard et al., 2003).

Quantifying with any precision the specific contributions of each of these factors to the development of obesity has been difficult, despite a variety of studies in nuclear families, in families with identical twins reared together or reared apart, and in families with adopted children. Bouchard and colleagues (2003) reviewed approximately 50 such studies and concluded that heritability accounts for about 25 to 40 percent of an individual's expressed variation in weight and body fat mass. Specific ma-

ternal or paternal effects could not be identified. Using a new approach to twin studies, Segal and Allison (2002) concluded that common environmental effects might account for approximately 25 percent of the BMI variance in twins. It is important to note the difficulty in assigning proportionality to what is a gene-person-environment interaction.

Similarly, despite its intensity, the search for the specific genes responsible for an individual's obese status has also been difficult. More than 400 genes, markers, and chromosomal regions have been linked to obesity phenotypes, 208 quantitative trait loci for human obesity have been identified, and 41 Mendelian disorders manifesting obesity have been genomically mapped (Snyder et al., 2004). However, only six single-gene defects resulting in obesity have been found, and in fewer than 150 individuals (Snyder et al., 2004). Thus, even though these monogenetic disorders have provided significant insight into the pathophysiology of obesity (Cummings and Schwartz, 2003; O'Rahilly et al., 2003), with few exceptions, human obesity appears to be a complex genetic trait. Nonetheless, genome-wide scans in widely varying populations have identified several genomic regions containing common quantitative trait loci for obesity phenotypes, suggesting that there may be shared genetic factors predisposing individuals of different ethnic origins to excessive storage of body fat (Bouchard et al., 2003). **What is clear, however, is that the genetic characteristics of human populations have not changed in the last three decades, while the prevalence of obesity has approximately doubled. Thus, the recent population rise in body weight reflects the interaction of genotypes that predispose individuals to obesity with detrimental behavioral and environmental factors.**

In animals, the evidence is strong for such gene-environment interactions affecting body weight and energy balance (Barsh et al., 2000), with the responsible genes orchestrating a complex system of biological feedback. In this system, central nervous system signals integrate messages about energy intake sent from the gastrointestinal tract with information about the current status of fuel reserves received from the energy-storing adipose tissue. The result is the direction of ingested food either into storage as fat or dissipation as energy, depending on the body's status and needs at the time (Rosenbaum and Leibel, 1998; Havel, 2000, 2004; Druce and Bloom, 2003; Gale et al., 2004). What now seems clear is that this system evolved to defend the body from excessive energy deficit, a defense mechanism that has far less relevance today, when many humans are exposed to situations of food excess (Schwartz et al., 2003; Havel, 2004). Furthermore, although the system has now been characterized extensively in rodents and in adult humans, little is known about its development during the fetal period, infancy, or childhood (Box 3-3).

BOX 3-3 Food Intake Regulatory Systems

In 1994, it was discovered that a peptide hormone—leptin—is manufactured and secreted by fat cells, travels through the circulatory system, crosses the blood-brain barrier, and acts on the brain's hypothalamus to influence appetite (Zhang et al., 1994). This finding has led to the concept of a “fat-brain axis” (Elmqvist and Flier, 2004), a pathway by which events in the periphery of the body are communicated to the brain. As a result, the brain may “monitor” the body's energy or adipose stores and, when indicated, start a chain of events that either initiates or terminates feeding.

There is now evidence that leptin affects both neuronal activity (Pinto et al., 2004) and synaptic plasticity (Bouret et al., 2004) in the arcuate nucleus of the hypothalamus, which is home to two distinct populations of neurons with opposing actions—one group that stimulates food intake and another that suppresses it (Elmqvist and Flier, 2004). Furthermore, Bouret and colleagues (2004) suggest that leptin plays a neurotrophic role during the development of the hypothalamus that is restricted to a “neonatal critical period”—that is, the plasticity present early in life is apparently lost by adulthood. Although it is widely appreciated that good nutrition and a healthful lifestyle during the pregnancy period are important for producing healthy babies, these findings raise the possibility that the baby's food-intake and body fat regulatory systems may be permanently shaped during this period.

Future research undoubtedly will be directed to determining whether this communication system is indeed fundamental to the mechanisms of food-intake and body fat regulation in humans, and whether its timing is so narrowly focused.

Psychosocial and Behavioral Considerations

Dietary Intake

Everyone needs to eat food and consume beverages for daily sustenance. But beyond the physical necessities are the complex social, cultural, and emotional nuances that involve food and permeate many facets of daily life. Children and adults alike consume food and beverages in part because they are hungry but also because eating and drinking are pleasurable and are an integral part of family life, celebrations, recreational events, and other social occasions. Food is also important in the psychosocial well-being, emotional expression, and coping responses of many people. It is, therefore, unrealistic to base recommended eating patterns solely on the chemical composition of foods without taking cultural, social, economic, and emotional drivers of food consumption into account. Furthermore, while few would dispute the negative aspects of individual substances such as tobacco, alcohol, or illegal drugs, there have been strong debates over

BOX 3-4
2000 Dietary Guidelines for Americans

- *Aim for Fitness*
 - ◆ Aim for a healthy weight
 - ◆ Be physically active each day
- *Build a Healthy Base*
 - ◆ Let the Pyramid guide your food choices
 - ◆ Choose a variety of grains daily, especially whole grains
 - ◆ Choose a variety of fruits and vegetables daily
 - ◆ Keep food safe to eat
- *Choose Sensibly*
 - ◆ Choose a diet that is low in saturated fat and cholesterol and moderate in total fat
 - ◆ Choose beverages and foods to moderate your intake of sugars
 - ◆ Choose and prepare foods with less salt
 - ◆ If you drink alcoholic beverages, do so in moderation

SOURCE: USDA and DHHS, 2000.

“good foods” versus “bad foods, even taking a purely nutritional perspective. Energy intake and dietary quality are determined by the total amounts and combination of foods consumed. A given food or beverage may have multiple nutritional quality dimensions and will have a differential impact on the overall eating pattern depending on what other foods are eaten. Nevertheless, the frequency of consuming certain types of foods is an indicator of the likelihood that the overall quantity and quality of foods will be appropriate, particularly in growing children for whom the nutrient density of diets (i.e., adequacy of vitamins and minerals per unit of energy intake) is important.

Based on current scientific evidence, the Dietary Guidelines for Americans provide nutritional advice to the American public on how to attain a balanced diet (defined in this report as an overall dietary pattern that provides all the essential nutrients in the appropriate amounts to meet nutritional needs and support life processes such as growth in children without promoting excess weight gain⁷) (Boxes 3-4 and 3-5; also see Chapter 5 and Appendix B).

Based on the Dietary Guidelines for Americans, the Healthy Eating

⁷The U.S. Dietary Guidelines for Americans are currently under revision and the sixth edition will be released in 2005. The Food Guide Pyramid is an educational tool that depicts qualitative dietary guidance based on the principles of balance, proportionality, and moderation.

BOX 3-5
Benefits Associated with a Healthful Diet

- **A low-fat, low-saturated-fat, and low-cholesterol diet** is associated with reduced risk of coronary heart disease.
- **Fruits and vegetables** supply fiber which binds to lipids such as cholesterol and decreases their concentration in the blood, thereby decreasing the risk of coronary heart disease. Increased consumption is also associated with lower caloric intake, lower percentage of calories from fat, and a lower BMI. Fruits and vegetables provide vitamins A, C, and E that are essential for normal metabolism and may act as antioxidants, thus reducing the risk of developing certain cancers (including stomach, esophageal, lung, and colorectal cancers).
 - Diets that are **moderate in salt** help prevent high blood pressure.
 - Diets that are **moderate in sugar** help prevent tooth decay.
 - **Calcium** maintains healthy bones and teeth and plays a vital role in nerve conduction, muscle contraction, and blood coagulation. Adequate calcium intake during childhood and adolescence is key to peak bone-mass development and the prevention of osteoporosis later in life.

SOURCES: IOM, 1997, 2002, 2004; USDA and DHHS, 2000.

Index (HEI) is a tool developed by the U.S. Department of Agriculture to assess diet quality in order to provide a comprehensive assessment of diet in the U.S. population. A low HEI score suggests a poor diet and is also associated with overweight and obesity (Guo et al., 2004). Thus, the use of the HEI and the Dietary Guidelines for Americans as a way to improve health should be emphasized. However, the overall effectiveness of the Dietary Guidelines for Americans in disease prevention requires further research (Guo et al., 2004).

There are some indications of a small but significant increase in the average number of calories consumed daily by children over the last 15 to 20 years. The Continuing Survey of Food Intakes by Individuals, which examined changes between two time periods—1989-1991 and 1994-1996—in nationally representative samples of school-aged children, found an increase from 88 to 94 percent of the recommended energy allowance (Gleason and Sutor, 2001). Because no changes were seen in the energy intake from breakfast or lunch, the authors suggest that the increase was due to increased food consumption at dinner or in the form of snacks. Subsequent analyses of trends in energy intakes of children and youth have produced mixed findings (Enns et al., 2002; Nielsen et al., 2002; Sturm, 2005), and much remains to be learned about the dietary factors that contribute to the obesity epidemic in these groups.

Many challenges remain in conducting research on children's dietary

intake. They include difficulties in children accurately recalling and quantifying foods consumed, the accuracy of third-party reports (usually parents or caregivers), and varying estimations of portion size. Use of the 24-hour recall method is common, but the need to collect information for multiple days to determine typical intake of foods or nutrients makes it a time- and labor-consuming process (Goran, 1998). Furthermore, the energy requirements for children vary, depending on the timing of growth and developmental spurts, and may be highly individualized.

Physical Activity

Physical activity, which has been defined as “any bodily movement produced by skeletal muscles that results in energy expenditure” (Caspersen et al., 1985), is in many respects synonymous with childhood. One of the joys and benefits of childhood is that being physically active is often a natural and fun part of playing and interacting with family and friends and does not generally involve a conscious decision to exercise. This play time is also developmentally important for children’s cognitive, motor-skill, and social development (NRC and IOM, 2000). Physical activity—not only in free play time, but in school, organized sports, and other activities—is an integral part of many children’s daily routines. However, as children grow, they generally become less physically active in adolescence and adulthood (Caspersen et al., 2000; Sallis, 2000). Additionally, children’s patterns of physical activity often differ from those of older adolescents and adults. Children often engage in intermittent activity mixed with brief periods of rest rather than in prolonged exercise (Goran et al., 1999).

Current recommendations are for children and adolescents to accumulate a minimum of 60 minutes of moderate to vigorous physical activity each day (Biddle et al., 1998; USDA and DHHS, 2000; Cavill et al., 2001; IOM, 2002; NASPE, 2004). The National Association for Sport and Physical Education recommends that children aged 5 through 12 years be involved in age-appropriate physical activity (including moderate to vigorous physical activity, most of it intermittent) that adds up to at least 60 minutes—and as much as several hours—per day on most days of the week (NASPE, 2004). Furthermore, long periods (two hours or more) of inactivity during the day time are discouraged in this age group. One of the strongest correlates of physical activity in children is time spent outside (Klesges et al., 1990; Baranowski et al., 1993; Sallis et al., 1993).

The health and quality-of-life benefits associated with regular moderate physical activity extend beyond the prevention of obesity (CDC, 1997) (Box 3-6). One of the major research challenges in this area is how to accurately measure physical activity, particularly in young children. Tools and techniques vary in terms of their intrusiveness into normal daily rou-

BOX 3-6
Benefits Associated with Physical Activity
for Children and Adolescents

Cardiovascular System

- Improves plasma lipid/lipoprotein profile, including reduction of low-density lipoproteins (LDLs) and increase of high-density lipoproteins (HDLs) in children and youth with at-risk levels. Elevated plasma LDL and lowered HDL are risk factors for the development of coronary heart disease (CHD) and evidence indicates that atherosclerosis begins in childhood.
- Prevents or delays the development of hypertension and decreases blood pressure.

Musculoskeletal System

- Develops higher peak bone masses (which have been linked with reduced risk of osteoporosis in adulthood), increases bone-mineral density and bone size (which confers bone strength), and decreases the likelihood of fractures.
- Increases muscular strength and aerobic endurance
- Maintains joint structure and function
- Increases fat-free mass, reduces body-fat percentage

Mental Health, Psychological and Emotional Well-Being

- Reduces stress and symptoms of depression and anxiety
- Improves self-esteem and body image

Chronic Disease Prevention

- Helps prevent chronic diseases such as hypertension, type 2 diabetes, obesity, and cardiovascular diseases.
- Improves overall health and improves adult health status

SOURCES: DHHS, 1996; Sothorn et al., 1999; Boreham and Riddock, 2001; Maziekas et al., 2003.

tines (perhaps affecting activity level) and in the cost and time needed to collect and monitor the results. Questionnaires of parents and children are often confounded by recall problems and varying assessments of the type, intensity, and duration of the activity (Saris, 1986; Goran, 1998; Sirard and Pate, 2001). Measures of motion (e.g., pedometers and accelerometers) have come into wide use as research tools in recent years, but additional work is needed to ensure the validity of these methods in diverse groups of children and youth and in diverse settings. Additionally, research is needed to establish better methods of measurement of energy expenditure in children going through their normal daily activities in their home and school environments.

Sociocultural and Other Environmental Considerations

The specific types and levels of environmental factors to be considered as influences on food intake and physical activity are numerous. Tables 3-1 and 3-2 provide an illustrative listing of factors operating within different ecological layers (Swinburn et al., 1999). What is available with respect to food intake and physical activity opportunities (physical environment) is influenced by policies and financial inputs (political and economic environments) and is also targeted to the sociocultural milieu. Availability affects the range of possible individual choices, but personal choice is also mediated through a range of sociocultural variables that differ by age, gender, ethnicity, region, neighborhood characteristics, and socioeconomic status.

This matrix of environmental levels and types can also be developed to facilitate consideration of influences on obesity-related variables such as the availability of education and counseling and broader health promotion about weight gain prevention (physical environment), cost of preventive services (economic), and coverage of preventive services by third-party payers (policy environment). As discussed in the following sections, in the sociocultural domain, attitudes about body size and obesity are also critical contextual considerations when designing obesity prevention interventions.

Considerations Regarding Stigmatization

One of the concerns that arises in discussions regarding the prevention of childhood obesity is how to effectively focus on the behaviors that contribute to obesity without stigmatizing obese children and youth. As noted in Chapter 2, there is a body of research indicating that obese children and youth are stigmatized and experience negative stereotyping and discrimination by their peers, with adverse social and emotional consequences (Schwartz and Puhl, 2003).

Given that the stigmatization of obese children appears to have increased over a 40-year period from 1961 to 2001, there is a need to focus on the sensitivities regarding this issue and to explicitly reduce negative attitudes and behaviors such as teasing and discrimination directed toward obese children and youth (Latner and Stunkard, 2003; Schwartz and Puhl, 2003). This focus needs to be a consideration in the design of the range of interventions discussed throughout this report.

There is also the need to consider the adverse effects of normalization when discussing stigmatization. In many ways, American society has become more accepting of larger sizes in the products and portions we consume. Furthermore, our society often accommodates obesity as the social norm, for example, by resizing clothing, expanding the width of seating in public areas, and retrofitting ambulances to accommodate larger girth

TABLE 3-1 Examples of Environmental Influences on Food Intake, by Type of Environment

Size or Level of the Environment	Type of Environment: Food-Related Influences		
	Physical	Economic	Policy/Political
Microenvironments (e.g., behavioral settings such as homes, schools, and communities)	<ul style="list-style-type: none"> • Location and type of food stores • Vending machine placement and products • Point-of-purchase information • Local food production 	<ul style="list-style-type: none"> • Locally imposed taxes • Vendor pricing policies • Financial support for health promotion programs • Sponsorship of healthful food policies and practices 	<ul style="list-style-type: none"> • Family rules related to food purchasing and consumption • Food policies of local schools or school districts <p>Sociocultural</p> <ul style="list-style-type: none"> • “Ethos” or climate related to food and eating in the home, school, and neighborhood • Role models for eating behaviors at home, in school, and in community settings (e.g., churches)
Macroenvironments (e.g., societal sectors such as food and agriculture, education, medical, government, public health, or health care)	<ul style="list-style-type: none"> • Food production/importing • Food manufacturing • Food marketing • Federal nutrition labeling guidelines 	<ul style="list-style-type: none"> • Costs of food production, manufacturing, and distribution • Taxes, pricing policies, subsidies • Wage structure and other factors that influence personal and household income 	<ul style="list-style-type: none"> • National food and nutrition policies, regulations, and laws, including food labeling • Food industry standards and practices • Regulations and guidelines on advertising to children <p>• Mass media influences on food selections and eating behaviors</p> <ul style="list-style-type: none"> • General consumer trends in food and eating

SOURCE: Adapted from Swinburn et al., 1999.

TABLE 3-2 Examples of Environmental Influences on Physical Activity, by Type of Environment

Type of Environment		Physical	Economic	Policy/Political	Sociocultural
Size or Level of the Environment					
Microenvironments (e.g., behavioral settings such as homes, schools, and communities)	<ul style="list-style-type: none"> • Sidewalks and footpaths • Cycle paths • Public transportation • Street lights • Recreational facilities and clubs 	<ul style="list-style-type: none"> • Cost of gym memberships • Budget allocations for recreation centers or walking and cycling paths • Funding for improved public transport • Sponsorship of physical activity-related health promotion • Influences on household income and time expenditures 	<ul style="list-style-type: none"> • Family rules about television watching • Family rules about household chores • Restrictions on automobile traffic • Restrictions on bicycle or pedestrian traffic • Zoning for protection of open spaces • Building codes 	<ul style="list-style-type: none"> • “Ethos” or climate related to physical activity and inactivity in the home, school, and neighborhood • Role models for physical activity and inactivity in the home, at school, and in the neighborhood 	
Macroenvironments (e.g. societal sectors such as food and agriculture, education, medical, government, public health or health care)	<ul style="list-style-type: none"> • Automobile industry 	<ul style="list-style-type: none"> • Public transport funding and subsidies 	<ul style="list-style-type: none"> • State-level policies on physical education in schools 	<ul style="list-style-type: none"> • Mass media influences on physical activity and inactivity • General consumer trends in patterns of physical activity and inactivity 	

SOURCE: Adapted from Swinburn et al., 1999.

(Newman, 2004). Just as there are social and emotional consequences of stigmatization, there are also social and health consequences for obesity becoming the accepted social norm. This tension between stigmatization and normalization can be addressed, as it has been for other public health concerns, by focusing on the behaviors that can be changed to promote health rather than on the individual and his or her appearance.

It is important to note that the lessons learned from tobacco prevention and control efforts are not entirely applicable to obesity prevention. Bans against smoking in public buildings, on airplanes, and at other locations have encouraged some people to quit smoking due to the added inconvenience and public disapproval of this behavior. However, foods and beverages are necessary for sustenance and the issue is not “whether or not” to eat but rather what to eat, how much, and how often.

Areas of further research on this issue include how to encourage children to accept peers of all sizes and shapes and how to assist and support parents, teachers, children, and youth in addressing and coping with social stigma.

Body Image

A community’s norms, values, and expectations also affect the way that children in the normal or overweight (but not obese) range view their bodies. There is also concern that obesity prevention efforts will lead to inappropriate weight concern, dieting preoccupation, or unhealthy weight control practices among children and youth. Attitudes toward body size differ across cultures and especially affect females. Standards of attractiveness in males are less weight-dependent. Consistent with the stigma associated with being obese, the dominant attitudes in the United States and many similar societies favor a thin or lean body type in females, although as discussed below there is cultural variation in the degree of fatness or thinness that is acceptable as well as in preferred body shapes (Brown and Bentley-Condit, 1998). Attitudes about acceptable body size and shape also change over time and may apply differently to people of different ages.

The potential importance of this issue is underscored by reports of weight concerns in young children and in adolescents, in numerous ethnic groups, and in both low and high socioeconomic strata (see Chapter 2). Studies of children as young as the first grade have reported that a substantial proportion of children (about 50 percent of girls and 30 to 40 percent of boys), when given a choice of silhouettes will choose a thinner body size than their own as the “ideal” body size (Thompson et al., 1997). Robinson and colleagues (2001) studied a multiethnic and socioeconomically diverse sample of third graders (mean age was 8.5 years) in 13 northern California

elementary schools, and reported that concerns about being obese and dissatisfaction with body size were highly prevalent, increased with increasing BMI, and present—although to varying degrees—in all socioeconomic strata and ethnic groups. Furthermore, a study of 4,700 adolescents in Minnesota public schools (grades 7 through 12; mean age was 15 years) found high body satisfaction (versus low or moderate) in only 20 percent of girls and 34 percent of boys (Neumark-Sztainer et al., 2002).

Several studies have examined potential correlates of body image dissatisfaction and weight concerns or dieting practices, particularly gender, ethnicity, and socioeconomic status. Most of the studies that have examined ethnic differences consistently find less weight concern, less body size dissatisfaction, and a heavier ideal body size in African-American girls compared with white girls, but not necessarily boys, and sometimes demonstrate significant differences within African Americans across different socioeconomic levels (e.g., concern was greater at higher levels) (Thompson et al., 1997; Brown et al., 1998; Halpern et al., 1999; Adams et al., 2000; Neumark-Sztainer et al., 2002). These findings in children and adolescents are generally parallel to the numerous studies in adults indicating a relatively lower level of weight concern and higher level of body satisfaction in black women compared to white women; even considering the higher weight levels of the black women (Flynn and Fitzgibbon, 1998).

In contrast to the data for African Americans, available studies suggest that weight concerns in Hispanic and Asian girls are comparable to or exceed those in non-Hispanic white girls (Robinson et al., 2001; Neumark-Sztainer et al., 2002). The finding in Hispanic girls is consistent with data in adults (Serdula et al., 1999). Data for Native Americans in the Minnesota study (which were adjusted for grade level, socioeconomic status, and BMI) indicated a similar level of body satisfaction to that in white girls, but a significantly lower level of concern about controlling their weight (Neumark-Sztainer et al., 2002).

Socioeconomic Status

Socioeconomic status has generally been inversely associated with obesity prevalence (see Chapter 2) and children with obese mothers and low family income were found to have significantly elevated risks of becoming obese, independent of other demographic and socioeconomic factors (Strauss and Knight, 1999). When compared with food-insufficient households of higher income, low-income food-insufficient households had more obese children; however, food insufficiency by itself was not associated with self-reported measures of childhood obesity (Casey et al., 2001). Other studies have not been able to show a clear relationship between childhood

obesity and food insufficiency or food insecurity⁸ after adjusting for other confounding variables (Alaimo et al., 2001b; Kaiser et al., 2002; Matheson et al., 2002). However, food insecurity is associated with adverse health outcomes in infants and toddlers below 36 months of age (Cook et al., 2004) and with negative academic and psychosocial outcomes including depression in older children (Alaimo et al., 2001a, 2002).

Many of the variables in Tables 3-1 and 3-2 may be potential mediators of the relationship between socioeconomic inequities and childhood obesity. Both food and physical activity options are more likely to be periodically inadequate, unpredictable, or of lower quality for those with low personal incomes or those living in low-income neighborhoods (Travers, 1996; Morland et al., 2002a,b; Addy et al., 2004; Fitzgibbon and Stolley, 2004; Molnar et al., 2004). Poverty and living in low-income neighborhoods limit access to healthful foods. Some types of leisure-time physical activity are theoretically available at low or no cost, but these options may be less available to children in low-income neighborhoods because of neighborhood safety concerns, lack of adult supervision, or limited community recreational or other resources. Addressing childhood obesity in these contexts will require attention to root causes, and attempts to mitigate the underlying social and environmental adversity will be needed (Travers, 1997).

Racial and Ethnic Disparities

The substantially higher prevalence of obesity in adults, children, and youth in some African-American, Hispanic, American-Indian, and Pacific Islander populations (see Chapter 2) generates considerations across the entire ecologic framework (see Figure 3-2). A relatively high obesity prevalence in some Hispanic and American-Indian groups was noted prior to the obesity epidemic (Kumanyika, 1993); the pattern of excess weight gain and accelerated rates of obesity prevalence in African-American children and youth is a more recent development. It is now understood that issues of race are much more complex than the traditional U.S. Census Bureau racial and ethnic groupings often used in epidemiological research (Cooper, 2003; Cooper et al., 2003). However, the different historical and geographical

⁸*Food insufficiency* is defined as inadequacy in the amount of food intake because of limited money or resources. *Food insecurity* is the limited or uncertain availability of nutritionally adequate and safe foods, or the inability to acquire such foods in a socially acceptable way. Although these definitions are similar, food insecurity describes a broader condition that not only encompasses food insufficiency but also the psychological and other dimensions of the food system (Cook et al., 2004).

trajectories of these social and politically defined groups are associated with some differences in gene frequencies that may be linked with obesity development. Regardless, as discussed earlier in this chapter, the predominant factors responsible for the expression of obesity as a general population phenomenon are the linked behavioral and environmental factors outlined in the framework in Figure 3-2.

Many factors that potentially mediate racial and ethnic differences and predispose minority children and youth to high obesity risks can be postulated across physical, economic, sociocultural, and policy/political environments (Tables 3-1 and 3-2). Socioeconomic inequities are disproportionately common in minority populations and some of the excess risk may be mediated through economic and physical environmental factors related to low income or living in low-income communities. Other factors may affect individuals and communities on the basis of sociocultural factors that are not dependent upon socioeconomic status. Eating and physical activity patterns in some minority communities are less favorable to weight control than those in the general population, and these differences are observed within socioeconomic strata (Kumanyika and Krebs-Smith, 2001). For example, targeted marketing of high-calorie, low-nutrient-dense foods on black-oriented television has been reported (Tirodkar and Jain, 2003). Less access to supermarkets or to good quality food in supermarkets has been associated with black neighborhoods (Morland et al., 2002a) (see Chapter 6).

Sociocultural variables that need to be considered when approaching obesity prevention to reduce racial and ethnic disparities include traditional cuisines and any aspect of the attitudes, beliefs, and values (referred to in Tables 3-1 and Table 3-2 as the ethos or climate) that may facilitate or inhibit the promotion of healthful eating, physical activity, and weight control patterns in children and youth in these communities (Kumanyika and Morssink, 1997; Kumanyika, 2002, 2004). This ethos may include cultural values of responsiveness to or harmonization with the existing environmental context, as opposed to assumptions that the context can (or should) necessarily be changed. Included in the sociocultural environment are the high prevalence of obesity (e.g., the normative presence of the problem) as well as high levels of obesity-related health problems. In addition, to the extent that a history of discrimination or marginalization based on race or ethnicity becomes intertwined with other sociocultural factors, a certain level of skepticism or distrust relative to mainstream information and initiatives, including health information, may influence the receptivity to obesity prevention messages—particularly when these messages seem to conflict with pre-existing attitudes and beliefs.

REVIEW OF THE EVIDENCE

The committee identified a primary prevention, population-based approach to be the most viable long-term strategy for reducing obesity and its chronic disease burdens. Examples of the effectiveness of primary prevention interventions include smoking cessation to reduce lung cancer incidence, condom use to lower HIV transmission, and fruit and vegetable consumption to prevent cancer and cardiovascular diseases (CVDs) (Kroke et al., 2003; WHO, 2003).

There is no single acceptable standard, however, for assessing the entire range of prevention interventions and programs (Kellam and Langevin, 2003). Each phase of prevention research involves specific criteria for evidence and a variety of possible research designs. This is often a process whereby the preceding phase of research informs the subsequent generation of research—from efficacy to effectiveness, sustainability, going-to-scale, and, finally, sustaining system-wide⁹ (Figure 3-3). Numerous evidence-based prevention strategies are currently being used, though their focus—whether on individuals, institutions, or societal structures—can vary (Kellam and Langevin, 2003).

An Evidence-Based Medicine Approach

Evidence-based medicine is a valuable concept for informing clinical medicine that provides universally accepted standards for testing the scientific method and developing clinical practice guidelines (Harris et al., 2001; Heller and Page, 2002). This approach uses an accepted hierarchy of evidence—in accordance with its type, quality, and strength—to support recommendations (Table 3-3) (Harris et al., 2001; Kroke et al., 2003), and it establishes a cause-and-effect relationship guided by the principles of predictability, replicability, generalizability, and falsifiability. Predictability depends on a properly implemented intervention producing expected outcomes, a clear understanding of the intervention's elements, and a cause-and-effect interaction among those elements (Tang et al., 2003). Replicability and generalizability rely on an intervention's potential for

⁹*Efficacy* research addresses whether an intervention produces a beneficial impact under optimal conditions of implementation and scientific rigor. *Effectiveness* research tests an intervention under normal conditions such as those in which the intervention may be employed. *Sustainability* research assesses whether the training and support structures developed for effectiveness trials can work to continue the implementation of the intervention by other implementers and with other cohorts of the population. *Going-to-scale* research designs and tests methods of training, support, and assessment that can be implemented across an entire system. *Sustaining system-wide* research determines how to maintain high-quality standards for an entire program over the long term (Kellam and Langevin, 2003).

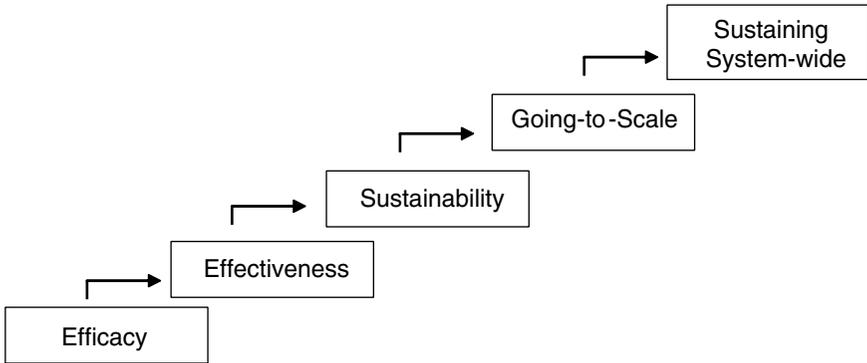


FIGURE 3-3 Five phases of prevention research.

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universal application that is independent of time, place, or context (Tang et al., 2003). Falsifiability refers to the possibility that an evaluation could determine, if relevant, that the intervention is ineffective (Tang et al., 2003).

An evidence-based medicine approach has been adopted by federal and scientific institutions to guide obesity treatment in adults (NHLBI, 1998). However, efforts to apply its principles to identifying effective interventions for other areas of disease prevention and health promotion have met with varying degrees of success (Osaka Declaration, 2001; McQueen, 2002; WHO, 2003; Victora et al., 2004). Indeed, it has been suggested that clinical decisions may have a relatively small impact on health outcomes compared to changes in the social environment, and that broadening evidence-based medicine beyond clinical policy decision-making—to public health decision-making—often has the potential to produce a larger beneficial impact on the health of populations (Heller and Page, 2002).

An Evidence-Based Public Health Approach

As the public health and health promotion disciplines have evolved, *evidence-based public health* has become the goal with a knowledge base that includes disease frequency and distribution; correlates, determinants and consequences of disease; and the safety, efficacy, effectiveness, and cost-effectiveness of a range of interventions (Victora et al., 2004). But given the complex environment in which multiple social, economic, cultural, and political elements interact to produce change in population-wide problems such as obesity, causality may not always be established for the

TABLE 3-3 Hierarchy of Research Design Used for Evidence-Based Clinical Medicine

Level of Evidence	Type of Study
I	Evidence obtained from at least one properly designed randomized controlled trial (RCT) that provides a consistent pattern of findings in the population for which a recommendation is made.
II-1	Evidence obtained from well-designed controlled trials without randomization.
II-2	Evidence obtained from well-designed cohort or case-controlled analytical studies, preferably from more than one center or research group.
II-3	Evidence obtained from multiple time-series or correlational studies with or without then intervention.
III	Evidence obtained from opinions of respected authorities, based on clinical experience, descriptive studies and case reports, or reports of expert committees.

SOURCES: Harris et al., 2001; Kroke et al., 2003.

relationships among the various interventions (McQueen, 2002; Tang et al., 2003).

Several factors complicate the task. The first is complexity in the causal sequences, including mediating factors, multiple causes acting simultaneously (some independently, others interactively), and the potential for unintended consequences from well-intended interventions. The second factor is that scientific uncertainty is associated with many or most of the causal links, which can vary across different social contexts and be constrained by current methods and ethical limitations (NRC, 1994). A third factor is that individuals and groups differ in the benefits and costs they attach to each of the causes, potential solutions, intended outcomes, and unintended consequences (Slovic, 1987, 2000). It has been suggested that there can be no purely scientific answer to the question of what should be done because the answer depends on social values (NRC, 1978). A fourth factor is that individuals and groups vary in how much uncertainty they are willing to tolerate before acting to address a problem (NRC, 1989).

The conclusion that results from these well-established principles is that while scientists can strive to clarify causal relations and reduce uncertainty, they are incapable of recommending specific actions (or inaction)

without making implicit value judgments (NRC, 1978, 1996). The solution to this dilemma ideally lies in the development and application of new approaches for integrating scientific considerations with social and normative considerations in a transparent, fair, and competent manner (Renn et al., 1995; NRC, 1996; Klinkle and Renn, 2002).

Although randomized controlled trials (RCTs) are the gold standard for testing interventions in clinical and public health research, it is not always feasible, appropriate, or ethical to use that methodology in conducting population-based research; furthermore, RCTs may not always illuminate the complexity of some population-based prevention strategies (Robinson et al., 1998; Briss et al., 2000).

Therefore, the evidence base regarding public health prevention efforts often involves the integration of a range of research methodologies. Several health promotion and disease prevention initiatives have implemented comprehensive population health programs using a broader integrated approach to the evidence. For example, Table 3-4 illustrates the different approaches required for guiding the design of individual and community-based approaches to CVD prevention (Osaka Declaration, 2001).

TABLE 3-4 Comparison of Individual and Community Approaches for CVD Prevention

Clinical Practice Approaches for Individuals	Community and Population-Based Approaches for Health Promotion
The evidence standards are RCTs	The evidence standards are RCTs and outcome and process evaluations that use both quantitative and qualitative methods
The focus is on individual patients	The focus is on the community
Less than a therapeutic dose is unacceptable	Preventive dose rarely applies
Easier to treat an individual	Difficult to scale up health promotion programs that reach the entire population
Outcomes of interventions are individual change	Outcomes are to change social norms, environments, and the behavior of entire populations
Interventions can focus on most factors relevant to outcomes	Interventions rarely take on social determinants external to the community

SOURCE: Adapted from Osaka Declaration, 2001.

Developing Recommendations Based on an Integrated Approach to the Evidence

The committee faced a significant challenge in deciding what types of evidence to use in formulating recommendations for obesity prevention in children and youth. A review of randomized controlled interventions for obesity prevention and treatment among children and adolescents identified only 35 such studies (Campbell et al., 2002). Due to the limited number of RCTs in obesity prevention efforts and methodological issues, including small sample sizes and high attrition rates of study participants, there is a paucity of RCT data from which to generalize results to broader populations (NHS Centre for Reviews and Dissemination, 2002).

The committee, therefore, developed guidelines for an integrated use of the available evidence to inform population-based obesity prevention interventions and on which to base its recommendations. This was deemed necessary to enhance the biological, psychosocial, and environmental plausibility of its inferences and identify consistency and congruency of information due to the paucity of causal research. Such an integrated-evidence approach has been used successfully to apply science-based principles to other public health efforts (Appendix D), such as in establishing a framework for evaluating the safety of dietary-supplement ingredients (IOM and NRC, 2004).

As childhood obesity is a serious public health problem calling for immediate reductions in obesity prevalence and in its health and social consequences, the committee strongly believed that actions should be based on the best *available* evidence—as opposed to waiting for the best *possible* evidence.

The different types of evidence that the committee used in developing the report's recommendations are illustrated in Table 3-5, and the following principles guided the committee's process:

- Evidence is needed to inform and guide policy and programmatic decisions, justify a course of action, and evaluate the effectiveness of interventions that support obesity prevention.
- Although the strength of the evidence is a basis for policy development, other considerations—including the fiscal and sociopolitical climate within which governments, institutions, and communities operate—must also be taken into account (Tang et al., 2003).
- Absence of experimental evidence does not indicate a lack of causation or the ineffectiveness of an obesity prevention intervention. Given the methodological challenges, as well as the complexities in linkages between different elements and in their environments, certain interventions may prove effective even though their mechanisms for success are not known.

TABLE 3-5 Proposed Components of Evidence-Based Obesity Prevention

Objective	Policy or Program Relevance	Relevant Evidence and Information	Types of Outputs
Estimate the Health Burden Why should we do something about obesity?	<ul style="list-style-type: none"> • Show urgency of taking action on obesity • Compare costs, health burden, and gains from prevention with other risk factors and diseases • Address prioritization of obesity relative to other issues • Identify populations of special interest • Benchmarks for goal setting 	<ul style="list-style-type: none"> • Monitoring and surveillance data (e.g., prevalence, trends) • Observational studies (e.g., relative risks, occurrence rates in different populations) • Economic analyses (e.g., costs of obesity, disability-adjusted life years [DALYs] lost) • Informed opinion (e.g., for modeling assumptions) 	<ul style="list-style-type: none"> • Prevalence estimates including projected trends • Estimates of the costs of obesity (direct, indirect, intangible) • Comparative health burdens in terms of years of life or DALYs lost • Estimated possible reductions in burden with interventions
Identify the Determinants What are the causative and protective factors that could potentially be targeted by interventions?	<ul style="list-style-type: none"> • Identify targets for intervening • Relate obesity issues to other existing agendas • Identify congruent and conflicting policies and activities • Identify the key government, nongovernmental organization, and private sector stakeholders that are central to obesity prevention 	<ul style="list-style-type: none"> • Observational studies • Experimental studies • Indirect evidence • Monitoring and surveillance data • Informed opinion (e.g., on current policies and activities that influence obesity) 	<ul style="list-style-type: none"> • Evidence reviews of specific modifiable determinants of obesity and its pathways including levels of certainty and likely size of impact • Identified important stakeholder groups and areas of congruence and conflict

Describe the Framework for Action

How and where should we intervene?

- Links to and compatibility with existing plans, policies, and programs
- Specification of the comprehensive and multi-dimensional nature of the action needed
- Persuasion of stakeholders of the feasibility and necessity of a comprehensive approach
- Evidence of precedence

- Parallel evidence from other public health initiatives
- Pre-existing frameworks for action (e.g., Ottawa Charter)
- Informed opinion (e.g., about other successful frameworks or modifiable and feasible strategies)
- Information on current relevant initiatives
- Program logic and theory

- Comprehensive obesity prevention in a standalone framework or as part of a broader plan of action for nutrition and physical activity, and/or noncommunicable diseases
- Identified settings, sectors, and support actions, and short- and long-term population goals

Evaluate Potential Interventions

What are the specific and potential interventions and their likely effectiveness?

- Consensus on potential concrete actions
- Move obesity initiatives through the agenda-setting process
- Identify resource implications
- Experimental studies
- Observational studies
- Effectiveness analyses
- Economic analyses
- Program logic and theory
- Process evaluation (e.g., of existing community or demonstration interventions)

- Specific descriptions of interventions and support actions

- Effectiveness, cost-effectiveness, or cost-utility estimates for the interventions

Select a Portfolio of Policies, Programs, and Actions

What is a comprehensive portfolio of initiatives that is sufficient to prevent increases in obesity?

- Gain stakeholder input into judgments on policy and implementation implications
- Gain stakeholder support for priority interventions
- Informed opinion on specific interventions and actions regarding their feasibility and sustainability; potential other positive or negative potential impacts; effects on equity; and acceptability to stakeholders

- Specific portfolio of policies, programs, and other actions to prevent obesity

SOURCE: Adapted from Swinburn et al., 2005.

This has been exemplified by programs that reduce television viewing time and decrease BMI in children (Robinson, 1999).

- Given the significant shortage at present of experimental evidence to guide programs and policies, and the fact that many societal variables of interest have not been well addressed in controlled experimental studies as moderating or mediating factors, obesity prevention will require an evidence-based public health approach that continues to draw on RCTs, quasi-experiments, and observational studies as important sources of information (Victora et al., 2004).

- Given that obesity is a serious health risk, preventive actions should be taken even if there is as-yet-incomplete scientific evidence on the interventions to address specific causes and correlates of obesity. However, there is an obligation to accumulate appropriate evidence not only to justify a course of action but to assess whether it has made a difference.

- Finally, for interventions that have minimal potential risk and require few resources, formative and process evaluations may be sufficient to provide a “preponderance” of evidence (Robinson et al., 1998).

As described in Appendix C, the committee conducted a thorough bibliographic search of the relevant scientific databases and benefited from the expertise of academic, industry, government, and nonprofit sector experts during its deliberations. In examining the literature, the committee focused on studies that examined weight and body composition outcomes, but it also broadened its scope to include studies that looked at changes in physical activity (or sedentary behavior) levels and in dietary intake patterns.

In examining the evidence on obesity-related prevention interventions, the committee considered the methodologies used by individual studies. Evaluating such studies involves characterizing the appropriateness of their designs for measuring target outcomes (e.g., increasing physical activity) as well as assessing the quality and generalizability of the study execution. The committee also considered the strength of the overall body of available evidence. Other factors considered by the committee included the feasibility of implementing the recommended actions, the opportunities for making changes, and the past success of parallel public health and social change efforts. Where trends of social, dietary, and other factors and health outcomes ran in parallel, the committee believes these trends merit further study and concern while acknowledging the possible occurrence of confounding.

It is also important to note that the committee focused on areas for improvement rather than on specific products, mechanisms for distribution, or industries. For example, the report emphasizes the nutritional evaluation of the contents of vending machines in schools rather than the re-

removal of vending machines (Chapter 7); considers the nutrient quality and energy density of foods and beverages rather than focusing on specific types of products (e.g., soft drinks, chips, candy); and highlights the improvements needed and actions that can promote energy balance rather than addressing any one industry (e.g., fast food restaurants).

SUMMARY

This report uses the term “obese” to refer to children and youth between the ages of 2 and 18 years who have BMIs equal to or greater than the 95th percentile of the age- and gender-specific BMI charts developed by CDC. For individuals, obesity prevention involves maintaining energy balance at a healthy weight while protecting overall health, growth and development, and nutritional status. Energy balance (calories consumed versus calories expended) is an extraordinarily complex concept when considering the multitude of genetic, biological, psychological, sociocultural, and environmental factors that affect both sides of the energy balance equation and the interrelationships among these factors.

Clear specification of obesity prevention goals is essential in shaping an action plan and evaluating its success. Relevant issues for setting obesity prevention goals for populations include concepts of optimum population BMI and healthy weight levels, potential effects on food intake and patterns of physical activity and inactivity, as well as attitudes and social norms related to food and eating, physical activity, inactivity, body size, and dietary restrictions. This chapter discusses a variety of influences on children’s diets and physical activity patterns including genetic variation and biological considerations, and sociocultural and other environmental factors.

Using an ecological systems theory model and a primary prevention evidence-based public health approach, this report focuses on how changes in the individual child’s behaviors are affected not only by individual factors but also through interactions with the larger social, cultural, and environmental contexts in which he or she lives (e.g., family, school, community, social and physical environments).

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A National Public Health Priority



Although the general public has become increasingly aware of the personal health consequences of obesity, what may not yet be generally apparent is the *public* health nature of the obesity epidemic and the consequent need for population-based approaches to address it.

Obesity prevention should be public health in action at its broadest and most inclusive level, as is true for the ongoing efforts to prevent youth from smoking. For example, local communities are passing ordinances that ban or limit cigarette vending machines, schools and community youth organizations are discouraging or banning smoking, states are passing excise taxes to raise tobacco prices, the federal government is providing national leadership and the resources for research and programs, and the private sector is restricting smoking in workplaces (Box 4-1) (Economos et al., 2001; IOM, 2003). In addition, a broad, complementary, and continuing campaign aimed at reducing adult smoking continues to be conducted. The 2004 Surgeon General's report on tobacco use emphasized that "a comprehensive approach—one that optimizes synergy from a mix of educational, clinical, regulatory, economic, and social strategies—has emerged as the guiding principle for effective efforts to reduce tobacco use" (DHHS, 2004).

A similarly broad-based approach is needed for childhood obesity prevention. Across the country these efforts are beginning. As discussed throughout this report, current efforts range from new school board policies and state legislation regarding school physical education requirements and nutrition standards for beverages and foods sold in schools to community initiatives to expand bike paths and improve recreational facilities.

BOX 4-1**Comprehensive Efforts to Address Public Health Concerns****Highway Safety:**

- **Federal government:** Safety regulations for new vehicles; highway design and safety regulations; establishment of the National Highway Traffic Safety Administration; state and community grant programs; research funding
- **State and local governments:** Highway safety offices; primary enforcement of safety belt laws; alcohol-impaired-driving laws; requirements for licensing and driver education; motor vehicle inspections
- **Public support and advocacy:** Citizen advocacy groups (e.g., Mothers Against Drunk Driving)
- **Research**
- **Media campaigns**
- **Education:** Driver education; parent education regarding safety seats

Tobacco:

- **Federal government:** Airline smoking ban; warnings on tobacco packages; research funding; Surgeon Generals' reports; establishment of the Office on Smoking and Health
- **State and local governments:** Excise taxes, laws that establish smoke-free workplaces and public locations
- **Public support and advocacy:** Grassroots efforts to prevent exposure to second hand smoke; community coalitions (e.g., ASSIST)
- **Research**
- **Media campaigns**
- **Education:** School-based programs

NOTE: This box denotes only selected examples of the multiple approaches used to address each public health problem.

SOURCES: IOM, 1999, 2003; Economos et al., 2001.

Parallel and synergistic efforts to prevent adult obesity, which will contribute to improvements in health for the U.S. population at all ages, are also beginning. Grassroots efforts made by citizens and organizations will likely drive many of the obesity prevention efforts at the local level and can be instrumental in driving policies and legislation at the state and national levels (Economos et al., 2001).

A policy analysis by Kersh and Morone (2002) shows that three of the seven common triggers for strong public action in response to a public health problem are beginning to be activated with respect to the U.S. obesity epidemic: social disapproval that shifts the social norm, evidence-based medical research, and self-help movements for overweight and obese individuals. Other triggers that have worked successfully for public health problems such as tobacco, alcohol, and illicit-drug use (a widespread coordinated movement or campaign; fear of problem-related behaviors or re-

lated culture, such as the drug culture; coordinated interest group advocacy; and targeting of groups or industries contributing to the problem) are not yet fully in place for obesity prevention or may not be relevant to this issue (Kersh and Morone, 2002; Haddad, 2003).

The additional impetus that is needed is the political will to make childhood obesity prevention a national public health priority. Effective prevention efforts on a nationwide basis will require federal, state, and local governments to commit sufficient resources for surveillance, research, programs, evaluation, and dissemination.

As the nation focuses on obesity as a health problem and begins to address the societal and cultural issues that contribute to excess weight, poor food choices, and inactivity, many different stakeholders will need to make difficult trade-offs and choices. Industries and businesses must re-examine many of their products and marketing strategies. Governments at the local, state, and national levels must consider this issue in setting priorities for programs and resources. Schools need to ensure that consistent messages regarding energy balance are a basic part of the school environment. Community organizations and numerous other stakeholders must examine the ways in which local opportunities for a healthful diet and physical activity are made accessible, available, affordable, and acceptable to children, youth, and their parents. Families need to make their homes more conducive to a healthful diet and daily physical activity. Many of these changes will be challenging because they present Americans with difficult trade-offs. However, as institutions, organizations, and individuals across the nation begin to make changes, societal norms are likely to change as well; in the long term, we may become a nation where proper nutrition and physical activity that support energy balance at a healthy weight will become the standard.

Within the United States and globally, attention is being focused on obesity prevention efforts. A number of interest groups, coalitions, national governments, and intergovernmental organizations have examined the rising obesity and chronic disease problems in a variety of contexts, recognized its complicated nature, and proposed actions to reduce its prevalence both nationally and globally (e.g., WHO, 2000, 2003; DHHS, 2001; Health Council of the Netherlands, 2003; National Board of Health, 2003; New South Wales Department of Health, 2003; Canadian Institute for Health Information, 2004; Lobstein et al., 2004; Raine, 2004; United Kingdom Parliament, 2004; Willett and Domolky, 2004). Many of the strategies and action plans that have been developed from these efforts do not differ greatly from the recommendations in this report. The committee has gained insights from these efforts, and in this report draws together the evidence on obesity prevention, nutrition, and physical activity with the lessons learned from other public health issues (Box 4-2) to develop an action plan for childhood obesity prevention that is as informed, responsive, and realis-

BOX 4-2
Lessons Learned from Other Public Health Issues and
Potential Applicability to Obesity Prevention
(see Appendix D)

- **Advertising**—Although obesity prevention does not involve restricted products to minors as is pertinent for tobacco and alcohol product advertising, there are similar concerns regarding young children’s inability to detect persuasive intent.
- **Consumer information**—Providing information to consumers has many parallels including the need for label information on tobacco, food, and drug products.
- **Public education campaigns** to convey public health messages such as those regarding youth smoking, and seat belt and child car seat use provide examples for obesity prevention media campaigns.
- **Grassroots efforts and coalition building**—Community organizations (including youth and civic organizations) are active in health promotion efforts and coalitions resulting from grassroots efforts have been successful in legislative and social changes (e.g., drunk driving laws).
- **School environment**—Changes to promoting a healthier overall school environment have parallels in smoking bans in schools. Further, classroom education and particularly health education efforts focus on a number of health promotion topics including safety, HIV prevention, and violence prevention.
- **Health-care system**—As with numerous other health promotion issues, the health-care system provides opportunities for parent and child education as well as for prevention interventions such as administering vaccines.
- **Changes in the physical environment**—Modifications of highways, roads, and intersections to enhance pedestrian and traveler safety provide parallel examples for the funding, regulatory, and prioritization efforts required to enhance opportunities for physical activity.
- **Government support and funding**—The long-term commitment from both federal and state governments for research, surveillance, and program efforts on a number of public health issues (e.g., highway improvements, research centers, surveys) provides parallels for sustained efforts on obesity prevention.
- **Industry involvement**—Numerous health-promoting products such as sunscreens are developed and marketed by industry.
- **Comprehensive approach**—As indicated in Box 4-1, comprehensive approaches have been used in enhancing highway safety and in preventing tobacco use by youth. A similar comprehensive effort is suggested for obesity prevention.
- **Taxation and pricing**—Obesity prevention efforts do not involve access to a restricted product for youth (as do tobacco and alcohol prevention efforts). Excise taxes and pricing strategies have played an important role in tobacco control efforts. However, it is more difficult to identify specific food and beverage products on which to impose taxes or tax breaks.
- **Litigation** changed the tobacco control environment including the public’s view of the issue. It is unclear whether the same issues that led to litigation for tobacco are relevant to obesity prevention.
- **Access and opportunity**—For restricted products, laws and regulations to restrict access to tobacco and alcohol have decreased availability. The ubiquitous nature of foods and beverages makes that a less feasible option for obesity prevention.

tic as possible. The committee acknowledges, as have many other similar efforts, that obesity prevention is a complex issue, that a thorough understanding of the causes and determinants of the obesity epidemic is lacking, and that progress will require changes not only in individual and family behaviors but also in the marketplace and the social and built environments. No simple solutions are anticipated; therefore, multiple stakeholders need to make a long-term commitment to improve opportunities for healthful nutrition and physical activity.

Although this chapter focuses on actions that need to be taken by the federal, state, and local governments, it is essential to mobilize and involve the numerous private organizations that fund obesity prevention programs and initiatives. It is in the best interest of the nation's children for all relevant stakeholders to make obesity prevention efforts a priority.

The committee recognizes the importance of combined social deliberation, problem analysis, and social mobilization around the issue of childhood obesity prevention at different levels and in various settings. This report and others that follow can set forth recommendations and broadly outline suggested actions; however, many of the next steps for progress on this issue will involve discussions and interactions of the implementers and innovators—the people, agencies, and organizations concerned about this issue and ready to work together to develop, implement, and evaluate approaches to prevent childhood obesity that fit the needs of their state, county, community, school, or neighborhood.

LEADERSHIP, COORDINATION, AND PRIORITY SETTING

A National Priority

The federal government has a long-standing commitment to programs that address nutritional deficiencies (beginning in the 1930s) and encourage physical fitness, but only recently has obesity been targeted. Physical activity and overweight/obesity are now designated as priority areas and leading health indicators in the nation's health objectives, *Healthy People 2010*, developed by the Department of Health and Human Services (DHHS) in collaboration with state and territorial health officials and numerous national membership organizations. The goal set by *Healthy People 2010* is to reduce the proportion of children and adolescents who are obese to 5 percent by 2010 (DHHS, 2000).

Obesity prevention is a cross-cutting issue that does not naturally fall under the purview of any one federal department. It encompasses health concerns central to the mission of DHHS; nutrition, nutrition education, and food-related issues for which the U.S. Department of Agriculture (USDA) has responsibilities; and school curriculum and school environ-

ment concerns that the Department of Education addresses. In addition, the agendas of numerous other federal departments include transportation, housing, and many other issues that are key to increasing physical activity levels and improving dietary quality and patterns.

Given the importance of obesity prevention for the health of American children, and given the overarching nature of this issue, prevention efforts need to be coordinated at the highest federal levels. **The committee recommends that the President request that the Secretary of DHHS convene a high-level task force that includes the Secretaries or senior officials from DHHS, Agriculture, Education, Transportation, Housing and Urban Development, Interior, Defense, and other relevant federal agencies.** The goal of the task force would be to ensure coordinated budgets, policies, research efforts, and program requirements and establish effective interdepartmental collaboration and priorities for action. It would be important for the task force to meet on a regular basis with local and state officials, representatives from nongovernmental organizations including foundations and advocacy groups, industry representatives, civic and youth-related organizations, and other relevant stakeholders.

It is expected that high-level focused attention on this issue will result in fostering interdisciplinary and interdepartmental research collaborations that span agriculture, health, behavioral sciences, economics, urban planning, and other relevant disciplines. Given the public health nature of the childhood obesity epidemic, it is the committee's judgment that the Secretary of Health and Human Services should chair this coordinating task force.

To maintain the momentum over the long term, the committee urges that the coordinating task force consider periodic reassessments of its organization and its goals. In the initial work of the task force, participation of the Secretaries of the departments or senior officials will be needed to give high-level visibility, authority, and credence to the coordinating efforts. However, it is unrealistic to expect such high-level participation to continue indefinitely. After 2 to 3 years, an assessment may be needed to determine the best way to continue the collaboration and keep the research partnerships energized. In any case, sustained coordination will be primary to addressing this health issue, and it is up to the federal departments to ensure that it is a long-term priority.

As part of its focus on obesity prevention in children and youth, the federal government should document its efforts and progress through an annual report to the nation. This report, which would include updates on the new and recently evaluated efforts in each of the cabinet departments as well as on cross-cutting efforts, could be coordinated through the Centers for Disease Control and Prevention (CDC). Content would include up-to-date epidemiologic data on childhood obesity trends, the amount and

sources of government funds that are targeted to childhood obesity prevention, information on programs and research, and the results of program evaluations. It would also be informative to have an overview of federal, state, and local policy measures that have been taken to address the issue, as well as profiles of model programs that show promise.

Meanwhile, it will be important to continue the current intra- and interdepartmental collaboration efforts, including the National Institutes of Health (NIH) Task Force on Obesity Prevention (which coordinates efforts between the NIH institutes on this issue), and the 2005 Dietary Guidelines Advisory Committee (which is conducting a review of the current scientific and medical knowledge on childhood obesity in order to provide a technical report of recommendations to the Secretaries of DHHS and USDA that will inform the 2005 edition of the Dietary Guidelines for Americans; see Chapter 3). This review will ensure consistency of dietary recommendations across DHHS and USDA agencies regarding national dietary recommendations for the American public.

Just as it has done with automobile and highway safety initiatives (Box 4-1), efforts to curb youth smoking, and current efforts to defend against potential bioterrorist threats, the federal government should set forth obesity prevention as a national health priority—one that is acted upon through extensive and sustained funding and a long-term commitment of resources (IOM, 2003).

Congressional support will be crucial in ensuring that funding is made available for pilot programs and for research, public education, and program efforts. Furthermore, congressional leadership is needed on issues such as nutritional standards for foods and beverages sold in schools and in other areas that need legislative authorization.

The federal government should take a leadership role in the prevention of obesity in children and youth by making this issue a top priority for the U.S. Departments of Health and Human Services, Agriculture, and Education. This priority should be reflected in the departments' public statements, programs, research priorities, and budgets. These departments along with other relevant federal entities (e.g., the Departments of Transportation, Housing and Urban Development, Interior, and Defense) should together pursue an integrated approach that promotes healthful eating and regular physical activity to achieve energy balance.

STATE AND LOCAL PRIORITIES

State and local governments have important roles to play in obesity prevention because they can focus on the specific needs of their communities' populations (see Chapter 6). Many of the issues involved in preventing childhood obesity require decisions by county, city, or town officials. Ac-

tions on street and neighborhood design, planning for parks and community recreational facilities, and locations of new schools and retail food facilities are usually up to the local zoning boards, planning commissions, and similar entities. Efforts can be tailored to local residents and institutions, and can be more quickly adapted and revised to meet changing demands and integrate new approaches.

State governments and agencies, including state departments of health, education, and transportation, are also key to ensuring that obesity prevention policies are developed and programs are implemented. Further, state governments are responsible for programs that provide food assistance, address the consequences of obesity (e.g., diabetes and heart disease), and influence health spending and policy (such as Medicaid, Title V [Maternal and Child Health], and direct funding for community development/housing and transportation). In some states, major policy decisions for school systems are made at the community or county level, but in others it is the state department of education that makes most of these decisions.

As numerous and diverse programs and initiatives are being planned or under way in states and communities, organizations that bring together state and local leaders—such as the National Governors Association, the U.S. Conference of Mayors, the National Association of County and City Health Officials, the Association of State and Territorial Health Officials, and the American Public Health Association—can each raise awareness of obesity issues, facilitate the sharing of lessons learned, and help coordinate obesity prevention efforts.

One avenue for expanding state-based obesity prevention efforts is through CDC's grants program that focuses on local capacity building and implementation of programs to prevent obesity and other chronic diseases (CDC, 2004a). As discussed in Chapter 6, expansion of this grant program could be instrumental in establishing community demonstration projects. Twenty states received funding through these grants in fiscal year (FY) 2003. **By expanding the total funding for the state grant programs, needed resources could be allocated to support additional states, particularly those with the highest prevalence of childhood and youth obesity.** For example, the committee notes the critical role that the federal government has played in highway safety by providing states with grant funding (the Section 402 State and Community Highway Safety Grant program); these funds have been used for the development and evaluation of new innovative programs to increase the use of seat belts and child safety seats (IOM, 1999).

Another recent initiative to provide funds for city- and community-based health efforts is the DHHS Steps to a Healthier U.S. Initiative (see Chapter 5). In 2003, DHHS provided 12 grants to promote community and tribal initiatives focused on reducing the burden of diabetes, overweight, obesity, and asthma and emphasizing efforts to address physical inactivity,

poor nutrition, and tobacco use. Evaluation and further funding of this program is encouraged.

State and local governments should make childhood obesity prevention a priority by devoting resources to this issue and providing leadership in launching and evaluating prevention efforts.

State and Local Public Health Agencies

Government public health agencies are critical components of the nation's response to childhood obesity at national, state, and local levels, not only because the public health workforce has the needed expertise, but also because it has access to a large number of children, youth, and families; the ability to galvanize community efforts; and the resources to implement prevention programs. As the only institutions with the mission and legal mandate to protect the health of the public-at-large, federal, state, and local government public health agencies are the most publicly accountable entities within the health system. Public health has a long record of remarkable achievement despite modest resources, and the recent infusion of federal support to bolster preparedness for biological terrorism has strengthened the infrastructure to respond to disease emergencies (IOM, 2003).

The state and local public health agencies in particular comprise the front line of the public health system. Although they are in an ideal position to assess the childhood obesity epidemic and the local conditions that are fueling it, these agencies need to be restructured for collaborative approaches that address behavioral, social, and environmental factors and that involve diverse community stakeholders and engage even the most disenfranchised communities. Such partners can include schools, child-care centers, nutrition services, parks and recreation departments, civic and ethnic organizations, faith-based groups, businesses, and community planning and transportation boards (see Chapter 6).

As noted above, the committee urges increased funding for CDC's program of state-based obesity prevention grants to provide the resources needed by state and local departments of health and others for improved surveillance efforts to identify specific community, state, and regional issues; training of public health professionals on obesity prevention; planning, implementing, and evaluating obesity prevention efforts including support for community coalitions and other collaborative efforts with community stakeholders, schools, and other key partners; and development of better tools for public communication.

Health departments have the added dimension of serving as regulator or educator of standards for practice. Immunization programs, tobacco control efforts, and food service or restaurant inspection are all examples of public health (or environmental health) agencies overseeing and informing

private-sector entities in order to protect health. With sufficient resources and staff training, public health and environmental health agencies may be able to develop complementary obesity-related programs to educate food service workers on nutritional values and portion size, for example, and to monitor and sanction institutional compliance with nutrition and physical activity standards for children.

State and local public health agencies should make childhood obesity prevention a priority and work collaboratively with families, communities, schools, health- and medical-care providers, and industry to ensure that outcome. Further, state and local governments should increase funding for their health agencies so that they can more fully implement and evaluate obesity prevention efforts. State and local public health agencies should work with other state and local agencies, such as planning and public works departments, in establishing an interagency and multisectoral coordinating task force to facilitate collaborative planning, implementation, and assessment; coordinate and leverage governmental and nongovernmental resources; assure the capacity, workforce skills, standards, and resources necessary to achieve obesity prevention goals; support community coalitions (see Chapter 6); and work with community partners.

RESEARCH AND EVALUATION

Much remains to be learned about the causes and correlates of childhood obesity, as well as the optimum measures for preventing it. Experimental behavioral research and community-based research are key to learning more about changes in dietary and physical activity behaviors in individuals and populations (see Chapter 9). Moreover, as discussed elsewhere in this report, the funding and evaluation of a wide variety of obesity prevention intervention approaches are critical, given that there is a dearth of knowledge on this subject. Interventions focused on high-risk populations are particularly important. Such programs should be culturally relevant and designed to address the barriers to healthy lifestyles in these populations' physical and social environments.

An interdisciplinary research effort is greatly needed. Topics as diverse as the impacts of the built environment on health and behavior, gene-environment interactions, and the social underpinnings of healthful lifestyles require a research approach that embraces and encourages interdisciplinary research in agricultural and food sciences, nutritional sciences, economics, public health, marketing, behavioral and social sciences, policy sciences, urban planning, physiology, and health care. Innovative intervention designs, collaborative research efforts, and rigorous evaluation are key. A frequently overlooked component of the research cycle—the rapid translation and diffusion of effective programs and policies to community set-

tings—is especially vital for making needed headway in obesity prevention efforts. Such transfer necessarily involves innovative intervention design and rigorous evaluation (see Chapter 3).

Because nutrition, physical activity, and obesity research encompass broad areas of investigation, federally funded research efforts are now dispersed amongst a number of U.S. agencies, including NIH, CDC, and USDA. In FY 2003, NIH spent \$379 million on obesity-related research (NIH, 2004b). The NIH Obesity Research Task Force recently developed a strategic plan, focused primarily on the biobehavioral causes of obesity, for coordinating the NIH efforts (NIH, 2004a). CDC funds a range of state-based nutrition and physical activity grants, in addition to its own extensive epidemiologic efforts, to study the correlates of the obesity epidemic. USDA conducts extensive nutrition research and funds six human nutrition research centers across the country, one of them specifically devoted to children's nutrition (including childhood obesity).

The interdisciplinary nature of obesity-related research, however, offers exciting opportunities for strengthening and expanding intra- and interdepartmental research efforts. USDA, for example, could link land grant institutions and other higher education entities with federal nutrition assistance programs and could field multidisciplinary teams to evaluate program changes (NRC, 2004).

The federal investment in research on the prevention of childhood obesity must be strengthened. Further, foundations and other health-related organizations that fund research should consider designating childhood obesity prevention as a key area for funding. Interdisciplinary efforts should emphasize behavioral and community-based research, particularly in addressing childhood obesity prevention in high-risk populations.

A top research priority is the evaluation of obesity prevention interventions (see Chapter 9). Despite broad acknowledgement of the importance of the obesity crisis and the urgent need for effective prevention approaches, systematic reviews of the literature find few high-quality studies of the efficacy and/or effectiveness of various interventions to prevent weight gain and obesity in children (Campbell et al., 2002). As discussed throughout the report, there are many studies on correlates of obesity, physical activity, sedentary behavior, and various dietary intake patterns, many of which conclude that their findings will be useful in designing effective prevention programs. However, much of this research does not bear directly on understanding how best to manipulate these correlates to achieve changes in children's physical activity, sedentary behavior, diet, or weight. As a result, there are gaps in knowledge regarding how to successfully apply current understandings of causes and correlates into feasible and efficacious interventions and, subsequently, effective public health programs. Thus there is a need for more experimental research—studying purposeful manipulations

BOX 4-3
Evaluation Framework

Steps for designing and evaluating programs in public health:

- Engage stakeholders—include those involved in program operations, those served or affected by the programs, and primary users of the evaluation
- Describe the program
- Focus the evaluation design
- Gather credible evidence
- Justify conclusions
- Ensure use and share lessons learned

SOURCE: CDC, 1999.

of biological, behavioral, environmental, and policy factors—in tightly controlled laboratory studies, in randomized clinical trials, in quasi-experimental trials, and in natural experiments of environmental and policy changes. What distinguishes this research from nonexperimental research is the ability to reasonably make causal inferences and to translate the results into policies or programs for either further testing or clinical or public health practice.

One opportunity for obtaining needed information is to incorporate evaluation into the planning and implementation of programs and initiatives already being put forward (Box 4-3). As noted throughout this report, numerous relevant policies and programs are currently being planned or implemented at all levels of society. However, often the evaluation component is not considered an integral part of the implementation plan or time or funding constraints limit or negate evaluation efforts. When evaluations of these policies and programs are absent or inadequate, neither the policy nor the program sponsor and others will ever know whether or not the programs were successful. Until a sufficient evidence base is built, therefore, attention must be given to ensuring that careful evaluation research is conducted as part of all new policy and program initiatives. Through these evaluation efforts, interventions can be refined; those that are unsuccessful can be discontinued or refocused, and those that are successful can be identified, replicated, and disseminated.

Furthermore, cost-benefit and cost-effectiveness analyses must become a central component of prevention research because these assessments can guide appropriate policy making on the best use of limited resources (Kellam and Langevin, 2003). CDC is currently working on Project MOVE (Measurement of the Value of Exercise) which is calculating cost-effectiveness of

previously conducted physical activity interventions based on published data. One of the literature's few cost-effectiveness studies on this topic examined Planet Health, a middle-school-based obesity prevention intervention with nutrition and physical activity components; the researchers calculated that the intervention (cost of \$33,677 or \$14 per student per year) would prevent 1.9 percent of the female students from becoming overweight as adults, thereby saving an estimated 4.1 quality-adjusted life years. The estimated savings in medical care costs (\$15,887) and loss of productivity costs (\$25,104) would result in a net savings to society of \$7,313 (Wang et al., 2003). Assessments of the cost-effectiveness of other interventions are needed. **Increased funding is needed to ensure rigorous evaluation of the net benefit and cost-effectiveness of childhood obesity prevention interventions that are being implemented at local, state, and national levels.**

SURVEILLANCE AND MONITORING

National, state, and regional surveillance systems monitor the childhood obesity problem and contribute information on its prevalence (Table 4-1). For example, CDC's Youth Risk Behavior Surveillance System (YRBSS) surveys examine a variety of obesity-related factors, including physical activity and nutrition, in 12- to 19-year-olds. The School Health Policies and Programs Study (SHPPS), a national survey of states, school districts, schools, and classrooms, which has been conducted twice (1994 and 2000), examines policies for school health services, food services, and physical education (CDC, 2004b).

The National Health and Nutrition Examination Survey (NHANES) monitors the population—through home interviews and health examinations of representative samples of U.S. households with participants as young as 2 months of age—to gather a wealth of information relevant to obesity prevention efforts (see Chapter 2). The current NHANES measures many factors that relate to energy balance: dietary intake, physical activity, body mass index, body composition, cardiovascular fitness, and biochemical indicators such as blood pressure and serum glucose. Furthermore, collaborations between DHHS and USDA have facilitated the recent integration of the Continuing Survey of Food Intakes by Individuals (CSFII) and NHANES, so that dietary intake and health data can be more accurately correlated. Efforts are ongoing to incorporate the diet and health knowledge segment (previously in CSFII) into NHANES as well, providing further insights into knowledge and attitudes about diet and nutrition.

The health examination segment of NHANES includes fitness tests and questions regarding physical activity for 12- to 49-year-old participants. The current NHANES assessments of body composition include the use of

TABLE 4-1 Selected Surveillance Systems

Surveillance System	Primary Sponsor	Frequency	Description
CSFII Continuing Survey of Food Intakes by Individuals	USDA	1989-1991; 1994-1996; 1998; now part of NHANES	Nationally representative survey of dietary intake. Respondents were asked to provide 2 to 3 days of food intake data. CSFII is now incorporated into NHANES.
NHANES National Health and Nutrition Examination Survey	CDC	Previously conducted periodically, now continuous survey	Ongoing nationally representative survey assessing the health and nutritional status of adults and children in the United States through interviews and direct physical examinations. Currently, in partnership with USDA, NHANES incorporates the CSFII.
NHTS National Household Travel Survey	BTS and FHWA	2001	Survey of long-distance and local travel by the American public. The survey information includes mode of transportation, duration, distance and purpose of trip. Prior related surveys include the Nationwide Personal Transportation Survey conducted in 1969, 1977, 1983, 1990, and 1995 and the American Travel Survey conducted in 1977 and 1995.
National Longitudinal Study of Adolescent Health	NICHD	1994, 1996, and 2001-2002	Nationally representative study that explores health-related behaviors by following a sample of adolescents who were in grades 7 through 12 in 1994-1995 into young adulthood.

NLSY National Longitudinal Survey of Youth	BLS	Annual interviews	Nationally representative study of youths who were 12 to 16 years old in 1996. Initial interviews were with the youth and one parent. Subsequent annual interviews with the youth. Topics range from education and employment to health issues and time use.
PedNSS Pediatric Nutrition Surveillance System	CDC	Compiled from ongoing reports	Program-based surveillance system that examines nutritional status of children in low-income households. The system uses data collected from health, nutrition, and food assistance programs for infants and children, such as WIC.
SHPPS School Health Policies and Programs Study	CDC	1994 and 2000; to be conducted in 2006	Periodic collection of information on school health-related policies and programs at the state, district, school, and classroom levels.
YRBSS Youth Risk Behavior Surveillance System	CDC	1991-present; every 2 years	Monitors health risk behavior in adolescents through national, state, and local school-based surveys of representative samples of 9th through 12th grade students.

NOTE: BLS = Bureau of Labor Statistics; BTS = Bureau of Transportation Statistics; CDC = Centers for Disease Control and Prevention; CSFII = Continuing Survey of Food Intakes by Individuals; FHWA = Federal Highway Administration; NICHD = National Institute of Child Health and Human Development; USDA = U.S. Department of Agriculture.

multifrequency bioelectrical impedance analysis data on participants aged 8 to 49 years and dual energy x-ray absorptiometry measures on participants older than 8 years of age. This information allows greater accuracy in determining body-weight status and in examining correlates of nutrition and physical activity. NHANES data are used to track trends in obesity prevalence. But it is critical that additional information be collected and analyzed to provide insights into obesity prevention efforts.

Many of the current surveillance efforts collect data on only one age range (most often adolescents) and usually lack the resources to focus on high-risk populations at the state and regional levels. More detailed information is needed on weight status; physical activity; nutrition; social, environmental, and behavioral risk factors for obesity; and economic and medical consequences of obesity (such as type 2 diabetes in children and youth). Information on children's physical activity levels is particularly scant because most national surveys focus on adolescents. Additional information is needed at the state and regional level to provide more in-depth information on specific geographic areas or high-risk populations. Further efforts should also be made to monitor community-level variables in order to assess the impact of environmental-level changes and policies. Examples include the number of school districts requiring daily physical education in schools, the number of grocery stores selling fresh fruits and vegetables within low-income neighborhoods, or the percentage of children living within a mile of school who commute by walking or biking. Innovative approaches should be explored and evaluated that would monitor the impact of changes at the local level and feed that information back to national sources so that successful programs could be refined and expanded.

Relevant surveillance and monitoring efforts should be supported and strengthened by increased federal funding; this applies particularly to NHANES, as it is a valuable information resource for obesity prevention programs. Special efforts should be made to identify those populations most at risk of childhood obesity, and to monitor the social, environmental, and behavioral factors contributing to that elevated risk.

Further efforts to collect longitudinal data would be useful, as longitudinal studies can examine potential risk factors associated with the development of obesity and normal weight, which is not possible from cross-sectional studies. Discussions are ongoing about initiating a new national longitudinal study on U.S. children that would follow a large cohort over time to examine health and well-being issues. As this national study is being considered, the committee urges that weight status, as well as nutrition- and physical activity-related measures, be included in such an effort's basic set of questions. A precedent is the Avon Longitudinal Study of Pregnancy and Childhood (ALSPAC), based in England and involving other European collaboration centers. ALSPAC is examining nutrition and other antecede-

ents as well as growth outcomes. Any national longitudinal cohort study of children that is established should examine antecedents and outcomes, including physical activity levels, dietary patterns, eating behaviors, and weight status, related to the development of obesity during childhood.

NUTRITION AND PHYSICAL ACTIVITY PROGRAMS

A number of public- and private-sector programs educate consumers of all ages about proper nutrition and regular physical activity. For example, the USDA's Expanded Food and Nutrition Education Program (EFNEP) uses the resources of county Cooperative Extension System services and other local agencies to reach low-income families and youth, and both the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and the Food Stamp Program (FSP) have nutrition education components. Team Nutrition has been developed by USDA to improve school nutrition and nutrition education, and it has components for students, parents, teachers, and food service personnel. The Five-A-Day media campaigns, the result of an extensive public-private partnership, promote the consumption of fruits and vegetables. These programs still face challenges, however. A recent assessment of several USDA nutrition education efforts revealed limited resources, competing program requirements, and a lack of systematic data collection on the types of nutrition education offered (GAO, 2004). Actions are therefore needed that clearly identify program goals, tailor nutrition education to meet the needs of participants, and collect data on program results (GAO, 2004).

Increasingly, more public- and private-sector programs are focusing on physical activity, or they are working to promote both good nutrition and physical activity. The President's Council on Physical Fitness and Sports is developing a Fit 'n Active Kids program. The Partnership for a Walkable America is an extensive public-private collaboration to promote walking and improve conditions for walking. The America on the Move initiative sponsored by the Partnership to Promote Healthy Eating and Active Living (an organization of nonprofit and private-sector partners) targets prevention of adult weight gain as a first step toward combating obesity; the initiative specifically advocates increasing physical activity by 100 calories per day and decreasing caloric intake by 100 calories per day (America on the Move, 2004). CDC's VERB campaign (see Chapter 5) focuses on media messages on physical activity for 9- to 13-year-olds and involves collaborations with schools, youth organizations, and other organizations.

The existing infrastructure and capabilities of these and other relevant federal programs and public-private collaborations can provide an avenue to raise awareness of the health consequences of childhood obesity and to convey, through well-evaluated interventions, information on energy bal-

ance and the benefits to children of healthful food choices and regular physical activity. Some of these programs were developed to accomplish goals other than obesity prevention, and evaluation of how to best use them to respond to the current information needs for obesity prevention may be needed. Children, youth, and their families need to have the information to make positive lifestyle decisions just as they need access to nutritious foods and recreational facilities in order to implement these choices (see Chapter 8). Providing obesity-related information to parents and families is often quite a challenge, because there is no one source or avenue throughout the United States for parent education. Several options are available at present, including federal and state nutrition education programs, parenting magazines and other media, health-care visits, and school-based programs. However, other innovative approaches need to be explored.

Program implementation efforts should particularly address childhood obesity prevention in high-risk populations. Some of the ongoing federal food and nutrition efforts—including EFNEP, FSP, WIC, the National School Lunch Program (NSLP), the School Breakfast Program (SBP), the Summer Food Service Program, and the Child and Adult Care Food Program (CACFP)—address the needs of low-income, high-risk populations that have significant health disparities. But these programs could do more, even within their existing infrastructure, through a sustained commitment to funding for obesity prevention research and intervention development, implementation, and evaluation.

Federal support is needed for programs that emphasize improved nutrition and physical activity in children, youth, and their families, with particular attention paid to populations at high risk of obesity. These programs should be required to have strong evaluation components, and the evaluation results should consequently be reflected in program refinements that strengthen their evidence-based approaches. Programs should also explore and evaluate new approaches to educating children and their families about concepts related to energy balance.

NUTRITION ASSISTANCE PROGRAMS

One in five Americans utilizes one or more of the 15 federal nutrition assistance programs (USDA, 2003a). Many of these programs provide food to children either directly, through the school breakfast and lunch programs, or indirectly, through vouchers that may be used by the family to supplement household food resources (Table 4-2).

In FY 2001, approximately 4 million children were served each month by the FSP, 28 million were served daily by the NSLP, and 8.1 million were served daily by the SBP. Although the FSP includes a nutrition education component in selected states, the program is designed as a food equity

TABLE 4-2 Selected Federal Food and Nutrition Assistance Programs

		FY 2002
Food Stamp Program	Average monthly participation (millions)	19.1
	Average benefit per person (dollars/month)	79.68
	Total expenditures (\$ billions)	20.7
WIC	Average monthly participation (millions)	7.5
	Total expenditures (\$ billions)	4.3
National School Lunch Program	Average daily participation (millions)	28.0
	Total expenditures (\$ billions)	6.9
School Breakfast Program	Average daily participation (millions)	8.1
	Total expenditures (\$ billions)	1.6
Child and Adult Care Food Program	Meals served in:	
	• Child care centers (millions)	984
	• Family child care homes (millions)	708
	• Adult day care centers (millions)	45
	Total annual expenditures (\$ billions)	1.9

SOURCE: USDA, 2003a.

program to alleviate hunger and food insecurity; thus it does not have guidelines on the specific types of food that recipients may purchase with their benefits. There has been growing interest, however, in examining the relationships among food insecurity, federal nutrition assistance program participation, and the risk of obesity among children and youth. Because resource-constrained families are more likely to participate in nutrition programs, any association of program participation with obesity must be evaluated within the context of poverty and food insecurity (Frongillo, 2003).

As noted in Chapter 3, food insecurity in children has not been associated with obesity, except in white girls aged 8 to 16 years (Alaimo et al., 2001; Casey et al., 2001; Frongillo, 2003). In fact, existing empirical data suggests that there is a lower risk of overweight and obesity in school-aged food-insecure girls who participated in the FSP, NSLP, and the SBP (Jones et al., 2003).

The WIC program provides nutrition information, supplemental foods, and referrals to health care for low-income women, infants, and children up to age 5 who are at nutritional risk. Approximately half of all infants and 25 percent of all 1- to 4-year-old children in the United States participate in the WIC program (Oliveira et al., 2002). A study of low-income preschool

children in 18 states and Washington, DC (most were WIC recipients) found that one in ten was overweight in 1995, a relative increase of 20 percent from 1983 (Mei et al., 1998). Two studies examining potential associations between the WIC food package and overweight status in children found that WIC foods did not contribute to overweight (CDC, 1996) and that the weight status of children in the WIC program was comparable to that of other low-income children (Burstein et al., 2000). The Institute of Medicine is currently conducting a study to review the nutritional needs of the populations served by the WIC Program, assess their supplemental nutritional needs, and propose recommendations for the contents of the WIC food packages.

Given that a great deal is known about good nutrition and the dietary composition of balanced diets, it would be advantageous to the health of children participating in federal nutrition assistance programs if nutrient-rich foods were made available and if there was access to ethnically and culturally appropriate foods. The committee is particularly interested in urging USDA to expand pilot programs that focus on increasing the availability of fresh fruits and vegetables and other nutritious foods or provide incentives for the purchase of these items. Ideas for such programs have included double or specifically designated fruit and vegetable vouchers; coupons or other discount promotions; and the ability to use electronic benefit transfer cards at farmers' markets or community-supported agricultural markets (GAO, 2002). Additionally, a systematic study should examine potential strategies for improving the community food environment to ensure that FSP recipients have access to supermarkets, farmers' markets, and other venues that provide fresh, high-quality, and affordable produce and other healthful foods (see Chapter 6).

In addition to their current objectives to improve food access and dietary quality, the federal nutrition assistance programs (e.g., WIC, FSP) should include obesity prevention as an explicit goal for the populations served. Congress should request independent assessments of these programs to ensure that each provides adequate access to healthful dietary choices (including fruits, vegetables, and whole grains) for the populations served. USDA should also continue to explore pilot programs within the nutrition assistance programs that encourage diet and physical activity behaviors that promote energy balance at a healthy weight in children and youth.

AGRICULTURAL POLICIES

As the traditional paradigm of "farm to table" shifts to one of "table to farm," driven by consumer demand and an awareness of the connections between diet and health, decision makers in the United States should take a new look at the impact of agricultural and food policies (NRC, 2004). The

committee acknowledges that the nation's food supply is part of a global food system, and that many food-related issues lie outside of any one nation's purview. However, the committee also realizes that the global implications of domestic solutions to the childhood obesity epidemic should be thoughtfully considered so that new problems are not created that may produce adverse consequences (Appendix D).

There are a number of mechanisms by which U.S. federal agricultural policies may potentially affect the types of foods available to and marketed to children. For example, schools participating in the NSLP may choose to receive entitlement commodities purchased by USDA specifically for the program or receive bonus commodities from USDA to bolster the agricultural markets for particular products (to address temporary surpluses or to help stabilize farm prices) (USDA, 2002, 2004b). In the 2001-2002 school year, USDA's Agricultural Marketing Service and Farm Service Agency together spent more than \$765 million on school lunch entitlement purchases and approximately \$58 million in providing bonus commodities (USDA, 2004b). These included beef, fish, poultry, eggs, fruits, vegetables, flours, grains, dairy products, and peanut products. As discussed in Chapter 7, there are several federal, state, and local programs at present, such as the Department of Defense's Fresh Produce Program, that provide the distribution mechanisms for delivering fresh produce from farms to schools.

A second set of policies to examine involves the check-off programs, used for agriculture products such as beef, pork, and dairy, in which producers are required to donate money—a fixed amount for each unit sold—to a fund established by federal legislation but run by a national private-sector board (Dairy Management, 2004; National Pork Board, 2004; USDA, 2004a). For example, the National Pork Board reports that pork producers and importers pay 40 cents on each \$100 when pigs or pork products are sold; these funds generated \$47.8 million in 2003 (National Pork Board, 2004) for use in advertising, marketing, education, research, and other programs that promoted the commodity.

Concerns have been raised about the many factors that influence food demand and food consumption behaviors of Americans—the types and prices of available foods, technological advances, time pressures, and government policies on agriculture, taxes, and exports/imports—which are outside of consumer control (NRC, 2004).

A review of agricultural policies could identify unintended effects of U.S. agricultural subsidies on human health. For example, Americans' per capita consumption of caloric sweeteners—primarily sucrose derived from cane, beets, and corn (notably high fructose corn syrup)—increased by 43 pounds, or 39 percent, between 1950-1959 and 2000 (USDA, 2003b). In 2000, the average American consumed 152 pounds of caloric sweeteners, which was equivalent to 52 teaspoons of added sugars per person per day

(USDA, 2003b), more than 40 percent of which came from high fructose corn syrup (Bray et al., 2004). The possible relationships among agricultural policies (such as corn subsidies and the production and use of high fructose corn syrup in the U.S. food supply), the obesity epidemic (Bray et al., 2004), and the marked increase in type 2 diabetes (Gross et al., 2004; Schulze et al., 2004) warrant further investigation.

An independent assessment should be conducted of U.S. agricultural policies, including agricultural subsidies and commodity programs, that may affect the types and quantities of foods available to children through the federal food assistance programs. Further, other efforts (such as check-off programs) that have involved federal legislation should be examined to ensure that they work to promote a healthful dietary intake among children. Policies and programs should be revised as necessary to promote a U.S. food system that supports energy balance at a healthy weight.

OTHER POLICY CONSIDERATIONS

The imposition of taxes on certain foods or beverages, particularly high-calorie food items or those with low nutrient density, has been discussed with regard to the obesity epidemic. Several states including Arkansas, Tennessee, Virginia, and Washington, currently impose excise taxes on soft drinks. Although the tax rates have been found to be too small to affect sales, in certain jurisdictions the revenues generated are substantial but generally have not been used to fund obesity prevention activities (Jacobson and Brownell, 2000). It is not known whether imposing a sales tax on designated foods such as soft drinks would have a significant effect on beverage sales (Jacobson and Brownell, 2000). Moreover, there is the difficulty of determining which foods would be taxable—for example, how to define soft drink and snack foods (Jacobson and Brownell, 2000). Taxation and pricing strategies have been found to contribute to tobacco prevention and control efforts (Levy et al., 2004). Pricing policies for food are much more complex than tobacco and there is limited evidence about the price elasticity of high-energy-dense foods (Yach et al., 2003). It is notable that other countries, such as Norway, have effectively used agricultural policies such as consumer and producer subsidies to encourage the consumption of healthful foods (Milio, 1998).

The committee has carefully considered the issues regarding taxes on specific foods, particularly soft drinks and energy-dense snack foods, but at this time, it is the committee's judgment that there is not sufficient evidence to make a strong recommendation either for or against taxing these foods. More research is needed to determine objective methods for defining and characterizing foods based on nutritional considerations such as the quality and quantity of nutrients or the energy density. Additionally, because low-

income families spend a greater proportion of their household income on food than do higher-income families (Nord et al., 2003), taxes on foods may have the effect of being regressive and may lead to unintended consequences such as increasing food insecurity. In any case, taxation may not address the main issue, that many people will not consume greater amounts of healthful foods, even if their relative prices are lower, simply because they prefer energy-dense foods.

Because some states are already taxing specific types of food or beverage products, studying these examples may prove useful. The committee suggests that research into the effects of taxation and pricing strategies be considered a priority to help shed light on the potential outcomes of more broadly applying taxation as a public health strategy for promoting improved dietary behaviors, more physical activity, and reduced sedentary behaviors.

RECOMMENDATION

Childhood obesity is a serious nationwide health problem requiring urgent attention and a population-based prevention approach. Innovative ideas, commitments of time and resources by diverse sectors and stakeholders, and sustained efforts involving individual, institutional, and societal changes are needed to ensure that all children grow up physically and emotionally healthy.

Also needed is national leadership that elevates childhood obesity prevention to a top national health priority and dedicates the funding and resources required to make this goal a long-term commitment. Only through policies, legislation, programs, and research will meaningful changes be made. Steady monitoring and evaluation of those changes will inform and refine future efforts. **Prevention of obesity in children and youth should be a national public health priority.**

Recommendation 1: *National Priority*

Government at all levels should provide coordinated leadership for the prevention of obesity in children and youth. The President should request that the Secretary of the DHHS convene a high-level task force to ensure coordinated budgets, policies, and program requirements and to establish effective interdepartmental collaboration and priorities for action. An increased level and sustained commitment of federal and state funds and resources are needed.

To implement this recommendation, the federal government should:

- Strengthen research and program efforts addressing obesity prevention, with a focus on experimental behavioral research and community-based intervention research and on the rigorous evaluation of the effectiveness, cost-effectiveness, sustainability, and scaling up of effective prevention interventions
 - Support extensive program and research efforts to prevent childhood obesity in high-risk populations with health disparities, with a focus both on behavioral and environmental approaches
 - Support nutrition and physical activity grant programs, particularly in states with the highest prevalence of childhood obesity
 - Strengthen support for relevant surveillance and monitoring efforts, particularly NHANES
 - Undertake an independent assessment of federal nutrition assistance programs and agricultural policies to ensure that they promote healthful dietary intake and physical activity levels for all children and youth
 - Develop and evaluate pilot projects within the nutrition assistance programs that would promote healthful dietary intake and physical activity and scale up those found to be successful

To implement this recommendation, state and local governments should:

- Provide coordinated leadership and support for childhood obesity prevention efforts, particularly those focused on high-risk populations, by increasing resources and strengthening policies that promote opportunities for physical activity and healthful eating in communities, neighborhoods, and schools
 - Support public health agencies and community coalitions in their collaborative efforts to promote and evaluate obesity prevention interventions

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*Industry, Advertising,
Media, and
Public Education*



To lead a healthier and more active lifestyle, many young consumers and their parents will need to alter their food and beverage preferences and engage in fewer sedentary pursuits in order to achieve energy balance. Market forces may be very influential in changing both consumer and industry behaviors. The food, beverage, restaurant, entertainment, leisure, and recreation industries must share responsibility for childhood obesity prevention and can be instrumental in supporting this goal. Federal agencies such as the U.S. Department of Health and Human Services (DHHS), the U.S. Department of Agriculture (USDA), and the Federal Trade Commission (FTC) all have the potential to strengthen industry efforts through general support, technical assistance, research expertise, and regulatory guidance. In addition, government is an important source of positive reinforcement. It can recognize industry stakeholders who are willing to take the financial risks of developing new products and services consistent with the goals of healthful eating behaviors and regular physical activity, thereby setting examples for other private-sector entities to follow.

INDUSTRY

American children and youth represent dynamic and lucrative markets. For example, food and beverage sales to young consumers exceeded \$27 billion in 2002 (*U.S. Market for Kids' Foods and Beverages*, 2003). Simi-

larly, young people are major consumers of the products and services of the entertainment, leisure, and recreation industries.

Providing young consumers and their families with the knowledge and skills to make informed and prudent choices in these marketplaces could be a key obesity prevention strategy. Industry continuously develops new products and services in response to changing consumer demand, and its primary emphases—sales trends, marketing opportunities, product appeal, and expanding market share for specific product categories and product brands (Datamonitor, 2002; *U.S. Market for Kids' Foods and Beverages*, 2003)—could be profitably shifted toward healthier and more active lifestyles.

Although the private sector has not historically viewed its responsibility as changing consumers' preferences toward healthier choices, changes are under way that acknowledge the essential role that industry may play in related policy dialogues, public/private partnerships, and research (Crockett et al., 2002).

The increased media coverage of childhood obesity in recent years, and the consequent growth in public attention and potential for litigation have sensitized the food and beverage industries to examine the underlying causes of the problem and learn from the tobacco industry experiences (Daynard, 2003; Appendix D). Moreover, it provides an opportunity for many types of industries (e.g., food, beverage, entertainment, recreation) to explore new marketing opportunities (Datamonitor, 2002). To the extent that consumers want to purchase and consume a healthful diet, engage in physical activity, and maintain energy balance, private industry not only has a profit incentive but a public relations incentive to help them meet that goal and demonstrate that industry can be responsive to public concerns.

The committee recognizes that children, youth, and their adult care providers are immersed in a modern milieu, including a commercial environment that could be shaped to encourage behaviors relevant to preventing obesity (Peters et al., 2002). Consumers may initially be unsure about what to eat for good health. They often make immediate trade-offs in taste, cost, and convenience for longer term health (Wansink, 2004). But numerous opportunities for influencing consumers' purchase decisions present themselves as the food and beverage industries develop, package, label, promote, distribute, and price products and as retail food stores, full-service restaurants, and fast food establishments make similar sets of decisions. Each of these points offers opportunities for influencing consumers' purchase decisions.

Developing healthier food and beverage products or serving smaller portion sizes may be viewed by some private-sector businesses as risks rather than as opportunities; making changes in the absence of broad-based consumer demand, whatever the market, conceivably can be seen as a risk

to the private sector. But in this case there is ample precedent. A variety of food-industry stakeholders have recently made positive changes by expanding healthier meal options for young consumers (Hurley and Liebman, 2004; Richwine, 2004), offering improved food products with reduced sugar content for children (PR Newswire, 2004), and reducing portion sizes at full-service and fast food restaurants (Hurley and Liebman, 2004). These changes can and should occur on a much larger scale. For that to happen, coordinated efforts among industry, government, and other sectors are needed to stimulate, support, and sustain consumer demand for healthful foods and beverages, appropriately portioned meals, and accurate and consistent nutritional information made readily available to the public.

Similarly, the leisure, entertainment, and recreation industries are faced with the challenge of maintaining profitability while portraying active living¹ as a desirable social norm for adults and children. These industries, which influence how leisure time is used, can create a wide range of new products and opportunities to increase energy expenditure through the incorporation of physical activity messages into sedentary pursuits (e.g., television commercials, video games and Internet websites that remind or prompt consumers to increase physical activity for a specified amount of time to balance screen time). This chapter presents a series of recommendations appropriate to the commercial environment in general and to various industries in particular.

Food and Beverage Industry

Product Development

The food and beverage industries' decisions are guided by key factors—including taste, palatability, cost, convenience, value, variety, availability, ethnic preferences, and safety—that drive consumer demand (FMI, 2003a,b; Wansink, 2004). The industry's decisions are also constrained by other conditions. For example, product and meal size are significant drivers of consumers' perceived value of the foods and beverages they purchase, whether for consumption at home or elsewhere (FMI, 2003a,b; Stewart et al., 2004; Wansink, 2004).

Similarly, modern retail food stores offer tens of thousands of food and beverage items from which to choose. While more than 14,000 new food and beverage products enter the U.S. marketplace annually, less than 6

¹Active living is a way of life that integrates two types of physical activity—*recreational* or *leisure* activity (e.g., jogging, skateboarding, or playing basketball), and *utilitarian* or *occupational* activity (e.g., walking or bicycling to school or running errands)—into one's daily routine.

percent are innovative enough to be successful (Heasman and Mellentin, 2001). The majority of these new products fail for a variety of reasons including lack of consumer demand, cost, marketing strategies, or lack of positive reinforcement or support from other groups (such as the public health sector and health-care professionals) (Heasman and Mellentin, 2001).

But failure in the past, particularly with regard to healthier food and beverage offerings, does not necessarily mean failure in the future. The financial success of diet carbonated beverages and the greater availability of reduced-calorie food and beverage products—buttressed in part by the reduced fat or saturated fat processed food products created by industry in response to the *Healthy People 2000* objectives (NCHS, 2001)—are examples of how industry could be continually seeking new ways to meet consumer demand, earn a decent profit, and have its products positively affect public health.

Thus significant profit incentives now exist for industry to develop reduced-calorie and low-energy-dense foods, thereby helping consumers achieve their dietary and energy balance goals. Movement in that direction has already begun; food and beverage industries are currently seeking opportunities in product development and product reformulation, with an emphasis on eating for health (Datamonitor, 2002; FMI, 2003a). New products are also developed, packaged, and marketed to ethnically diverse children and youth with attention to cultural taste preferences and attractive packaging (Williams et al., 1993). **The committee recommends that as new products are developed or existing products are modified by the private sector, it should be imperative that energy balance, energy density, nutrient density, and standard serving sizes are primary considerations in the process. This can be assisted by government stakeholders providing general support, technical assistance, research expertise, and regulatory guidance.**

Energy Density of Foods

As discussed in Chapter 3, the energy density of a given food is the amount of energy it stores per unit volume or mass. At 9 kilocalories² stored per gram, fat has the highest energy density. Alcohol stores 7 kilocalories per gram, carbohydrates and protein both store 4, fiber stores 1.5–2.5, and water stores 0.0—i.e., it does not provide energy. Energy density is a determinant of the effects of foods and macronutrients on satiety (Rolls et

² In this report the term “kilocalories” is used synonymously with “calories.”

al., 2004a), and it may have a significant influence on regulating food intake and body weight as well (Drewnowski, 2003; Prentice and Jebb, 2003).

High-energy-dense foods, such as potato chips and sweets, tend to be palatable but may not be satiating for consumers, calorie for calorie, thereby encouraging greater food consumption (Drewnowski, 1998; Prentice and Jebb, 2003). Humans may have a weak innate ability to recognize foods with a high energy density to down-regulate the amount of food consumed in order to maintain energy balance, thereby fostering a “passive overconsumption” of these types of foods (Prentice and Jebb, 2003). By contrast, low-energy-dense foods, such as fruits and vegetables, contain more fiber and water and less fat than high-energy-dense foods. As a result, they promote satiety and reduce energy intake but may be considered less palatable by some individuals (Drewnowski, 1998; Rolls et al., 2004b). Consumers typically ingest fewer calories when meals are low in energy density than high in energy density (Kral et al., 2002; Rolls et al., 2004b). There is a need for further research on the implications of dietary energy density on the short-term and long-term physiological regulation of satiety, and the role of energy density in total energy intake and achieving a healthy body weight.

An analysis of the 1999-2000 National Health and Nutrition Examination Survey (NHANES) and NHANES III data revealed that three food groups—sweets and desserts, soft drinks, and alcoholic beverages—comprised nearly 25 percent of all calories consumed by Americans between 1988 and 2000. Salty snacks and fruit-flavored beverages accounted for another 5 percent, bringing the total calories contributed by high-energy-dense/low-nutrient-dense foods to be at least 30 percent of Americans’ total calorie intake during that period (Block, 2004). Nutrient composition data available from fast food company websites suggest that average menus are twice the energy density of recommended healthful diets (Prentice and Jebb, 2003).

Developing low-energy-dense but palatable food products, which will help consumers achieve and maintain energy balance by reducing the probability of excessive energy consumption, has been a significant challenge for the food industry (Drewnowski, 1998). While acknowledging this challenge, the committee emphasizes the need to identify specific incentives that will help the industry develop such new products. In the meantime, manufacturers can modify existing products—for example, by replacing fat with protein, fruit or vegetable purée, fiber, water, or even air—to reduce energy density but maintain palatability without substantially reducing the product size or volume.

Product Packaging and Portion Sizes

Packaging is the “interface” between food-industry products and the consumer—that is, it is the public’s first point of contact—and food packages implicitly suggest portion sizes or food combinations (e.g., which foods are eaten together such as peanut butter and jelly). But a product package can be modified in three general ways—by size, visual appeal, and the type and amount of information it provides (such as the nutritional content according to the Nutrition Facts panel on food labels)—in order to assist consumers in making knowledgeable purchasing decisions and determining portion sizes for themselves.

Because energy requirements vary both by age and body size (IOM, 2002), parents need to be aware of the appropriate amount of food that will help meet but not exceed their child’s own energy needs. In order to do so at present, however, they must overcome an established and unhealthy trend; research has revealed a progressive increase in portion sizes of many types of foods and beverages made available to Americans from 1977 to 1998 (Nielsen and Popkin, 2003; Smiciklas-Wright et al., 2003), the same period during which a rise in obesity prevalence has been observed (Nestle, 2003b; Rolls, 2003).

Some research on the effects of food portion size has shown that children 3 years old and younger seem to be relatively unresponsive to the size of the portions of food that they are served (Rolls et al., 2000; see also Chapter 8). By contrast, the food intake of older children and adults is strongly influenced by portion size, with larger portions often promoting excess energy intake (McConahy et al., 2002; Rolls et al., 2002; Orlet Fisher et al., 2003). Children 3 to 5 years of age consumed more of an entrée and 15 percent more total energy at lunch when presented with portion sizes that were double an age-appropriate standard size (Orlet Fisher et al., 2003). Portions that are currently served and consumed at home, and particularly away from home, may be several times the USDA-recommended serving size or recommended caloric level³ (Orlet Fisher et al., 2003). In addition to food portion size, the frequency of eating and the types of foods consumed are important predictors of energy intake as children transition from being toddlers to preschoolers. One study that evaluated the relationship of food intake behaviors to total energy intake among

³A serving size is a standardized unit of measure used to describe the total amount of foods recommended daily from each of the food groups from the Food Guide Pyramid (FGP) or a specific amount of food that contains the quantity of nutrients listed on the Nutrition Facts panel. A portion size is the amount of food an individual is served at home or away from home and chooses to consume for a meal or snack. Portions can be larger or smaller than serving sizes listed on the food label or the FGP (USDA, 1999).

children aged 2 to 5 years who participated in the Continuing Survey of Food Intakes by Individuals (CSFII) 1994-1996, 1998 found that eating behaviors and body weight were positively related to energy intake (McConahy et al., 2004).

Research also suggests that individuals tend to overconsume high-energy-dense foods beyond physiological satiety (Kral et al., 2004), especially when they are unaware that the portion sizes served to them have been substantially increased (Rolls et al., 2004a). Satiety signals are not triggered as effectively with high-energy-dense foods (Drewnowski, 1998), and large portions of them consumed on a regular basis are particularly problematic for achieving energy balance and weight management in older children and adults.

A variety of physiological processes are involved in the regulation of dietary intake, satiety, energy metabolism, and weight. These include the neural pathways that regulate hunger and influence food intake, gastrointestinal mechanisms involved in providing signals to the brain about ingested food, and adipocyte-derived factors that provide information about energy stores, as well as the genetic and environmental factors that affect these physiological processes (see Chapters 3 and 8). There are a variety of external cues that may also influence dietary intake such as portion size and package size. For example, there is some evidence to support the hypothesis that larger food package sizes encourage greater consumption than smaller food package sizes (Wansink, 1996), and external cues such as packaging and container size may contribute to the volume of food consumed (Wansink and Park, 2000).

Thus, although the committee recognizes the difficulties faced by the food industry in developing new packaging options for consumers, industry should explore, through research and test-marketing, the best approaches for modifying product packages—multipackages with smaller individual servings or standard serving sizes, or resealable packages—so that products palatable to consumers may remain profitable while promoting consumption of smaller portions. Moreover, the food industry should investigate other approaches for promoting consumption of smaller portion sizes and standard serving sizes.

Leisure, Entertainment, and Recreation Industries

Americans now enjoy more leisure time than they did a few decades ago. As discussed in Chapter 1, trend data collected by the Americans' Use of Time Study through time use diaries indicated that adults' free time increased by 14 percent between 1965 and 1985 to an average total of nearly 40 hours per week (Robinson and Godbey, 1999). Data from other population-based surveys, including the National Health Interview Survey,

NHANES, Behavior Risk Factor Surveillance System (BRFSS), and the Family Interaction, Social Capital and Trends in Time Use Data (1998-1999), together with trend data on sports and recreational participation, suggest a significant increase in reported leisure-time physical activity in adults (Pratt et al., 1999; French et al., 2001a; Sturm, 2004).

Cross-sectional data from the National Human Activity Pattern Survey, based on the responses of 7,515 adults between 1992 and 1994, assessed time use and daily energy expenditure patterns of adults. Results suggested that sedentary and low-intensity activities dominated while leisure-time, high-intensity activities accounted for less than 3 percent of energy expenditure (Dong et al., 2004).

Americans are presented with trade-offs in how they allocate their time and money. Understanding how Americans in general, and children and youth in particular, use their leisure time will help to determine ways of promoting more physical activity into their lives. An analysis of time allocation and expenditure patterns for U.S. adults over the past several decades suggests that they are spending more time in leisure and travel or transportation and less time in productive home activities (e.g., meal preparation and cleanup) and occupational activities (Sturm, 2004). Leisure-time industries have exceeded gross domestic product growth for both active industries (e.g., bicycles, sporting goods, membership sports clubs) and sedentary industries (television, spectator sports). However, there has been a steeper growth in sedentary industries from 1987 to 2001—especially the growth of cable television and spectator sports (Sturm, 2004).

Trend data for children (spanning from 1981 to 1997) have shown that they now have less discretionary or free time—defined as time not spent eating, sleeping, attending to personal care, or at school—than they used to because more of their time is spent away from home in school, after-school programs, or daycare. There is also a noted increase in the amount of time children spend in organized sports (Hofferth and Sandberg, 2001; Sturm, 2005a), but active transportation (e.g., bicycling or walking) is not a significant source of physical activity for children and youth (Sturm, 2005b).

Modern technologies such as labor-saving home appliances have reduced the energy expended for home meal preparation and the amount of time needed to achieve the same task (Sturm, 2004). Other technological innovations such as home entertainment devices (including cable television, computers, video games) and automobiles have contributed to sedentary behaviors among Americans, causing them to expend less energy. This phenomenon of increased time spent in passive sedentary pursuits relative to active leisure activities has been associated with the rise in obesity (French et al., 2001a; Philipson and Posner, 2003). However, although the average American adult spends more than 20 hours per week watching television, videos, or digital video discs (DVDs), it is notable that the largest increase

in television watching occurred prior to 1980, which preceded the obesity epidemic (Sturm, 2004). The leisure, entertainment, and recreation industries can help counter the physical inactivity trend by promoting active leisure-time pursuits, while at the same time developing new products and markets. The introduction of products that involve more physical activity by some industry leaders suggests that some already believe they can create a significant market for these types of products.

Some companies have used popular athletic figures, who are potential role models for active and healthful lifestyles, to promote sedentary lifestyles. Instead, the industries could leverage their existing relationships with celebrities to convey messages that encourage physical activity and healthful living and reduce sedentary behaviors.

Some potentially positive efforts are now under way. One athletic apparel manufacturer provides funding to build, upgrade, or refurbish sports courts and other athletic facilities throughout the United States; awards grants to nonprofit organizations and governmental partners; supports physical education classes in elementary schools; and is a partner in Shaping America's Youth, a national cross-sectoral initiative for promoting physical activity and healthful lifestyles during childhood (Nike, 2004). Activity-based games offer opportunities for the leisure industry to market a product that promotes physical activity in children and youth. The evaluation of private-sector programs is crucial in order to assess if they are effective in increasing physical activity, especially among high-risk populations, and determine if they may have unanticipated and adverse consequences.

Full-Service and Fast Food Restaurant Industry

Increased consumption of food outside of the home has been one of the most marked changes in the American diet over the past several decades. In 1970, household income allotted to away-from-home foods accounted for 25 percent of total food spending; by 1999, it had reached nearly one-half (47 percent) of total food spending (Lin et al., 1999c). Total consumer spending on food dispensed for immediate consumption outside the home amounted to \$415 billion in 2002 (Stewart et al., 2004). Similarly, a greater proportion of consumers' nutrients is now derived from foods purchased outside the home.

Consumption of away-from-home foods comprised 20 percent of children's total calorie intake in 1977, rising to 32 percent in 1994-1996 (Lin et al., 1999b). For adults, such foods provided more than one-third (34 percent) of total calories in 1995 (Lin et al., 1999a).

The frequency of dining out rose by more than two-thirds over the past two decades, from 16 percent in 1977-1978 to 27 percent in 1995 (Lin et

al., 1999a). Restaurant industry sales for commercial and noncommercial services were projected to exceed \$426 billion in 2003 (National Restaurant Association, 2003) and are forecasted to reach \$440 billion in 2004 (National Restaurant Association, 2004). Moreover, consumer spending at restaurants is projected to continue growing over the next decade (Stewart et al., 2004). Full-service and fast food restaurants alike have been enjoying this boom—in 2003, full-service restaurant sales reached \$153.2 billion and fast food restaurant sales reached nearly \$121 billion (National Restaurant Association, 2003)—and it appears likely to continue. Assuming modest growth in household income and demographic changes, consumer per-capita spending between 2000 and 2020 is expected to rise by 18 percent at full-service restaurants and by 6 percent at fast food outlets (Stewart et al., 2004).

Given the growing public concern about the rise in obesity, particularly childhood obesity, full service and fast food restaurants throughout the country have begun offering healthier food options. At present, however, most restaurants do not provide consumers with the calorie and selected nutrient content either of offered meals or individual food and beverage items⁴; this information would be useful for making more prudent menu decisions. While the culinary qualities of fast food meals tend to differ from those of full-service restaurants (Lin et al., 1999a), both of them are typically energy dense and served in large portions.

Fast food consumption is associated with a diet that is high in total energy and energy density but low in micronutrient density. For example, an analysis of the CSFII 1994-1996 data for adult men and women revealed that a typical fast food meal provided more than one-third of their daily energy, total fat, and saturated fat intake; and that energy density increased while micronutrient density concurrently decreased with frequency of fast food consumption (Bowman and Vinyard, 2004).

Published data are limited that compare the nutrient content of full-service restaurant meals for children. However, one review of the entrees offered to children at 20 table-service restaurants found fried chicken on every one of the children's menus, a hamburger or cheeseburger on 85 percent of the menus, and french fries on all but one of the menus (Hurley and Liebman, 2004). At nearly one-half of the restaurant chains, french fries were the only side dish on the children's menus, and while children could generally choose a beverage from among soft drinks, juice, or milk,

⁴Under the Nutrition Labeling and Education Act of 1990, food products exempted from calorie and nutrient labeling include foods served for immediate consumption, ready-to-eat food not for immediate consumption (i.e., take-out foods), and foods produced by small businesses with annual sales below \$500,000 (IOM, 2004).

10 of the restaurants offered free refills only for soft drinks (Hurley and Liebman, 2004).

Children and youth aged 11 to 18 years visit fast food outlets an average of twice per week (Paeratakul et al., 2003), and this frequency is associated with increased intake of soft drinks, pizza, french fries, total fat, and total calories, as well as with reduced intake of vegetables, fruit, and milk (French et al., 2001b). In a study of 6,212 children and adolescents between the ages of 4 and 19 years of age participating in the CSFII, those who ate fast food consumed more total energy, more energy per gram of food (greater energy density), more total fat and carbohydrates, more added sugars, more sweetened beverages, less milk, and fewer fruits and non-starchy vegetables than those who did not consume fast food (Bowman et al., 2004). Adolescents aged 13 to 17 years were found to consume more fast food regardless of whether they were lean or obese. Moreover, obese adolescents were less likely to compensate for the extra energy consumed by adjusting their energy throughout the day than were their counterparts (Ebbeling et al., 2004).

Expanding Healthier Meals and Food Choices

Given these trends and data, full-service and fast food restaurants should continue to expand their healthier meal options and food choices—particularly for children and youth—through the inclusion of fruits, vegetables, low-fat milk, and calorie-free beverages among their offerings. It is also important for restaurants to expand options for healthier children's meals, encourage parents to help their children make smarter eating choices, and remind parents of their rights as customers to substitute side dishes and customize meals to their satisfaction. Research is needed to monitor consumers' and children's responses to these expanded options.

Restaurants should also initiate a voluntary, point-of-sale, nutrition-information campaign for consumers. Meanwhile, in accordance with the recommendations of the Food and Drug Administration (FDA) Obesity Working Group's recommendations (FDA, 2004), consumers at restaurants should be encouraged to request information about the nutritional content of complete meals, foods, and beverages offered and consequently be provided with accurate, standardized, and understandable details at the point of sale. This nutritional information should include total calories, fat, cholesterol, and fiber, together with instruction on meaningfully interpreting these values within the context of typical consumers' total energy and dietary needs.

Nutrition labeling of restaurant meals and individual foods should take varying sizes or options into account and should be located near the price of the selections; this will ensure that the consumer is made aware of the

information and that increased demand for healthful items and appropriate portions is made more likely. Moreover, the restaurant industry should explore price incentives that encourage consumers to order smaller meal portions. Research initiatives are needed to identify the most effective types of information formats on menus for encouraging the selection of healthful options (Stubenitsky et al., 1999).

As these suggested actions are costly endeavors, consideration must be given to the practicality of implementing these actions in cost-effective ways, especially in expensive restaurants where there is great variability in meals requested by patrons, and small or individual restaurants with limited food volume sales. It is also unclear who will be expected to pay for the nutrient analyses as well as the menu labeling itself. One option would be to encourage local public health departments to contract with dietitians in conducting nutrition education for the public and analyzing the nutrient content of menus. This would represent a new role for local government, but it could be developed by adapting current food safety and sanitation inspection services. It could also generate fees, so that the activity would be self-supporting and sustainable in the long-term; and it could be a convenient way to give public recognition to restaurants in compliance.

Providing Nutrition Education at Restaurants

In addition to voluntary point-of-service menu labeling, the committee recognizes that parents currently have limited nutrition information to rely on in order to select portion sizes and foods that are appropriate for their child. Thus, the committee encourages the restaurant industry to provide nutrition education that is consistent with the Dietary Guidelines for Americans and the FGP in order to inform parents and older youth about appropriate energy intake for meals intended for children and adolescents of different ages.

The Dietary Guidelines for Americans is a federal summary, issued jointly by DHHS and USDA every 5 years, that provides sound guidance to the public about food choices based on the current scientific evidence. The first edition was released in 1980 and provided seven guidelines. The fifth edition was released in 2000 and provided 10 guidelines clustered into three categories: aim for a healthy weight, build a healthy base, and choose sensibly (Ballard-Barbash, 2001).

The FGP was released in 1992 by USDA to teach consumers how to put the Dietary Guidelines for Americans into action. The FGP serves as the official food guide for the United States (USDA, 1992; Achterberg et al., 1994). The FGP illustrates the concepts of variety, proportionality, and moderation emphasized in the Dietary Guidelines for Americans (Achterberg et al., 1994; Dixon et al., 2001). In 1999, USDA developed an

FGP for Young Children, based on the actual eating patterns of children aged 2 to 6 years, which aims to simplify educational messages and focus on young children's food preferences and nutritional requirements (USDA, 2003b; ADA, 2004).

These FGPs offer recommended daily serving sizes for each of the food groups, including bread, cereal, rice, and pasta; fruits; vegetables; milk, yogurt, and cheese; meat, beans, eggs, and nuts; and fats, oils, and sweets. Considerations used in determining serving sizes are the amount of a food that provides key nutrients, ease of use, and commonly recognized household measures of food and equivalents (USDA, 1999, 2000).

Unfortunately, despite the availability of the FGP and its adapted version specifically for younger children, most American children do not meet the recommended servings for fruit, dairy, and grain groups; and they do not meet the Dietary Guidelines' recommendations for total and saturated fat (ADA, 2004) (see Chapter 3).

The committee acknowledges that parents may have a difficult time understanding how portion sizes should be distributed for their children across an entire day, particularly when they are making selections at full-service and fast food restaurants. Another confounding factor is that younger children tend to eat smaller portions, compared to standardized serving sizes, more frequently throughout the day (McConahy et al., 2004). The current educational tools do not provide guidance pertinent to these considerations. **The committee therefore encourages enhancing or adapting the existing FGP model,⁵ or developing a new food-guidance system and relevant educational materials, that will convey how portions should be distributed throughout the day for children of different age groups.** (For example, if a child is in a particular age group, he or she should eat a certain proportion of energy at each meal—for example, 20 percent at breakfast, 30 percent at lunch, 30 percent at dinner, and 20 percent for snacks, and the appropriate temporal distribution of snacks should account for the duration of fasting overnight and for variations in daytime energy demands due to age and activity.)

Because such an enhancement could be used by parents to determine a single restaurant meal's percentage of their child's daily required total energy intake, encouraging restaurants to adopt this educational tool may promote children's consumption of smaller food portions. **Additionally, the full-service and fast food restaurant industries should provide general nutri-**

⁵An example of an adapted FGP is the Radiant Pyramid, a daily food guide based on the concept of nutrient density. The most nutrient-dense food choices, at the bottom of the pyramid, should be consumed in appropriate serving sizes frequently, whereas the most energy-dense food choices at the (much smaller) top of the pyramid should be consumed only occasionally (Porter Novelli, 2003).

tion information that will facilitate consumers' informed decisions about food and meal selections and appropriate portion sizes (consistent with the energy balance principles of the Dietary Guidelines for Americans and illustrated by the FGP). Finally, consumer research is needed to identify the most effective types of information formats on menus for encouraging the selection of healthful options.

Recommendation 2: *Industry*

Industry should make obesity prevention in children and youth a priority by developing and promoting products, opportunities, and information that will encourage healthful eating behaviors and regular physical activity.

To implement this recommendation:

- Food and beverage industries should develop product and packaging innovations that consider energy density, nutrient density, and standard serving sizes to help consumers make healthful choices.
- Leisure, entertainment, and recreation industries should develop products and opportunities that promote regular physical activity and reduce sedentary behaviors.
- Full-service and fast food restaurants should expand healthier food options and provide calorie content and general nutrition information at point of purchase.

NUTRITION LABELING

The purpose of nutrition labeling is to provide consumers with useful information that will allow them to compare products and make informed food choices, thereby enhancing the likelihood of maintaining dietary practices and reducing the risk of chronic disease (IOM, 2004). In particular, the implementation of the regulations resulting from the 1990 Nutrition Labeling and Education Act (NLEA) was to be communicated in such a way that the public could “readily observe and comprehend such information and understand its relative significance in the context of a total daily diet” (FDA, 1993). The Nutrition Facts panel and nutrient and health claims that resulted from the NLEA are complementary approaches for providing guidance to consumers. They are discussed in turn below.

Nutrition Facts Panel

In 1993, the percent Daily Value (% DV) was added to the Nutrition Facts panel—a set of consistently formatted information items that are

displayed on food product labels—to assist consumers in rapidly and efficiently understanding how various foods could fit into the context of a healthful diet. The Nutrition Facts panel's contents, regulated by the FDA, are specific to the food product or food-product category; they specify the number of servings per container and the key nutrients in a serving, according to the % DV for a 2,000-calorie-per-day diet (USDA, 2000; IOM, 2004). Serving sizes on the label are standardized so that consumers can compare nutritional information between products, even for packaged foods (such as frozen pizza) that contain ingredients from multiple food groups (USDA, 2000).

Data on consumers' actual use of the Nutrition Facts panel are limited since it was mandated by FDA in 1990. However, consumer research conducted by the FDA and the Food Marketing Institute (FMI) has found that one-half of U.S. adult consumers use food labels when purchasing a food item for the first time (FMI, 1993, 2001; Derby, 2002). The most common reason for using the label is to assess whether a product is high or low in a particular nutrient, especially fat, and the second most common use is to determine total calories (IOM, 2004).

Moreover, consumers often use the Nutrition Facts panel and the % DV to confirm a nutrient or health claim on the front of a product and to make product-specific judgments (Geiger et al., 1991; FDA, 1995). Consumer research indicates that the % DV in particular has been effective in helping consumers make judgments about different food products that are high or low in a particular nutrient and to put different food products in the context of a daily diet (IOM, 2004). Research shows that without the % DV, consumers could not accurately interpret metric values and distinguish between products (IOM, 2004).

Consumers generally report using the nutrition label more often to avoid rather than to purchase a specific food item (FMI, 1997). Research suggests that although food labels may influence some consumers under certain circumstances, particularly women, older consumers, and well-educated consumers (Kristal et al., 2001), many do not use the Nutrition Facts panel at all. This is attributed in part to lack of interest, lack of knowledge for using it appropriately, and difficulty of use (IOM, 2004). But even when consumers do have and understand the information, it may not change their behavior if their food purchases are primarily motivated by factors such as palatability, price, and convenience (Wansink, 2004).

The committee supports the FDA's current actions in exploring how best to revise the Nutrition Facts panel to prominently display products' standardized calorie serving and % DV (FDA, 2004). The committee endorses this as a step to assist consumers in making informed decisions to achieve energy balance. Energy requirements of children and adolescents differ by age, gender, and activity level. These differences are reflected in

the Estimated Energy Requirements established in the Institute of Medicine's (IOM) report on Dietary Reference Intake values for macronutrients (IOM, 2002). However, the committee did not see a practical way in which the Nutrition Facts panel could incorporate all the % DV figures that would correspond to the energy needs of children at different ages (IOM, 2002; USDA, 2003a). Therefore, a recommendation to develop a specific % DV for children and youth based on age, gender, and three activity levels is currently not feasible.

FDA should establish mandatory guidelines for the display of total calorie content on the Nutrition Facts panel regarding products such as vending-machine items, single-serving snack foods, and ready-to-eat foods purchased at convenience stores—typically consumed in their entirety on one eating occasion. Although many prepackaged, ready-to-eat foods are provided in package sizes that may typically be consumed all at once, the nutrition label offers information only on one serving, as defined by the FDA standard serving size.

Thus, although the number of servings per package is also given, the purchaser must calculate the nutritional content of a multiple-serving portion that may be consumed at one sitting. For example, soft drinks are often sold in 20-ounce containers and are labeled as containing 2.5 servings. Because many consumers undoubtedly consume the entire 20 ounces and not precisely 8 ounces (one serving), which represents only 40 percent of the entire product, it would be easier for them to know the total nutritional value if this information was provided directly on the label.

Finally, the Nutrition Facts panel may be modified in other ways to enhance readability and consumer understanding (Kristal et al., 2001). Consideration should be given to the selection, organization, and display of nutrients to maximize the positive message and educational benefit conveyed by the label in order to assist consumers in making wise choices within a healthful diet while also serving to remind them to limit calories and other nutrients (e.g., cholesterol, fat) and thereby reduce their risk of chronic diseases related to obesity (IOM, 2004). In summary, **the FDA, relevant industries, and other groups should conduct consumer research on the use of the nutrition label, on restaurant menu labeling, and on how to enhance or adapt the FGP or develop a new food-guidance system.**

Nutrient Claims and Health Claims

A nutrient claim is a food-package statement consistent with FDA guidelines that characterizes the level of a nutrient in a food. Depending on the claim, the level is usually categorized as “free,” “high,” or “low.” With a few exceptions, a nutrient-content claim may be made by manufacturers only if a DV has been identified for that nutrient and the FDA has established, by regulation, the criteria that a food must meet in order to list the

claim (IOM, 2004). An estimated 33.7 percent of products sold in 2000-2001 had nutrient content claims related to energy, total fat, saturated fat, cholesterol, dietary fiber, sodium, or sugars (Legault et al., 2004).

A health claim⁶ on a product package states that a scientifically demonstrated relationship exists between a food substance, legally defined as a specific food or food component, and a disease or health-related condition (IOM, 2004). Health claims (as well as nutrient claims) must be authorized by the FDA prior to their use in food labeling; the agency carefully assesses wording so that the claimed health-related relationship does not imply causation (IOM, 2004).

The FDA has approved 14 different health claims that may be used on food packages that emphasize both risks and benefits such as the relationship between heart disease and saturated fat; cancer and fruits and vegetables; and coronary heart disease risk and fruits, vegetables, grains, and soluble fiber (IOM, 2004). Approximately 4.4 percent of products sold in 2000-2001 had a health claim on their food package. The product groups with the highest percentage of health claims were hot cereal, refrigerated and frozen beverages, seafood, snacks (granola bars and trail mixes), eggs and egg substitutes, and meat and meat substitutes (Legault et al., 2004). These products provided a claim about the relationship between a diet low in saturated fat and cholesterol and a reduced risk of heart disease; high in soluble fiber and reduced risk of heart disease; and high in soy protein and reduced risk of heart disease (Legault et al., 2004).

Health claims advertising and labeling is product-specific so that the information imparted not only suggests a relationship between the food characteristics and health but also features a product that contains these characteristics (Mathios and Ippolito, 1999). Health claims, in conjunction with the Nutrition Facts panel, can help consumers make product-specific decisions and more informed food and beverage choices in the marketplace (Ippolito and Pappalardo, 2002).

The question has been raised as to whether the policy changes that occurred in the mid-1980s, which allowed food manufacturers to explicitly link diet to disease risks in advertising and labeling, assisted or confused consumers in making more healthful food choices to improve their diet (Mathios and Ippolito, 1999). An analysis that examined market share data in the ready-to-eat cereal market, consumer knowledge data, individual nutrient intake data, and per capita consumption data found that U.S. consumers' diets improved from 1985 to 1990 during the same time period that producers were permitted to use health claims in advertising and label-

⁶A "qualified" health claim uses appropriate qualifying language to describe the level of scientific evidence that the claim is truthful. The FDA offers guidance, including a method for systematically evaluating the evidence, on the review process for developing qualified health claims (IOM, 2004).

ing (Mathios and Ippolito, 1999), although it is not possible to determine the role that health claims played in these positive outcomes. Evidence from the ready-to-eat cereal market indicates that allowing producers to use health claims resulted in more healthful product innovations and motivated competition based on healthful products (Mathios and Ippolito, 1999).

Thus, health claims may serve to stimulate industry to develop new products, or modify existing ones, that encourage positive changes in consumers' eating habits. Food and beverage companies would benefit from being able to use simple and easily understood health claims in order to stimulate increased consumer selection of healthier food products, including their own.

New health claims may be added to products through a process whereby a food manufacturer notifies the FDA of its intent to use a health claim based on scientifically accurate and authoritative findings. No health claims currently exist for products that explicitly address preventing obesity. However, it will be essential to develop a standard nutrient claim or health claim definition for energy density and nutrient density. For example, by developing a health claim for food products that have an energy density below 1 calorie per gram, such foods might be considered supportive of maintaining a healthy body weight. However, this type of health claim could not apply to beverages.⁷ A disclosure statement may be needed to accompany a health claim if consumer research reveals that a health claim on a food label would imply that a food is healthful in all respects (e.g., it has a low energy density but may not be nutrient dense) if this is not the case.

The regulatory environment in the early 1980s discouraged food and beverage manufacturers and advertisers from using health claims, but this policy was eased in 1993 when the FDA's health claim rules were revised (Ippolito and Pappalardo, 2002). The FTC has recently encouraged the FDA to consider giving manufacturers greater flexibility in making truthful, nonmisleading nutrient claims for foods,⁸ allowing comparative claims⁹

⁷As discussed in Chapter 3 and Appendix B, beverages (such as soft drinks and fruit drinks), due to their high water content, are generally not energy dense. However, the energy density of soft drinks is disproportionately high for its nutrient content when compared to other nutrient-dense beverages such as low-fat milk. Therefore, comparisons of beverages should involve considerations of nutrient density.

⁸A nutrient content claim is an FDA-regulated statement on food packages that characterizes the level of a nutrient in a food such as "free," "high," "low," "more," and "reduced". The NLEA (1990) allows the use of nutrient-content claims that describe the amount of a nutrient according to the FDA's authorizing regulations (IOM, 2004).

⁹Comparative claims are a subset of nutrient content claims. Under NLEA rules, comparative claims are required to meet a number of specific restrictions and disclose the comparison product, the percentage that a nutrient is reduced, and the actual amount of the nutrient for both the product and the comparison food (Ippolito and Pappalardo, 2002).

between different types and portion sizes of food, and permitting health claims that specifically relate reduced calorie consumption to decreasing the risk of obesity-related diseases (FTC, 2003).

The committee encourages the FDA to examine ways to give the food and beverage industries greater flexibility in making nutrient content and health claims that help consumers including children achieve and maintain energy balance. The committee also recommends that consumer research be undertaken to determine the best formats for health claims that relate lowered calorie consumption with reductions in the risk of obesity and obesity-related disease. Finally, the committee suggests that the government, academia, and private sector work together to conduct the necessary research on which to base such health claims.

Recommendation 3: *Nutrition Labeling*

Nutrition labeling should be clear and useful so that parents and youth can make informed product comparisons and decisions to achieve and maintain energy balance at a healthy weight.

To implement this recommendation:

- The FDA should revise the Nutrition Facts panel to prominently display the total calorie content for items typically consumed at one eating occasion in addition to the standardized calorie serving and the percent Daily Value.
- The FDA should examine ways to allow greater flexibility in the use of evidence-based nutrient and health claims regarding the link between the nutritional properties or biological effects of foods and a reduced risk of obesity and related chronic diseases.
- Consumer research should be conducted to maximize use of the nutrition label and other food-guidance systems.

ADVERTISING, MARKETING, AND MEDIA

Children of all ages are spending a larger proportion of their leisure time using a combination of various forms of media, including broadcast television, cable networks, DVDs, video games, computers, the Internet, and cell phones (Roberts et al., 1999; Rideout et al., 2003). This trend has prompted concerns about the effects of these activities on their health (Kaiser Family Foundation, 2004). Children's exposure to advertising and marketing, particularly to the food, beverage, and sedentary-lifestyle messages delivered through the numerous media channels, may have a strong influence on their tendency toward increased obesity and chronic disease risk (Kaiser Family Foundation, 2004).

Advertising and promotion have long been intrinsic to the marketing of the American food supply (Gallo, 1999). Food and beverage companies and the restaurant industry together represent the second-largest advertising group in the American economy, after the automotive industry (Gallo, 1999), and young people are a major target. The annual sales of foods and beverages to young consumers exceeded \$27 billion in 2002 (*U.S. Market for Kids Foods and Beverages*, 2003), and millions of dollars are spent annually by the food and beverage industry for specific product brands (Story and French, 2004). Food and beverage advertisers collectively spend \$10 billion to \$12 billion annually to reach children and youth (Nestle, 2003a; Brownell, 2004). Estimates are available for different categories of youth-focused marketing in the United States—more than \$1 billion is spent on media advertising to children, primarily on television; more than \$4.5 billion is spent on youth-targeted promotions such as premiums, coupons, sweepstakes, and contests; \$2 billion is spent on youth-targeted public relations; and \$3 billion is spent on packaging designed for children (McNeal, 1999).

Similarly, young people are major consumers of the products and services of the entertainment, leisure, and recreation industries. An accurate figure for children's and adolescents' comprehensive media and entertainment use is not readily available, though market research suggests there is great potential for the growth of this market; children are being raised in a technology-oriented culture that exposes them to modern media conveniences as noted above (Rideout et al., 2003; U.S. Kids Lifestyles Market Research, 2003). For example, it was projected that \$4.2 billion would be spent on children's videos in 2001 (*Children's Video Market*, 1997) and on a typical day, children aged 4 to 6 years used computers (27 percent) and video games (16 percent) (Rideout et al., 2003).

The quantity and nature of advertisements to which children are exposed to daily, reinforced through multiple media channels, appear to contribute to food, beverage, and sedentary-pursuit choices that can adversely affect energy balance. It is estimated that the average child currently views more than 40,000 commercials on television each year, a sharp increase from 20,000 commercials in the 1970s (Kunkel, 2001). Studies of children's advertising content during that roughly 20-year period found that more than 80 percent of all advertising to children fell into four product categories: toys, cereal, candy, and fast food restaurants (Kunkel, 2001). Moreover, an accumulated body of research reveals that more than 50 percent of television advertisements directed at children promote foods and beverages such as candy, fast food, snack foods, soft drinks, and sweetened breakfast cereals that are high in calories and fat, low in fiber, and low in nutrient density (Kotz and Story, 1994; Gamble and Cotunga, 1999; Horgen et al., 2001; Hastings et al., 2003).

Dietary and other choices influenced by exposure to these advertisements may likely contribute to energy imbalance and weight gain, resulting in obesity (Kaiser Family Foundation, 2004). Based on children's commercial recall and product preferences, it is evident that advertising achieves its intended effects (Kunkel, 2001; CSPI, 2003; Hastings et al., 2003; Wilcox et al., 2004), and an extensive systematic literature review concludes that food advertisements promote food purchase requests by children to parents, have an impact on children's product and brand preferences, and affect consumption behavior (Hastings et al., 2003). Indeed, the *2003 Roper Youth Report*¹⁰ suggests that an increased number of children aged 8 to 17 years are playing central roles in household purchasing decisions related to food, media, and entertainment (Roper ASW, 2003).

Industry has come to view children and adolescents as an important market force, given their spending power, purchase influence, and potential as future adult consumers (McNeal, 1998). Market research from the early 1990s suggests that children's purchase influence rises with age from \$15 billion per year for 3- to 5-year-olds to \$90 billion per year for 15- to 17-year-olds (Stipp, 1993). Marketers use a variety of techniques, styles, and channels to reach children and youth, including sales promotions, celebrity or cartoon-character endorsements, product placements, and the co-marketing of brands (Horgen et al., 2001; CSPI, 2003; Hastings et al., 2003; Wilcox et al., 2004).

Research suggests that long-term exposure to such advertisements may have adverse impacts due to a cumulative effect on children's eating and exercise habits (Horgen et al., 2001; CSPI, 2003; Hastings et al., 2003; Wilcox et al., 2004). Children learn behaviors and have their value systems shaped by the media (Villani, 2001). Just as portrayals in television and film shape viewers' perceptions of certain health-related behaviors, such as smoking cigarettes or drinking alcohol, the messages about consuming certain foods and beverages and engaging in sedentary activities may affect them as well (Hastings et al., 2003; Kaiser Family Foundation, 2004).

A recent report issued by the American Psychological Association (APA) Task Force on Advertising and Children concluded that young children (under the age of 8) are uniquely vulnerable to commercial promotion because they lack the cognitive skills to comprehend its persuasive intent; that is, they do not understand the difference between information and

¹⁰The *2003 Roper Youth Report*, based on a nationwide cross-sectional cohort of 544 children aged 8 to 17 years, was conducted by Roper ASW, a market-research firm. Face-to-face interviews were conducted in children's homes in 2003 (Roper ASW, 2003).

advertising (Wilcox et al., 2004). This finding is consistent with the policy statement of the American Academy of Pediatrics that “advertising directed toward children is inherently deceptive and exploits children under eight years of age” (AAP, 1995). A child is unable to critically evaluate these messages’ content, intention, and credibility in order to assess their truthfulness, accuracy, and potential bias (Wilcox et al., 2004).

In general, children are exposed to up to one hour of advertising for every five hours of television watched (Horgen et al., 2001). This proportion complies with the Federal Communication Commission’s enforcement of the Children’s Television Act of 1990, which limits advertising to no more than 12 minutes per hour during the week, and fewer than 10.5 minutes per hour on the weekend, for television programs reaching children under 12 years old (FCC, 2002). However, this exposure to advertising may represent a conservative estimate given the growth in unregulated advertising reaching children through cable television and the Internet (Dale Kunkel, University of Arizona, personal communication, August 17, 2004).

After reviewing the evidence, the committee has concluded that the effects of advertising aimed at children are unlikely to be limited to brand choice. Wider impacts include the increased consumption of energy-dense foods and beverages and greater engagement in sedentary behaviors, both of which contribute to energy imbalance and obesity. The committee concurs with the APA Task Force’s finding (Wilcox et al., 2004) that advertising targeted to children under the age of 8 is inherently unfair because it takes advantage of younger children’s inability to attribute persuasive intent to advertising. There is presently insufficient causal evidence that links advertising directly with childhood obesity and that would support a ban on all food advertising directed to children. Additional research and public dialogue are needed regarding the potential benefits and consequences of instituting a food advertising ban for children. Recommending a ban may not be feasible due to concerns about infringement of First Amendment rights and the practicality of implementing such a ban (Engle, 2003).

There are historical insights that can be gained from the prior federal government efforts related to advertising food products to children. In 1978, the FTC proposed a rule that would ban or significantly restrict advertising to children, based on a long-standing and widespread concern about the possible adverse health effects from television advertising of food and beverage products to children. The FTC staff sought comment on the issues, including three proposed alternative actions (Engle, 2003).

During this process, the FTC presented a review of the scientific evidence with the conclusion that television advertising directed at young children is unfair and deceptive. The government rulemaking process found that the evidence of adverse effects of advertising on children was inconclusive, despite acknowledging some cause for concern; furthermore, it was

found that it would be difficult to develop a workable rule that would address the concerns without infringing on First Amendment rights (Engle, 2003). Congress barred any rule based on unfairness, and the FTC terminated the rulemaking in 1981 (Engle, 2003; Story and French, 2004).

Protecting parents from children's requests for advertised products was not considered a sufficient basis for FTC action at that time. Furthermore, the process identified the complexities of designing implementable rules that restrict advertising directed at children (e.g., how to effectively place limits on the time of day when advertisements could appear and how to define the scope of advertisements directed at young children only) (Engle, 2003). Thus the committee feels that the immediate step is to strengthen industry self-regulation and corporate responsibility. Government agencies should also be empowered to be engaged with industry in these discussions and to monitor compliance.

The committee favors an approach to address advertising and marketing directed especially at young children under 8 years of age, but also for older children and youth, that would first charge industry with voluntary implementation of guidelines developed through diverse stakeholder input, followed by more stringent regulation if industry is unable to mount an effective self-regulating strategy. This approach is similar to that recommended for control of advertising of alcoholic beverages to youth (NRC and IOM, 2003).

It is not possible to determine whether industry self-regulation will lead to a favorable change in marketing and advertising of food and sedentary entertainment¹¹ products to children sooner than government-imposed regulation. However, it is desirable that industry is provided with an opportunity to implement voluntary changes to move toward marketing and advertising practices that do not increase the risk of obesity among children and youth, followed by government regulation if voluntary actions are determined to be unsuccessful.

DHHS should convene a national conference and invite the participation of a diverse group of stakeholders to develop standards for marketing of foods and beverages (e.g., portion sizes, calories, fat, sugar, and sodium) and sedentary entertainment (movies, videos and DVDs, and other electronic games). The group should include the food, beverage, and restaurant industries; the Children's Advertising Review Unit (CARU) of the Better Business Bureaus; media and entertainment industries; leisure and recre-

¹¹Sedentary entertainment refers to activities and products that require minimal physical activity and encourage physical inactivity such as watching television, video rentals, and spectator sports.

ation industries; public health organizations; and consumer advocacy groups. This national conference should also establish appropriate objectives and methods for evaluating the ongoing effectiveness of the new guidelines.

In addition, further information should be collected about the impact of advertising on children's eating and physical activity behaviors and about how media literacy training may help children and parents make more informed choices.

Implementation of the guidelines will be the responsibility of the food and beverage industry and sedentary entertainment industry trade organizations, individual companies, advertising agencies, and the entertainment industry, with oversight from federal agencies. Appropriate advertising codes and monitoring mechanisms, including industry-sponsored and external review boards (e.g., CARU, National Advertising Review Board), should be implemented to enforce the guidelines. Moreover, industry should take actions to strengthen CARU guidelines and oversight in order to ensure compliance. Through these actions, it is expected that reasonable precautions will be put in place regarding the time, place, and manner of product placement and promotion (i.e., children's morning, afternoon, and weekend television programming and in-school educational programming) to limit children's exposure to products that are not consistent with the principle of energy balance and that do not promote healthful diets and regular physical activity.

Further, Congress should empower the FTC with the authority and resources to monitor compliance with the guidelines, scrutinize marketing practices of the relevant industries (including product promotion, placement, and content), and establish independent external review boards to investigate complaints and prohibit food and beverage and sedentary entertainment product advertisements that may be deceptive or have "particular appeal" to children that conflict with principles of healthful eating and physical activity. Potential guideline elements to consider might be:

- Restrict or otherwise constrain the content of food and beverage and sedentary entertainment advertising on programs with a substantial children's audience (i.e., children's morning, afternoon, and weekend television programming and in-school educational programming such as Channel One).
- Avoid implicit or explicit claims that high-energy-density and low-nutrient-density foods have nutritional value.
- Avoid linking such products to admired celebrities or sports figures, or to cartoon characters. This would include cross-promotion of food and sedentary entertainment products with branded children's programming or networks.

- Require inclusion of a disclaimer pointing to the need to limit consumption of food or participation in sedentary entertainment.
- Require a message recommending complementary consumption of healthier food or participation in more physically active entertainment.

Congress should also authorize and appropriate sufficient funding to support a study of the cumulative direct and indirect effects of advertising and marketing on the food and beverage and sedentary entertainment purchasing and health behaviors of children, adolescents, and parents; and investigate how approaches such as media literacy can provide children with the desirable skills to respond to marketing messages.

Recommendation 4: *Advertising and Marketing*

Industry should develop and strictly adhere to marketing and advertising guidelines that minimize the risk of obesity in children and youth.

To implement this recommendation:

- The Secretary of DHHS should convene a national conference to develop guidelines for the advertising and marketing of foods, beverages, and sedentary entertainment directed at children and youth with attention to product placement, promotion, and content.
 - Industry should implement the advertising and marketing guidelines.
 - The FTC should have the authority and resources to monitor compliance with the food and beverage and sedentary entertainment advertising practices.

MEDIA AND PUBLIC EDUCATION

Throughout this report there is discussion of the influence of media on childhood obesity. This section discusses use of the media as a positive strategy for addressing childhood obesity. The fundamental perspective of this report is that childhood obesity reflects numerous influences, and consequently that addressing the epidemic will require changes in the many ways in which American society interacts with its children. Deploying the media should be seen as part of a broader effort to change social norms—for youth about their own behavior, for parents about their actions on behalf of their children, and for society at large about the need to support policies that protect its most vulnerable members.

There is perhaps some irony in using the mass media to address the childhood obesity epidemic when the sedentary lifestyles associated with viewing television are noted to be contributing causes of that epidemic (see

Chapter 8). Nonetheless, the committee recognizes that the behaviors associated with the obesity epidemic are widespread, and few other mechanisms are available for stimulating the required changes. Use of the mass media is the best way to reach large segments of the population. At the same time, the committee recognizes that there have been very few efforts to address the problem of childhood and youth obesity through the mass media, thus actions in this domain should be accompanied by careful and continuous monitoring and evaluation to ensure that they are doing what they were meant to do.

Finally, the committee recognizes that if a campaign is not designed with sensitivity, there may be an unintentional consequence that could increase stigmatization of obese children. Stigmatization of smokers was thought to be an effective tool for the tobacco control campaigns; however, obesity may be different. Therefore, the possibility that a campaign could increase negative attitudes and behaviors directed at obese children and youth, such as teasing and discrimination, needs to be explicitly considered in the design and development of the campaign. This should include adequate formative evaluation during development as well as surveillance, concurrent with and following campaign implementation, to detect and minimize any potential adverse effects.

Media-centered efforts must be closely linked with complementary efforts elsewhere in pursuit of the same objectives. For example, a media campaign to recommend that children walk to school might need to be complemented by a public-relations campaign to ensure that there are safe routes for walking, a campaign for reaching parents with a message that they should encourage their children to walk, and a campaign for motivating children to be excited about and interested in walking to school. Thus, media-centered efforts include not only those directed at children and youth themselves, and those directed at parents, but also those directed at policy makers. Throughout this report the committee has emphasized the central role of policy change in obesity prevention, and media-based efforts can have an important role in achieving these changes.

Policy changes occur more quickly if there is a strong social consensus behind them (Economos et al., 2001; Kersh and Morone, 2002). For example, it is worth considering the policy changes that have been important in the success of the anti-tobacco movement (Kersh and Morone, 2002; Daynard, 2003; Yach et al., 2003; see Appendix D). Restrictions on advertising, increases in taxation, and controls over smoking-permissible locations were important components of the tobacco-use decline (Hopkins et al., 2001), but these changes could be readily implemented only because a new public-opinion climate around tobacco supported them and permitted legislators and regulators to act (Kersh and Morone, 2002; Yach et al., 2003). This public opinion transformation likely resulted both from the

natural diffusion of information about the health consequences of tobacco use and the deliberate efforts by advocacy agencies to affect public opinion (Warner and Martin, 2003). Similarly, it will likely be easier to implement policies to prevent childhood obesity if the general public is informed about the issues and strongly supportive of the need to address them.

Lessons Learned from Other Media Campaigns on Public Health Issues

A number of media campaigns covering a range of public health issues have been targeted to adults or the general public. For example, media efforts were successfully used to encourage parents to put their infants to sleep on their backs to avoid Sudden Infant Death Syndrome (Moon et al., 2004) and to discourage the use of aspirin for children's fevers to avoid Reye's syndrome (Soumerai et al., 1992). The outcomes of the "Back to Sleep" and the Reye's syndrome campaigns were encouraging, but their objective may be simpler than the sorts of actions recommended for energy-balance campaigns. A major national effort to encourage parents to monitor their children so as to reduce their risk of drug use has not yet shown evidence of behavior change, although it is still ongoing (Hornik et al., 2003).

A broader range of campaigns addressing parents' own behaviors related to energy balance has shown mixed results. Evaluations of a series of mass-media-based interventions undertaken in the 1990s to promote adult physical activity provide a mixed picture of success, with most reporting fairly good levels of recall of messages and changes in knowledge about the benefits of exercise. Only sometimes, however, did results show evidence of actual increases in self-reported physical activity, even over the short term (Owen et al., 1995; Vuori et al., 1998; Wimbush et al., 1998; Bauman et al., 2001, 2003; Hillsdon et al., 2001; Miles et al., 2001; Reger et al., 2002; Renger et al., 2002).

In addition to these predominantly mass-media-focused efforts, there were other multicomponent campaigns for which mass media was but one (albeit important) channel that addressed not only physical activity but other outcomes as well (see Chapter 6). Initial success from the Stanford Three Community Study and the North Karelia Project demonstrated the promise of this approach, and were followed by three large National Heart, Lung, and Blood Institute-funded community trials in the 1980s—the Stanford Five-City Project, the Minnesota Heart Health Program, and the Pawtucket Heart Health Program (Farquhar et al., 1990; Luepker et al., 1994; Carleton et al., 1995). The multiyear Minnesota Heart Health Program reported greater adult physical activity in its experimental communities than in its control communities (Luepker et al., 1994); and the Stanford Five-City Project reported similar patterns (Young et al., 1996), as well as

lower resting heart rate (a measure of cardiorespiratory fitness), lower blood pressure, and lower body mass index levels (Taylor et al., 1991; Farquhar et al., 1990) in the intervention communities. The Stanford and Minnesota projects included change in diet among their objectives, but these studies did not report notable successes in affecting dietary fat or dietary cholesterol, although an effect on plasma cholesterol was reported in the Stanford Five-City Project (Farquhar et al., 1990).

There were also a small number of evaluated mass-media interventions focused on diet. These included the "1% or Less" campaign in Wheeling, West Virginia, which showed that more adults in the state switched to low-fat milk than in a control community after a campaign in 1996 (Reger et al., 1999); and the Victoria, Australia's "2 Fruit 'n' 5 Veg Every Day" campaign that ran from 1992 to 1995, which showed some increase in reported consumption of these targeted foods (Dixon et al., 1998).

The National Cancer Institute-sponsored "5 A Day for Better Health" program, for which mass-media promotion of fruit and vegetable consumption was a component, showed varying degrees of success. California data for the initial "5 A Day for Better Health" program from 1989 to 1991, as well as the subsequent national program, revealed small increases in consumption of daily servings of fruit and vegetables, though evaluators suggested that these may well have reflected ongoing secular trends (Foerster et al., 1995) or demographic shifts (Stables et al., 2002).

The findings on diet interventions, like those regarding physical activity, clearly were mixed. The 5-A-Day evaluations represented efforts of a different magnitude than any of the described physical activity interventions, yet there were no clear associations between those efforts and dietary changes. These results are of concern when considering large-scale dietary interventions. At the same time, it is evident that substantial changes in the U.S. adult diet have occurred during the last few decades, most strikingly in the reduction of dietary cholesterol and resulting levels of plasma cholesterol (Frank et al., 1993). Although evaluations of deliberate campaigns may not show consistent evidence of influence on dietary intake and outcomes, there are some influences producing large shifts in dietary knowledge and behavior. The idea that such shifts reflect general media coverage of dietary issues, creating in turn a substantial demand for low-cholesterol, low-fat products, and more recently, low-carbohydrate products, is worth serious consideration.

Approaches that seek to affect the shape of media coverage of diet and/or physical activity might merit high priority. One of the most difficult barriers to successful public education programs is achieving high rates of exposure to persuasive messages. Even if a carefully mounted intensive education effort was effective for the audience it could reach, it may not be feasible to reach large audiences with those messages. Resources may not be

available to pay for the outreach channels and prime time exposure for target groups needed on a continuing basis. In contrast, ordinary mass-media programs and news do reach large audiences with their messages. They can achieve high and continuing exposure to healthy messages.

Such heavy exposure may be effective for a variety of reasons: sheer repetition so that messages (1) may be more likely to be heard and paid attention to, particularly if the repetition occurs across a variety of channels; (2) may communicate social expectations for behavior, and (3) may produce a greater likelihood of community discussion of the message possibly producing personal reinforcement for behavior change.

Thus if the media cover an issue extensively, it may be possible to achieve changes in behavior not practicable with controlled educational interventions. However the problem for programs that take this route is the difficulty of convincing media to cover an issue in a way consistent with sponsors' goals. The solutions that people have used include buying or obtaining donated advertising time; engaging in media advocacy—a deliberate attempt to create controversy or to leverage a news event to stimulate media coverage of an issue (Wallack and Dorfman, 1996); undertaking public relations efforts to encourage media coverage; and working with producers and writers of entertainment programs or talk shows to encourage incorporation of messages in those programs. Different programs have used each of these strategies, with varying success (Wallack and Dorfman, 1996; Hornik et al., 2003; Wray et al., 2004).

In March 2004, DHHS announced an obesity-focused campaign called "Small Steps" that is comprised of a series of public service announcements recommending that Americans take small and achievable steps toward increasing physical activity and reducing calorie consumption to improve their health and reverse the obesity epidemic (DHHS, 2004). The initiative and advertisements provide suggestions such as choosing fruit for dessert and doing sit-ups in front of the television—easily accomplished actions that DHHS anticipates will appeal to Americans searching for achievable weight-management goals. The campaign, which is part of a larger DHHS effort, the Steps to a Healthier U.S. Initiative, is addressed both to adults and children and is implemented through awards to large urban communities, rural communities, and tribal consortiums. Because this program was launched as this report was being written, results on effectiveness are not yet available.

Over the past 10 years, government and private groups have undertaken major media campaign efforts to influence a variety of other youth behaviors, including tobacco use and drug use. Current evidence suggests that the anti-tobacco campaigns have been successful, while the anti-drug campaigns have had less success. Tobacco use among youth has been declining since 1997, and there is evidence linking some of that decline to

state-level media campaigns (Siegel, 2002). In contrast, the National Youth Anti-Drug Media Campaign, sponsored by the White House Office of National Drug Control Policy, has not shown success thus far in influencing youth marijuana consumption, despite having spent more than \$1 billion in advertising and other efforts (Hornik et al., 2003). The inconsistent results from these two areas do not lead to easy conclusions about whether media campaigns are promising for obesity-related behaviors. They do suggest that the success of such campaigns will depend on the outcome sought and the ways in which the campaigns are mounted and maintained.

Industry-sponsored efforts to encourage increased levels of physical activity are currently under way (Nike, 2004), though the committee does not have any information about their possible influence of these efforts on youth behavior. The advantage of such industry-sponsored programs is that they do not require explicit public investment; however, reasonably enough, they will reflect their sponsors' interests, which may not always coincide with the agendas of those primarily concerned with youth obesity. In circumstances where they might play a useful complementary role in a national effort, industry-sponsored efforts should certainly be encouraged. However, national authorities must understand that such campaigns are likely to be only one part of a broad effort, and should not be seen as an alternative to mounting an urgent public-sector campaign focused on behavioral objectives.

Within the past two years, the Centers for Disease Control and Prevention (CDC) has launched the VERB campaign, a multi-ethnic media campaign based on social marketing principles and behavioral change models (Huhman, et al., 2004) with the goal of increasing and maintaining physical activity in tweens—youth aged 9 to 13 years. Parents and other influential sources on tweens (e.g., teachers and youth program leaders) are the secondary audiences of the VERB campaign. The CDC has conducted extensive formative research to design this social marketing campaign (Wong et al., 2004), which currently involves multiple media venues that include television, radio spots, print advertising, posters, the Internet, and out-of-home outlets such as movie theaters, billboards, and city buses (Wong et al., 2004).

A recently released summary of the VERB campaign's first-year results of a prospective study suggests a high recall of messages and some evidence that youth who had better campaign recall engaged in more physical activity than those who did not (Potter et al., 2004). It should be noted, however, that the extent to which the association between campaign recall and greater physical activity can be attributed to the campaign's influence cannot be determined from these results. One cannot rule out the alternative explanation that youth who are more naturally oriented toward being more physically active are also more likely to recall the campaign messages.

Given these preliminary, albeit positive results, and no other available evaluations of media campaigns, it is not possible at present to state that media campaigns can effectively increase physical activity in children aged 9 to 13 years.

Next Steps

The committee recognizes that there is limited evaluated experience in mass-media-centered interventions that address obesity prevention. Nonetheless, there is substantial experience in other related areas, along with the initial findings of positive evidence from some very recent obesity-focused efforts. In addition, the committee recognizes that most of its recommendations throughout the report require reaching the population at large, on a continuing basis, to generate popular support for policy changes and provide needed information to parents and youth about behaviors likely to reduce the risks of obesity. Only the mass media offer the possibility of reaching that sizeable and wide-ranging audience.

Thus the committee recommends that DHHS, in coordination with other federal departments and agencies and with input from independent experts, develop, implement, and rigorously evaluate a broad-based, long-term, national multimedia and public relations campaign focused on obesity prevention in children and youth. This campaign would vary in its focus as the nature of the problem changes, including components focused on changing eating and physical activity behaviors among children, youth, and their parents as well as on raising support among the general public for policy actions. The outcome of this effort should be greater awareness of childhood obesity, increased public support for policy actions, and behavior change among parents and youth.

The three areas of focus for the recommended media campaign would involve:

- A continuing public relations or media advocacy effort designed to build a political constituency for addressing youth obesity, and for supporting specific policy changes on national, state, or local levels. This will include print and broadcast media press briefings and outreach, media support for other organizations focused on obesity issues, and efforts to encourage commercial media to incorporate obesity issues and positive role modeling in their programming.
- A systematic and continuing campaign to provide parents with the types of information described in Chapter 8, including the importance of serving as role models and of establishing household policies and priorities regarding healthful eating and physical activity.

- A systematic and continuing campaign to reach youth who are themselves making energy balance decisions that affect their risk of obesity.

The federal government's recently launched VERB campaign is one example of a youth-focused campaign and presents an opportunity to examine the long-term impact of a multimedia campaign focused on promoting physical activity in youth, one component of preventing obesity. As noted above, preliminary results are positive for an early phase of the campaign. CDC has made substantial investment in this program and, given the positive first results, further investments should follow over a longer term.

Regarding the systematic campaign to reach youth, the committee specifically endorses the continuation of VERB funding to ensure the possibility of fully realizing the social marketing campaign's potential and to evaluate its long-term impact. This proposal is costly. Thus, based on a rigorous evaluation over the long term, resources should be redirected if results are not promising in meeting the three components of the campaign. In addition, the committee notes that physical activity is but one side of the energy equation. Additional resources should be provided for a complementary campaign focusing on energy-intake behaviors.

Funding for the national multimedia and public relations campaign should include sufficient budgets to purchase media time for the campaign's advertising, rather than relying on donated time, as well as to support the professional implementation and careful evaluation of the campaign's effects. While DHHS's Small Steps program intends to depend on contributed airtime under the auspices of the Advertising Council (DHHS, 2004), the committee suggests that it is not a promising route for frequently reaching the public. A recent Kaiser Family Foundation study showed that the average television station rarely plays such public service announcements during periods when most adults are in the viewing audience (Kaiser Family Foundation, 2002). Some campaigns have had success in obtaining donated time on stations where they had also purchased time (Randolph and Viswanath, 2004), but that is merely a strategy for stretching resources more effectively. In general, a campaign that depends on contributed time is quite unlikely to satisfy its objectives.

Input should be sought from independent experts and representatives of other federal, state, and local agencies, nonprofit organizations, and, where appropriate, industry representatives to construct a broad and evolving strategy that includes all three of the areas of focus described above. These efforts, which need a long-term mandate from Congress, should be aimed at the general population and specific high-risk subgroups, and their staffs should be able to carefully assess targets of opportunity and re-balance their strategies as circumstances change.

The committee realizes that many nonprofit organizations and other nongovernmental groups are involved in obesity prevention efforts. It encourages these organizations to undertake their own extensive media campaigns (print, electronic, Web-based, and other media) for addressing the obesity problem.

Recommendation 5: *Multimedia and Public Relations Campaign*
DHHS should develop and evaluate a long-term national multimedia and public relations campaign focused on obesity prevention in children and youth.

To implement this recommendation:

- The campaign should be developed in coordination with other federal departments and agencies and with input from independent experts to focus on building support for policy changes, providing information to parents, and providing information to children and youth. Rigorous evaluation should be a critical component.
- Reinforcing messages should be provided in diverse media and effectively coordinated with other events and dissemination activities.
- The media should incorporate obesity issues into its content, including the promotion of positive role models.

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Local Communities

Prevention of obesity in children and youth is, ultimately, about *community*—extending beyond individuals and families and often beyond geographic boundaries to encompass groups of people who share values and institutions (Pate et al., 2000). In recent years, many public health professionals and community leaders have recognized the need for community involvement in preventing disease and promoting healthful lifestyles. Consequently, they have attempted to capitalize on the naturally occurring strengths, capacities, and social structures of local communities to institute health-promoting change.

Many factors in the community setting affect the health of children and youth. Does the design of the neighborhood encourage physical activity? Do community facilities for entertainment and recreation exist, are they affordable, and do they encourage healthful behaviors? Can children pursue sports and other active-leisure activities without excessive concerns about safety? Are there tempting-yet-healthful alternatives to staying-at-home sedentary pastimes such as watching television, playing video games, or browsing the Internet? Are sound food choices available in local stores and at reasonable prices?

Communities can consist of people living or working in particular local areas or residential districts; people with common ethnic, cultural, or religious backgrounds or beliefs; or people who simply share particular interests. But intrinsic to any definition of a community is that *it seeks to protect for its members what is shared and valued*. In the case of obesity prevention in children and youth, what is “shared and valued” is the ability of children

to grow up with healthy and productive bodies and minds. But “to protect” is not necessarily a given. Achieving the vision of *Healthy People 2010*—“healthy people in healthy communities”—depends on the capacity of communities to foster social norms that support energy balance and a physically active lifestyle (DHHS, 2000b).

This report as a whole examines a variety of types of communities and the ways in which improvements can be made in order to foster and promote healthful food and physical activity choices and behaviors. This chapter focuses on the *local* community, using the term “community” to refer to the town, city, or other type of geographic entity where people share common institutions and, usually, a local government. Of course, within each local community there are many interdependent smaller networks of residential neighborhoods, faith-based communities, work communities, and social communities.

The intent of this chapter’s recommendations is not only to make a case for raising the priority of childhood obesity prevention in our communities, but also to identify common interests that can spark collaborative community initiatives for addressing that goal. Many communities and organizations across the United States are actively working to address physical activity and nutrition-related issues; examples are highlighted throughout the chapter (Boxes 6-1 through 6-5).

MOBILIZING COMMUNITIES

By stepping outside the traditional view of obesity as a medical problem, we may more fundamentally focus on the many institutions, organizations, and groups in a community that have significant roles to play in making the local environment more conducive to healthful eating and physical activity. Table 6-1 illustrates categories of many of the stakeholder groups that could be involved in obesity prevention efforts. For community efforts, key stakeholders include youth organizations, social and civic organizations, faith-based groups, and child-care centers; businesses, restaurants, and grocery stores; recreation and fitness centers; public health agencies; city planners and private developers; safety organizations; and schools.

Community-based obesity prevention efforts differ from those of school and home settings (Pate et al., 2000), but potentially supplement and reinforce the messages received in those settings. Young people, particularly adolescents, often spend a large part of their free time in community locales (e.g., recreational or entertainment centers, shopping areas, parks, fast food restaurants). These informal settings, which do not have the stresses of grades or other school situations, may offer environments that are more conducive to trying new activities and foods. Additionally, community settings offer the potential for involving parents and other adult role models in

TABLE 6-1 Examples of Stakeholder Groups in the Prevention of Childhood Obesity

<p>Children, Youth, Parents, Families</p> <p>Child- and Youth-Centered Organizations Program, service, and advocacy organizations (e.g., Boys and Girls Clubs, 4H, Girl Scouts, Boy Scouts, YMCA, YWCA, National Head Start Association, Children’s Defense Fund, National Association for Family Child Care)</p> <p>Community-Based Organizations Community coalitions, civic organizations, faith-based organizations, ethnic and cultural organizations</p> <p>Community Development and Planning Architects, civil engineers, transportation and community planners, private developers, neighborhood associations</p> <p>Employers and Work Sites Employers and corporate policy makers, employee advisory committees</p> <p>Food and Beverage Industries, Food Producers, Advertisers, Marketers, and Retailers Corporate and local food producers and retailers (e.g., food and beverage industries, grocery stores, supermarkets, restaurants, fast food outlets, corner stores, farmers’ markets, community gardens)</p> <p>Foundations and Nonprofit Organizations</p> <p>Government Agencies and Programs Federal, state, county, and local elected or appointed decision-makers (e.g., education boards and agencies, public health agencies, parks and recreation commissions, planning and zoning commissions, law enforcement agencies)</p> <p>Health-Care Providers Pediatricians, family physicians, nurses and nurse practitioners, physician assistants, dietitians, occupational-health providers, dentists</p>	<p>Health- and Medical-Care Professional Societies Disciplinary organizations and societies</p> <p>Health-Care Delivery Systems Hospitals, health clinics, school-based facilities, work-site health facilities</p> <p>Health-Care Insurers, Health Plans, and Quality Improvement and Accrediting Organizations Public and private health-care providers and insurance reimbursement institutions such as Medicaid and health maintenance organizations; quality improvement and accrediting organizations (e.g., National Committee for Quality Assurance)</p> <p>Mass Media, Entertainment, Recreation, and Leisure Industries Television, radio, movies, print, and electronic media; journalists; commercial sponsors and advertisers; Internet websites and advertisers; computer and video-entertainment industry representatives</p> <p>Public Health Professionals</p> <p>Recreation and Sports Enterprises Local, collegiate, and professional sports organizations; recreation facilities; recreation and sport equipment manufacturers, advertisers, marketers, and retailers</p> <p>Researchers Biomedical, public health, and social scientists; universities; private industry</p> <p>Schools, Child-Care Programs Educators and school administrators, food service personnel, after-school program providers, coaches, school boards, school designers (siting and construction), child-care providers</p>
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promoting healthful behaviors (Pate et al., 2000). In enhancing local assets for promoting physical activity—that is, in designing and revamping community facilities and neighborhoods—communities should consider issues related to cultural and social acceptability, availability (proximity), affordability, and accessibility (ease of use).

Community Stakeholders and Coalitions

Community-Based Interventions: Framework and Evidence Base

“Ecological frameworks,” which have been applied across a variety of settings and public health issues to change people or change the environment (Glanz, 1997), suggest that it is important to involve individuals, organizations, communities, and health policy makers in producing desired effects on health (Baker and Brownson, 1998). Given the interactive nature of virtually all elements of a community, most effective interventions act at multiple levels. Moreover, tapping a wide range of local community leaders, organizations, businesses, and residents can result in local ownership of the issue and effectively leverage limited resources (Pate et al., 2000).

Community-wide campaigns and interventions. The most relevant evidence for large-scale community-wide efforts comes from studies aimed at reducing cardiovascular risk factors through dietary change and increased physical activity. These interventions have often used multiple strategies, including media campaigns (see Chapter 5), community mobilizations, education programs for health professionals and the general public, modifications of physical environments, and health screenings and referrals; in some cases, home- and school-based interventions were also incorporated (Shea and Basch, 1990).

The Stanford Three Community Study, Stanford Five-City Project, Minnesota Heart Health Program (MHHP), Pawtucket Heart Health Program, and North Karelia Project (in Finland) have demonstrated the feasibility of community-based approaches in promoting physical activity and changes in dietary intake (Farquhar et al., 1977, 1990; Maccoby et al., 1977; Luepker et al., 1994; Young et al., 1996; Puska et al., 2002). The results of these studies for adults have been somewhat inconsistent, although modest positive changes in diet and physical activity have generally been seen when a community that received the intervention was compared with one that had not. The strongest positive results were obtained by the extensive North Karelia project, which examined the effects of multiple interventions on the high incidence of coronary artery disease (Pietinen et

al., 2001; Puska et al., 2002). This study, being long-term and multifocal, may be the best model for childhood obesity prevention efforts.

MHHP's Class of 1989 Study provides some insights into the potential impact of community-based programs focused on children and youth (Kelder et al., 1993, 1995). This study examined changes in nutrition and aerobic activity among groups of students, starting when they were sixth-graders and extending through 12th grade. Interventions included a school-based curriculum and a number of other community-based approaches that were not designed specifically for children (including labeling of heart-healthy restaurant and grocery store items; media campaigns; and screening for heart disease risk factors). Positive changes were seen in the young people's levels of physical activity and their nutritional knowledge and decision-making.

Community campaigns aimed at preventing tobacco use by children and youth also provide evidence of the feasibility of using this approach for addressing major public health problems. The Midwestern Prevention Project, the North Karelia Youth Project, and MHHP's Class of 1989 Study each found reductions in youth smoking rates that were maintained over time (IOM, 1994). It should be stressed that each of these studies had a strong school-based prevention intervention that complemented a community-wide program, and isolating the effects of the community-wide program was not possible.

Community programs for children and youth. Programs involving specific community-based organizations have also been found to aid health promotion efforts. Studies with civic, faith-based, and social organizations have established the feasibility of developing programs in a variety of settings that can be effective in improving nutritional knowledge and choices, increasing physical activity, and in some cases in reducing body weight or

BOX 6-1
Girls on the Run

Girls on the Run is a nonprofit organization that works with local volunteers and community-level councils to encourage preteen girls to develop self-respect and healthful lifestyles through running (Girls on the Run, 2004). A 12-week, 24-lesson curriculum has been developed for use in after-school programs and at recreation centers and other locations. Evaluation of the program has found improvements in participants' self-esteem, body-size satisfaction, and eating attitudes and behaviors (DeBate, 2002).

maintaining healthy body weight (IOM, 2003). For example, Cullen and colleagues (1997) found that Girl Scouts who participated with their troop in nutrition classes including tasting sessions and materials sent home exhibited increased levels of fruit and vegetable consumption. Furthermore, community programs often are focused on high-risk populations and offer the opportunity to implement culturally appropriate interventions and evaluate their impact (Yancey et al., 2004).

Community coalitions. Building coalitions involves a range of public- and private-sector organizations that, together with individual citizens, focus on a shared goal and leverage the resources of each group through joint actions (Table 6-2). It has been pointed out, however, that while the strength of

TABLE 6-2 Unique Characteristics of Effective Community Coalitions

Characteristic	Description
Holistic and comprehensive	Allows the coalition to address issues that it deems as priorities; well illustrated in the Ottawa Charter for Health Promotion
Flexible and responsive	Coalitions address emerging issues and modify their strategies to fit new community needs
Build a sense of community	Members frequently report that they value and receive professional and personal support for their participation in the social network of the coalition
Build and enhance resident engagement in community life	A structure is provided for renewed civic engagement; the coalition becomes a forum where multiple sectors can engage with each other
Provide a vehicle for community empowerment	As community coalitions solve local problems, they develop social capital, allowing residents to have an impact on multiple issues
Allow diversity to be valued and celebrated	As communities become increasingly diverse, coalitions provide a vehicle for bringing together diverse groups to solve common problems
Incubators for innovative solutions to large problems	Problem solving occurs not only at local levels, but at regional and national levels; local leaders can become national leaders

SOURCE: Adapted from Wolff, 2001.

coalitions is in mobilizing the community to work for change, they are not generally designed to develop or manage specific community services or activities (Chavis, 2001).

Community collaborative efforts focused on health are of growing interest across the United States. Models are being refined on ways to link community organizations, community leaders and interested individuals, health-care professionals, local and state public health agencies, and universities and research organizations (Lasker et al., 2001; Lasker and Weiss, 2003). Community coalitions have played significant roles in efforts to prevent or stop tobacco use. The American Stop Smoking Intervention Study (ASSIST), which was funded by the National Cancer Institute and featured the capacity building of community coalitions, targeted tobacco control efforts at the state and local levels. States with ASSIST programs had greater decreases in adult smoking prevalence than non-ASSIST states (Stillman et al., 2003); factors identified as contributing to participation and satisfaction with the ASSIST coalitions included skilled members and effective communication strategies (Kegler et al., 1998). Coalition building and community involvement also have been effective in community fluoridation efforts (Brumley et al., 2001).

Health Disparities

Although this report focuses primarily on population-wide approaches that have the potential to improve nutrition and increase physical activity among all children and youth, the committee recognizes the additional need for specific preventive efforts. Children and youth in certain ethnic groups including African-American, Mexican-American, American-Indian, and Pacific Islander populations, as well as those whose parents are obese and those who live in low-income households or neighborhoods, are disproportionately affected by the obesity epidemic (Chapter 2). Many issues—including safety, social isolation, lack of healthy role models, limited access to food supplies and services, income differentials, and the relative unavailability of physical activity opportunities—may be barriers to healthier lifestyles for these and other high-risk populations. Moreover, as discussed in Chapter 3, perceptions about body image and healthy weight can vary between cultures and ethnic groups, and these groups can manifest differing levels of comfort with having an elevated weight. Furthermore, there may be a “communication gap” in making information about the health concerns of childhood obesity widely available.

As a result, culturally appropriate and targeted intervention strategies are needed to reach high-risk populations. There are examples of these types of strategies having positive results. For example, a 10-county study of churches participating in the North Carolina Black Churches United for

Better Health project found that church-based interventions (including group activities, changes in food served at church events, and dissemination of educational materials) resulted in increased fruit and vegetable consumption by adults participating in the intervention (Campbell et al., 1999). Pilot studies from the Girls Health Enrichment Multi-site Study (GEMS), a research program designed to develop and test interventions for preventing overweight and obesity in African-American girls, have included a variety of community, after-school, and family-based components in a range of settings (Baranowski et al., 2003; Beech et al., 2003; Robinson et al., 2003; Story et al., 2003). For example, the Stanford GEMS pilot study in 61 families tested a model that combined after-school dance classes for girls with family-based efforts to reduce time spent watching television. Positive trends were observed regarding body mass index (BMI), waist circumference, physical activity, and television viewing in the treatment group when compared to the control group (Robinson et al., 2003). These studies demonstrate the feasibility of implementing relevant community programs; two of these studies have been expanded to evaluate programs with larger study populations over a 2-year period (Kumanyika et al., 2003).

However, much remains to be learned about interventions that can reduce or alleviate the risk factors for childhood obesity in high-risk populations. Prevention efforts must be considerate of culture, language, and inequities in social and physical environments (PolicyLink, 2002). Furthermore, because these populations traditionally have been disenfranchised, special efforts must be made to gain their trust, both among individuals and at the community level. The 39-community Partnership for the Public's Health project in California and other community-centered public health initiatives have demonstrated that the most progress is made when an intervention engages community members themselves in the program's assessment, planning, implementation, and evaluation (Partnership for the Public's Health, 2004).

Private and public efforts that work to eliminate health disparities should include obesity prevention as one of their primary areas of focus. Some of the many ongoing efforts span the public and private sectors as well as the local, regional, state, and national levels and focus on diabetes and other chronic diseases for which obesity is a risk factor. For example, the Centers for Disease Control and Prevention's (CDC's) REACH 2010 initiative has broad-based collaboration within the U.S. Department of Health and Human Services (DHHS) and the private sector (CDC, 2004b) to fund and support demonstration projects and community coalitions focused on eliminating health disparities. Each coalition includes community-based organizations and the local or state health department or a university or research organization. Efforts to date have included community and tribal efforts to address diabetes and cardiovascular disease risk factors.

These efforts should aim to increase access to culturally and linguistically appropriate nutritional and physical activity information and skills and should support community-based collaborative programs that address the inequities in obesity rates between populations.

The communities themselves, meanwhile, need to involve all segments of the local population in developing both community-wide interventions and those that focus on high-risk populations. Furthermore, local communities—with the assistance of state and federal governments, nonprofit organizations, and the private sector—need to grapple with the underlying and long-standing socioeconomic barriers that result in limited opportunities for physical activity (e.g., safe parks and playgrounds) and affordable healthful foods (e.g., produce markets or large grocery stores). Opportunities to foster such coalitions and to develop effective programs for high-risk populations will be widened if there is grassroots participation by the citizens most affected by the problem.

Next Steps for Community Stakeholders

Many community organizations are currently involved in efforts to improve the well-being of their children and youth regarding a number of health and safety concerns, such as tobacco and alcohol abuse, sexually transmitted diseases, pedestrian and bike safety, and prevention of motor

BOX 6-2 Kids Off the Couch

Kids Off the Couch is a community collaborative pilot project in Modesto, California, that works with parents and caregivers to prevent obesity in children up to 5 years of age. The project's goal is to influence behavioral changes in food selection and physical activity among parents and primary caregivers. The program provides parents and caregivers with:

- Information on the risks of childhood obesity
- Tools to assist their children in achieving normal growth and healthy development
 - Hands-on demonstrations on how to prepare healthful and tasty foods that families will eat and enjoy
 - Instruction on how to engage their families in physical activity.

This project is a collaborative effort of numerous partners including the local school system, health services agency, hospitals, and health clubs; the American Cancer Society; Blue Cross of California; and the University of California Cooperative Extension.

vehicle injuries. Increased media coverage and the voices of concerned individuals and groups should now be prompting these community groups and others, including the broad range of stakeholders they work with, to focus on childhood obesity prevention. In particular, there is a need to galvanize action and expand opportunities for healthful eating and physical activity at the community level.

Community youth organizations can have an impact not only by adapting their own programs to include emphasis on healthful eating and physical activity, but also by joining with other organizations to form coalitions to promote community-wide efforts. Additionally, innovative approaches to community recreational programs are needed. Traditional organized competitive sports programs are an important facet of the community and offer physical activity opportunities for many children and adolescents. However, competitive sports programs are not of interest to all individuals and it is important to expand the range of options to include not only team and individual sports but also other types of physical activity (e.g., dance, martial arts) (CDC, 1997b). It will also be important to help families overcome potential obstacles—including transportation, fees, or special equipment—to program participation (CDC, 1997b).

Community youth organizations (such as Boys and Girls Clubs, Girls Scouts, Boy Scouts, 4H, and YMCA) should expand existing programs and establish new ones that widen children's opportunities to be physically active and maintain a balanced diet. These programs should complement and seek linkages with similar efforts by schools, local health departments, and other community organizations. Furthermore, evaluation of these programs should be encouraged.

Employers and work sites are another important component of community coalitions. The work site affects children's health both indirectly, through its influence on employed parents' health habits, and directly, through programs that may engage the entire family. Workplaces should offer healthful food choices and encourage physical activity. In businesses where on-site child care is provided, attention should be paid to ensuring that children have a balanced diet and adequate levels of physical activity.

Local organizations, businesses, local public health agencies, and other stakeholders increasingly have been joining together to address health issues through community coalitions, wherein the sum is greater than the parts, and meaningful progress on an issue becomes more likely. Coalitions can make obesity prevention a local priority and can design and implement programs that best fit the local area. It is important for coalitions to be inclusive, promote broad involvement, and represent as many constituencies as possible (see Table 6-2). As coalitions become established, it is also important for them to periodically reassess their status to ensure they remain inclusive and do not outlive their usefulness. Because of their nature,

coalitions exhibit wide variation in their structure and in the range of organizations, agencies, and individuals involved. However, to be sustained all require strong and ongoing leadership that is selected by coalition members.

Communities should establish and promote coalitions of key public and private stakeholders (including community youth organizations, local government, state and local public health agencies, civic and community groups, businesses, faith-based groups) to address the problem of childhood obesity by increasing the opportunities for physical activity and a balanced diet. Partnering with academic centers will be important for community-based research.

To have a long-term and significant impact on the public's health, community health initiatives should include programs that work towards initiating changes at many levels including changes in individual behaviors, family environments, schools, workplaces, the built environment, and public policy (Kaiser Permanente, 2004). This ecologic approach (see Chapter 3) is a critical part of a framework for community-level initiatives that support a health-promoting environment. Communities should seek to undertake a comprehensive, interrelated set of interventions operating at each ecological level and in multiple sectors and settings. Factors that have been found to be involved in sustaining successful community change efforts include a large number of environmental changes focused on a small number of categorical outcomes; intensity of behavior change strategy; duration of interventions; and use of appropriate channels of influence to reach appropriate targets (Fawcett et al., 2001).

Community-level approaches are among the most promising strategies for closing the disparities gap (PolicyLink, 2002; Prevention Institute, 2002). These strategies include improvements in the social and economic environment (e.g., through the creation of health-promoting social norms, economic stability, and social capital development), the physical environment (e.g., access to affordable healthful food and physical activity resources), and community services (e.g., after-school programs) (Prevention Institute, 2003). The goals of improving community health and addressing racial and ethnic health disparities are closely aligned.

The committee acknowledges the limited amount of empirical research that directly examines the effects of changes in community programs or formation of coalitions on obesity prevalence. However, interventions such as GEMS demonstrate the feasibility of these interventions, and the experience gained in other public health areas provides additional support for recommendations in these areas. As with other types of obesity prevention interventions (noted throughout this report), there is a critical need to ensure that community intervention programs are thoroughly evaluated. The impacts of coalitions have sometimes gone undetected because of inap-

appropriate (or weak) evaluation plans. This is most likely to occur when (1) the evaluation timeline is too short, (2) the evaluation strategy focuses on unrealistic or distant health outcomes instead of intermediate indicators that can be influenced by coalition activity, (3) measures are incapable of detecting valid indicators of change, or (4) alternative explanations for effects are not taken into account (Kreuter and Lezin, 2002). In order to assess a community coalition's level of change, and to allow communities elsewhere to profit from its experience (good, bad, or in between), realistic evaluation plans must be set up and be incorporated into the initial planning and implementation of coalitions and interventions. Ongoing evaluation that relies on learning and feedback is also an integral component of the community change process. Community health initiatives by their nature are confronted with unpredictable variables; feedback should be used to adjust subsequent efforts.

The standard of practice in comprehensive community health improvement efforts is to fully engage community organizations and community residents, not just as subjects of research but as the drivers and owners of evaluation—"community-based participatory research" (Minkler and Wallerstein, 2003). Using this approach, community members are involved in identifying and framing of the problem or goals; developing a logic model or framework for achieving success; identifying research questions and appropriate research methods; documenting the intervention and its effects; understanding the data; and using the data to make midcourse adjustments (Fawcett et al., 2004).

To provide the impetus for community programs and efforts, a coordinated network of community-based demonstration projects should be established. These projects would be run by community organizations linked with public health departments and in partnership with academic institutions to provide support, training, and evaluation. Seed funding for the projects could come from an expansion of federal programs, particularly CDC's state-based Nutrition and Physical Activity Program to Prevent Obesity and Other Chronic Diseases (see Chapter 4) and the DHHS Steps to a Healthier U.S. initiative.

Built Environment

Designing Communities and Neighborhoods to Encourage Physical Activity

Communities should provide places where children can play outside, particularly within their residential neighborhoods, and where they can safely walk, bike, or travel by other self-propelled means to destinations such as the park, playground, or school. Hoefler and colleagues (2001)

found that local neighborhood and parks were the most frequent settings for physical activity among middle school students. Three studies of young children found that the amount of time a child spent outside was the most powerful correlate of his or her physical activity level (Klesges et al., 1990; Baranowski et al., 1993; Sallis et al., 1993). However, pedestrian injuries that result from collisions with automobiles are a leading cause of injury death for children aged 5 years and older (Grossman, 2000), and traffic speed is a key determinant of their injury risk (Jacobsen et al., 2000). The challenge is thus to create places where children are safe to walk, bike, and play, so that the benefits of increased physical activity are not offset by increases in injuries.

Because changes to the built environment can enhance opportunities for children and youth to safely play outside and be more physically active, such changes are a critical component of any action plan to prevent childhood obesity. Interest in the role of the built environment in determining levels of physical activity has grown over the past decade, and renewed efforts are currently under way to reconnect the goals of urban planning and public health and to identify the factors that influence physical activity and travel behavior (Handy et al., 2002; Hoehner et al., 2003; Corburn, 2004). A concurrent study by the Transportation Research Board is examining issues regarding transportation, land use, and health in greater depth than this report, though for the population as a whole.

Encouraging children and youth to be physically active involves providing them with opportunities to walk, bike, run, skate, play games, or engage in other activities that expend energy. However, in many neighborhoods children do not have safe places—because of vehicular traffic, or high crime rates, or both—in which to play outside. In other locales, children may lack adequate sidewalks or paths on which to bike, skate, or simply walk to local destinations such as schools, parks, or grocery stores. This is a result of regulations and practices that guide the development of transportation systems and design of neighborhoods. The needs of the car have often been emphasized over the needs of pedestrians and bicyclists.

A recently published observational study examined the associations between community physical activity-related settings (e.g., sports areas, public pools and beaches, parks and green space, and bike paths) and race, ethnicity, and socioeconomic status in 409 communities throughout the United States (Powell et al., 2004). The researchers found that higher median household income and lower poverty rates were associated with increasing levels of available physical activity-related facilities and settings. Communities with higher proportions of ethnic minorities had fewer physical activity-related settings. There are many communities and neighborhoods where access to facilities for physical activity is an issue that needs to be addressed.

BOX 6-3**Discovering Public Spaces as Neighborhood Assets in Seattle**

Feet First, a Seattle-area nonprofit organization, is using its Active Living by Design grant from the Robert Wood Johnson Foundation to help neighborhood residents take a closer look at their streets. As part of their project's activities, Feet First staff organize neighborhoods through monthly walking audits. On these walks, the staff train groups of up to 40 neighbors to see their streets as an untapped resource with potential for physical activity. At the end of the one-mile, two-hour inspections, participants receive notes with photos and maps documenting assets, possible improvements, and needed policy changes. The organization assists citizens in working with city agencies and departments to address the neighborhood concerns.

Evaluation has been built into the design and implementation of the Feet First program and is now in progress. Results will be used to assess next steps and inform the planning of future programs.

Correlational studies. Convenient access to recreational facilities emerges as a consistent correlate of physical activity, although most research has been conducted with adults (Sallis et al., 1998; Humpel et al., 2002). A 2002 review by Humpel and colleagues summarized the results of 16 cross-sectional studies, published between 1990 and 2001, on the link between physical activity and the physical environment. Access to facilities such as bicycle paths or parks showed significant positive associations with physical activity, while measures of a lack of facilities (or inadequate facilities) showed significant negative associations. Awareness of and satisfaction with facilities also showed significant associations with physical activity, as did measures of local aesthetics, such as attractive neighborhoods or enjoyable scenery.

Although there are fewer studies on the relationships between young people's access to recreational facilities and their levels of physical activity, they are nevertheless consistent with the findings for adults. A comprehensive review by Sallis and colleagues (2000a) on the correlates of physical activity among children found a significant positive association with access to recreational facilities and programs, and two out of three studies involving adolescents found a significant positive association as well. However, a study of the neighborhoods of low-income preschoolers in Cincinnati, Ohio, found that overweight was not associated with proximity to playgrounds (Burdette and Whitaker, 2004). These results suggest that access to recreational facilities may be more important for youth than for young children or that reported physical activity may not always translate into differences in weight.

Available evidence (limited to the behavior of all residents or of adults

only) shows that the design of streets and neighborhoods is correlated with walking. A recent review of studies (Saelens et al., 2003) comparing “high-walkable” and “low-walkable” neighborhoods found that among persons aged 18 to 65 years, the frequency of walking trips was twice as high in the high-walkable locales. The high-walkable neighborhoods were characterized as those that had higher residential density, street connectivity (few cul-de-sacs), aesthetics, safety, and mixed land use (stores and services located within close proximity to residential areas).

Safety is often an important consideration in decisions by parents and children regarding outside activity. Safety concerns pertain to the speed and proximity of nearby traffic and to fears of crime; but other factors, such as unattended dogs and lack of street lighting, may also be pertinent. Research has shown that parents are more likely now than in the past to restrict their children’s use of public spaces because of fear for their safety (Loukaitou-Sideris, 2003). Concerns about “traffic danger” and “stranger danger” have been reported as important influences on the decisions by parents to drive their children to school or not allow them to walk to the neighborhood park (Roberts, 1993; DiGuiseppi et al., 1998); furthermore, parents report that safety considerations are the most important factor in selecting play spaces for their young children (Sallis et al., 1997).

Among adults, data from five states (Maryland, Montana, Ohio, Pennsylvania, and Virginia) document a higher level of physical inactivity among persons who perceive their neighborhoods to be unsafe (CDC, 1999). There also appear to be large gaps in neighborhood safety across socioeconomic groups. For example, a national study found that perception of neighborhood crime was almost twice as great among lower income populations as in higher income populations (Brownson et al., 2001). Thus, the crime rate, or the perception of crime, is likely to affect the likelihood of people walking or bicycling in their neighborhoods.

Studies on the link between neighborhood crime and rates of physical activity among children and youth have shown inconsistent results. Gordon-Larsen and colleagues (2000) studied a large adolescent cohort and found that living in a high-crime neighborhood was associated with a decreased likelihood that teenagers would participate in moderate-to-vigorous physical activity at high levels. However, a study by Zakarian and colleagues (1994) looking at physical activity among minority adolescents or children, who were predominantly of low socioeconomic status, found no association with convenient facilities or neighborhood safety; another study found no association between these factors and overweight (Burdette and Whitaker, 2004). On the other hand, Romero and colleagues (2001) studied fourth-grade students of diverse economic backgrounds and found that children from families of lower socioeconomic status perceived more neighborhood hazards (including crime and traffic), but that this percep-

tion was significantly associated with *more* reported physical activity rather than less. This finding points to a problem documented by others (Doxey et al., 2003): children from families with lower socioeconomic status are more dependent on walking as a means of transportation than are children from families with higher socioeconomic status, but they also live in neighborhoods where walking is not as safe.

Intervention studies. Research that directly examines the impact of changes made in the built environment on physical activity has been limited simply because increasing physical activity is often not the primary goal of these interventions and “pre-/post-” studies are difficult to conduct. Instead, changes to the built environment are often made because of safety concerns and the need to reduce the likelihood of traffic-related injuries. For example, the primary goal of traffic-calming programs—such as speed humps, traffic diverters, and “bulb-outs” (pavement structures that extend from the sidewalk at an intersection to force cars to take slower turns around corners)—has been to reduce speeds and to lower the levels of traffic on residential streets. Studies have been conducted of traffic levels and speeds, pedestrian-vehicle crashes, and pedestrian behavior both before and after the installation of traffic-calming devices (Huang and Cynecki, 2000, 2001; Retting et al., 2003). One recent study, for example, showed that speed humps were associated with a lower probability of children being injured within their neighborhood (Tester et al., 2004). However, no studies of the impact of the installation of such devices on the physical activity of residents in the area are available.

A small group of studies has used a pretest/posttest design to test the impact of a specific change to the built environment in a relatively limited area (e.g., street-scale interventions). Painter (1996) examined the impact of improved lighting on the use of footpaths in London and found an intervention effect ranging from 34 percent to 101 percent increases in footpath use, depending on the location. Similarly, a 23 percent increase in bicycle use was found with the addition of bike lanes (Macbeth, 1999). Researchers examining the impact of the redesign of two residential streets in Hannover, Germany, into “Woonerven” (designed for shared use by cars and people) observed 11 percent to 100 percent more children on the street and 53 percent to 206 percent more incidents of street play after the changes in street design (Eubanks-Ahrens, 1987).

The research needs in this area are many. Most obviously, future studies should determine the specific elements of the built environment that influence physical activity in children and youth. DHHS and the Department of Transportation should fund community-based research to examine the impact of changes to the built environment on the levels of physical activity in the relevant communities; in addition, population-wide demon-

stration projects should be funded and carefully evaluated, as should studies of natural experiments.¹ In addition, carefully designed intervention studies together with studies using longitudinal designs are needed to improve our understanding of the relationships between changes to the built environment and resulting physical activity behavior in youth; such studies will require collaborations between researchers and the responsible public officials. Furthermore, better measures of physical activity collected through travel diary surveys (widely used in transportation planning) and ongoing surveillance systems such as the Youth Risk Behavior Surveillance System are needed, as are better measures of the built environment itself.

The *Guide to Community Preventive Services*, a systematic review of population-based interventions, strongly recommends the “creation of and enhanced access to places for physical activity combined with informational outreach activities” (p. 91) as an approach to promote physical activity, though the focus of this review was on adults (Kahn et al., 2002). But it is clear that improvements to many different elements of the built environment—parks, hike/bike trails, sidewalks, traffic-calming devices, pedestrian crossings, bicycle-route networks, street connections, and mixed land-use developments—will contribute to the solution.

Next steps. It is incumbent upon local governments to find ways to increase the opportunities for physical activity in local communities and neighborhoods. Achieving this goal may involve revising zoning and subdivision ordinances, where necessary, to ensure that new neighborhoods provide opportunities and facilities for physical activity. For example, a growing number of communities are revamping their local development codes to adhere to smart-growth principles (see Box 6-4) (Local Government Commission, 2003).

To enhance the quality and extent of opportunities for physical activity within existing neighborhoods, local governments will need to prioritize such projects in their capital improvement programs. Federal, state, and regional policies can also contribute to these efforts, primarily by providing the funding necessary to effect physical changes to the built environment. The Federal Transportation Enhancements Program, for example, funded \$1.9 billion in pedestrian and bicycle projects throughout the United States between 1992 and 2002 (Federal Highway Administration, 2004). As a

¹In this context, the term “demonstration projects” refers to interventions specifically designed to examine the effects of a change in the built environment on physical activity, whereas “natural experiments” are changes that occur or are put in place for other reasons (e.g., an urban policy or practice) but that can be evaluated to determine their effect on physical activity levels. The researcher or practitioner has a much higher level of control over a demonstration project compared with a natural experiment.

BOX 6-4
Trends in City Planning

- Communities throughout the United States are turning to the concept of “smart growth” as a way of fostering walkable and close-knit neighborhoods, providing a variety of transportation choices, taking advantage of community assets, and encouraging mixed land uses (Smart Growth America, 2004). Organizations such as Smart Growth America and the Smart Growth Network represent coalitions of nonprofit organizations and government agencies working toward these goals.
- The Congress for the New Urbanism has brought together architects, developers, planners, and others involved in the creation of cities and towns to promote the principles of coherent regional planning, walkable neighborhoods, and attractive and accommodating civic spaces (CNU, 2004). This nonprofit organization lists hundreds of recent development projects built according to these principles, on which the neighborhood-design ordinances of a number of cities are now based.
- Traditional approaches to street and street-network design are changing in response to concerns over the impact of increasing levels of traffic on communities. The Institute of Transportation Engineers has published recommended practices for street design that encourage narrower streets in residential areas to reduce traffic speeds (ITE, 1999). A growing number of the nation’s communities have revised their land development codes to encourage greater connectivity in the street network and require improved access for pedestrians and bicycles (Handy et al., 2003).

result, many Metropolitan Planning Organizations, agencies responsible for implementing federal transportation programs in metropolitan areas, now put significant emphasis on bicycle and pedestrian planning (Chauncey and Wilkinson, 2003). Professional organizations such as the Institute of Traffic Engineers and the American Planning Association should also work to assist the efforts of local governments by developing and disseminating best practices for expanding opportunities for physical activity.

Citizens themselves have a responsibility to advocate for changes in policy so that the built environment may ultimately offer increased opportunities for physical activity among children and youth. The public may bring significant influence to bear over policy, particularly if a large and vocal constituency urges change and if prominent community groups, nonprofit organizations, and business organizations lend their support. In many communities, neighborhood associations play a formal role in the planning process and have successfully advocated for new or improved parks, additional side walks, traffic-calming programs, and other changes in the built

environment. In addition, legal approaches may be useful (Perdue et al., 2003; Mensah et al., 2004).

Local governments, in partnership with private developers and community groups, should ensure that every neighborhood has safe and well-designed recreational facilities and other places for physical activity for children and youth. Communities can require such environmental characteristics in new developments and use creative approaches to retrofit existing neighborhoods. Furthermore, local governments should ensure that streets are designed to encourage safe walking, bicycling, and other physical activities within the neighborhood and the larger community. Child-safe street design includes well-maintained sidewalks, safe places for crossing, adequate bike lanes, and features that slow traffic.

Walking and Bicycling to School

Compared with 30 years ago, few students in the United States are walking or bicycling to school. In 1969, an average of 48 percent of all students walked or biked to that destination; among those living no more than a mile away, nearly 90 percent did so (EPA, 2003). In comparison, the 1999 HealthStyles Survey found that of the participating households, 19 percent reported that their children walked to or from school at least once a week in the preceding month and that 6 percent rode their bikes (CDC, 2002a). Similar results were seen in a study by the Georgia Division of Public Health, which found that fewer than 19 percent of the state's school-aged children who lived a mile or less from school commuted by foot most days of the week (CDC, 2002b).

The HealthStyles Survey households reported that barriers to their children's walking or bicycling to school included: long distances (noted by 55 percent of respondents), traffic-related safety concerns (40 percent), adverse weather conditions (24 percent), crime danger (18 percent), school policy (7 percent), or other reasons (26 percent) (CDC, 2002a). Sixteen percent acknowledged that there were *no* barriers to walking or bicycling to school.

Two other studies also identified distance as a determinant. In one small study of six school sites, respondents said that it was more likely that their children would walk or bike to school if their home was a mile or less away (McMillan, 2002), while the other found that the probability of walking or bicycling declined with travel time (EPA, 2003). The situation at present is that the majority of children arrive and leave school in automobiles, vans, trucks, and buses (Figure 6-1) (TRB, 2002). Research also suggests that parents, students, and school officials often select or encourage motorized travel because of convenience, flexibility, budget, or expectation rather than to maximize safety (TRB, 2002).

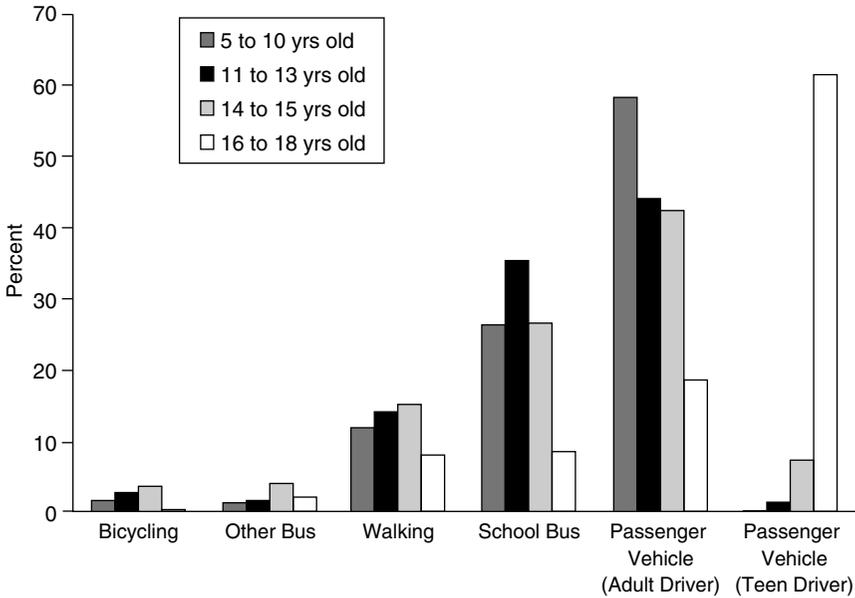


FIGURE 6-1 Percentage of trips during normal school travel hours, Nationwide Personal Transportation Survey, 1995.

SOURCE: *Special Report 269: The Relative Risks of School Travel*. Transportation Research Board, National Research Council, Washington, D.C., 2002, Figure 3-1(a), p. 88. Reproduced with permission.

Because the majority of children and youth attend school five days per week, throughout a large part of the year, trips to and from school offer a potential opportunity to substantially increase their daily physical activity and energy expenditure. Observational studies have in fact demonstrated that children can get some of their most vigorous school-day physical activity during the times they travel between home and school (Cooper et al., 2003; Tudor-Locke et al., 2003). Cooper and colleagues (2003) found, in a study of 114 British children aged 9 to 11 years, that the boys who walked to school were generally more active than those who were transported by car (although similar results were not seen for girls).

While the committee acknowledges that there is no direct evidence that walking or bicycling to school will reduce the prevalence of obesity in children, clear evidence does exist that increases in physical activity can have positive impacts on weight loss or on maintaining a healthy weight. Further, there are potential ancillary benefits, which include enhancing the neighborhood environment (e.g., so that families may walk or bike more

often during after-school hours), lowering busing costs, and fostering social interaction within the community.

Interventions to promote safe walking and bicycling to schools have already become popular in some communities, thereby demonstrating a broader potential for feasibility and acceptability (Box 6-5). In Chicago, for example, 90 percent of the nearly 422,000 public school children walk to school and the city has encouraged a Walking School Bus program in which one or more adults walk to school with and supervise a small group of children from the neighborhood (Chicago Police Department, 2004). Since 1997,² National Walk Our Children to School Day and a similar international effort have attracted substantial interest.

Safe Routes to School programs have produced increases in the number of students walking or bicycling between home and school. Demonstration projects in 10 British towns showed an increase in walking and bicycling among children and reductions in car use (Sustrans, 2001). An evaluation of the Safe Routes to School programs in seven schools in Marin County, California, found that from fall 2000 to spring 2002, there was a 64 percent increase in the number of children walking to school and a 114 percent increase in the number of students bicycling (Staunton et al., 2003). Another evaluation of the California program, which focused on schools in Southern California, showed strong evidence of success in five schools, weak evidence in one school, and no evidence in three schools (success was defined as improvements in safety conditions as well as increases in the numbers of children walking or bicycling to school) (Boarnet et al., 2003). These data suggest that Safe Routes to School programs show promise in promoting physically active means for children traveling to and from school.

Locating schools in close proximity to the neighborhoods they serve is another opportunity for increasing the likelihood that children and youth will walk or bike between them (EPA, 2003). Annual school construction costs in the United States (including new school construction and school building rehabilitation) were estimated to have grown from about \$18 billion in 1990 to \$25 billion in 1997 (GAO, 2000) and continue to increase. Given the scale of this spending and the numerous projects involved, school construction projects provide a tremendous opportunity for locating at least some new schools within walking or biking distance of the residential areas from which they draw their students.

Local governments and school districts should ensure that children and youth have safe walking and bicycling routes between their homes and schools and that they are encouraged to use them. Realizing this objective

²The first National Walk Our Children to School Day was sponsored by the Partnership for a Walkable America in 1997.

BOX 6-5 Safe Routes to School

Safe Routes to Schools was initiated in Western Europe and the United Kingdom. As its name implies, the program promotes walking and bicycling to school, and it does so through education and incentives that show how much fun it can be. The program also addresses the safety concerns of parents by encouraging greater enforcement of traffic laws, educating the public, and exploring ways to create inherently safer streets.

In the United States, the California legislature established a Safe Routes to School program in 1999 and extended it for three more years in 2001. This program provides \$25 million in state and federal transportation funds to projects that improve the safety of walking and bicycling to schools. Administered by the state Department of Transportation, Safe Routes to School funded 268 projects in its first 4 years (Caltrans, 2004).

Other programs are emerging across the United States to promote safe walking and bicycling to school, and the nonprofit organization Transportation Alternatives provides a toolkit to help communities in starting their own Safe Routes to School-type programs (Transportation Alternatives, 2004).

The U.S. programs incorporate one or more of the following four key elements:

- An *encouragement* approach, which uses events and contests to entice students to try walking and bicycling
- An *education* approach, which teaches students important safety skills and launches driver-safety campaigns
- An *engineering* approach, which focuses on making physical improvements to the infrastructure surrounding the school, reducing speeds and establishing safer crosswalks and pathways
- An *enforcement* approach, which uses local law enforcement to ensure that drivers obey traffic laws.

will involve the efforts of many groups in local communities. Schools and school districts, in collaboration with community partners, need to develop and implement policies and programs that promote walking and bicycling (Chapter 7). Local governments need to allocate the resources to make the necessary improvements to sidewalks, crosswalks, signals, signs, and other traffic control devices. Collaborations between law enforcement officials and schools are needed to deploy pedestrian safety measures at the beginning and end of each school day; crossing guards are an important part of this process. Additionally, decisions regarding the locations of new schools need to carefully consider the benefits of being close enough to the neighborhoods they serve to facilitate students' walking or bicycling from one site to the other.

When interventions that promote walking or bicycling to school are implemented, it is crucial that researchers evaluate their effects on total

daily physical activity and energy expenditure, and on changes in weight over time. Programs promoting safe routes to school, as well as other efforts to increase students' walking and bicycling, should include funding for evaluation, and the organizations that implement these programs should work with researchers to develop rigorous evaluation designs. Because so much remains to be learned about the various approaches to increasing walking and bicycling to school, thorough evaluations of such initiatives are critical.

Community Food Environment

All members in a community need access³ to affordable and healthful food on a regular basis. Food security is commonly defined as “access by all people at all times to enough food for an active, healthy life and includes at a minimum: a) the ready availability of nutritionally adequate and safe foods, and b) the assured ability to acquire acceptable foods in socially acceptable ways (p. 1560)” (LSRO, 1990). Food security is one of the necessary conditions to ensure the health of a population.

In 2002, 11.1 percent of U.S. households, representing more than 35 million people, experienced food *insecurity*—that is, their access to nutritious food on a regular basis was limited or uncertain (Nord et al., 2003). In general, households with children report food insecurity at more than twice the rate of households without children (16.5 percent versus 8.1 percent, respectively) (Nord et al., 2003). Children living in food-insecure households are more likely to have compromised well-being than children living in food-secure households (Alaimo et al., 2001); evidence has linked food insecurity to declines in children's health, mental and psychological functioning, and academic achievement (ADA, 2004). As discussed in Chapter 3, however, evidence linking childhood food insecurity to obesity is inconclusive.

In 2002, a food-secure household in the United States spent 35 percent more on food than the typical food-insecure household of the same size and composition (Nord et al., 2003), though food accounted for a greater proportion of the latter's budget (Lang and Caraher, 1998). Thus, it stands to reason that food cost is a significant predictor of dietary choices and health outcomes, particularly in low-income ethnic minority urban communities (Perry, 2001; Morland et al., 2002a; Pothukuchi et al., 2002; Sloane et al., 2003) and rural communities (Holben et al., 2004). At the same time, while

³Food access is defined broadly in this context to represent improved availability of adequate amounts of healthful foods that households and communities have the financial resources to afford on a regular basis.

it is acknowledged that consumer food choices are shaped by taste, cost, and convenience, it has been suggested that high-fat, energy-dense foods and diets are often less expensive on a cost-per-calorie basis and are more palatable than high-fiber low-energy-dense foods such as the lean meats, fish, fresh fruits, and vegetables that comprise a healthful diet (Drewnowski and Specter, 2004). However, based on the ACNielsen Homescan 1999 data for household food purchases from all types of retail outlets, a price analysis of 154 types of fruits and vegetables found that more than one-half of the produce items were estimated to cost less than 25 cents per serving. The study concludes that all consumers, including low-income households, can meet the recommendations of three servings of fruit and four servings of vegetables for 64 cents per day (Reed et al., 2004). However, it is difficult to predict or understand consumer behavior from these types of analyses, as discussed in Chapters 3 and 5.

The availability and affordability of energy-dense foods has increased in recent years in low-income neighborhoods (Morland et al., 2002a,b; Sloane et al., 2003). This situation is associated with several trends: fewer supermarkets being located within a reasonable walking distance, supermarket relocation to the suburbs (Cotterill and Franklin, 1995; Shaffer, 2002; Bolen and Hecht, 2003), the lack of transportation to supermarkets offering a variety of healthful choices at affordable prices (Urban and Environmental Policy Institute, 2002; Bolen and Hecht, 2003), and the local proliferation of gas stations and convenience stores that often have a limited selection of healthful foods and at higher prices (Alwitt and Donley, 1997; Perry, 2001; Morland et al., 2002a).

Community food-security assessment toolkits and other methods, such as community mapping, have been used to assist communities throughout the United States in undertaking community assessments and inventories to identify the type and range of locally available food resources, including supermarkets, corner grocery stores, full-service and fast food restaurants, food banks, food pantries, farmers' markets, and community gardens (Perry, 2001; Cohen, 2002; Pothukuchi et al., 2002; Sloane et al., 2003). Knowing the inventory and its gaps, communities may then take appropriate action, and in fact they are addressing their food insecurity problems in a variety of ways.

For example, local governments are offering financial incentives such as grants, loans, and tax benefits to stimulate the development of neighborhood groceries in underserved urban neighborhoods (Shaffer, 2002; Bolen and Hecht, 2003; Baltimore Healthy Stores Project, 2004; Clark, 2004). Some communities are initiating farmers' markets or enhancing the existing Farmers' Market Nutrition Programs offered to participants in Special Supplemental Nutrition Program for Women, Infants, and Children and the Food Stamp Program (Connecticut Food Policy Council, 1998; Fisher,

1999; Kantor, 2001; Conrey et al., 2003). Others are promoting community gardens (Kantor, 2001; Twiss et al., 2003), school gardens (Edible Schoolyard, 2004; see Chapter 7), and farm-to-school and farm-to-cafeteria programs (Kantor, 2001; Bellows et al., 2003; Center for Food and Justice, 2004; Sanger and Zenz, 2004; see Chapter 7).

Recent research has demonstrated that children who grow some of their own food in school gardens have an increased preference for certain vegetables (Morris and Zidenberg-Cherr, 2002). Recent federal legislation (Public Law 108-265) includes provisions designed to strengthen partnerships between local agriculture and schools to ensure that fresh local produce can go from farms directly to schools.

These initiatives to enhance the community food environment and promote household and community food security are promising to expand healthful food choices, especially for neighborhoods that are now limited in their ability to obtain healthful and affordable food on a regular basis. However, evaluations will be required to determine the programs' effectiveness in meeting these goals.

Local governments should work with community groups, nonprofit organizations, local farmers and food processors, and local businesses to support multisectoral partnerships and networks that expand the availability of healthful foods within walking distance, particularly in low-income and underserved neighborhoods. Such efforts will expand healthful food choices at local grocery stores, supermarkets, and fast food restaurants, and they will encourage a broad range of community food-security initiatives that improve access to highly nutritional foods.

Health Impact Assessments and Community Health Evaluations

Evaluation of community-wide efforts can be a challenge, given the typically wide age range among members of the population; their ethnic, racial, and social diversities; the differences in settings of various community interventions; and the numerous barriers involved.

Nevertheless, it is important to assess the potential impact of proposed programs and changes as well as to conduct evaluations of recent and ongoing efforts. A prospective approach to community evaluation efforts involves a "health impact assessment" that gauges the potential effects of a proposed policy or intervention on the health of the population (WHO, 1999). Much as environmental impact assessments examine the potential effects of a new construction project on such indicators as an area's air and water quality, health impact assessments are used to evaluate and then modify a proposed action—that is, to remove or minimize that action's negative public health impacts, and to help enhance its positive effects (Taylor and Quigley, 2002). The health impact assessment may also be

particularly useful in bringing potential health impacts to the attention of policy makers.

A major value of this approach is its focus on considering the input of multiple stakeholders, including those who would be directly affected by the project under consideration. As changes are proposed to the built environment, communities should consider this tool for examining how proposed changes in the community would affect health issues such as access to and availability of healthful foods and opportunities for physical activity. It will be important to identify and examine natural experiments in which initiatives based on health-impact assessments could be compared to those undertaken without such an assessment.

For an overall assessment of a community's health improvement efforts that are already underway, community health "report cards" (also termed community health assessments or health profiles) are an excellent tool, both to assess and convey progress (CDC, 1997a). A variety of approaches have been used, all with the goal of providing a concise and consistent collection of data that can be formatted for dissemination to the community. For example, state, county, and community health profiles have been developed using CDC's *Healthy Days Measures* among other community performance indicators (CDC, 2004a). In addition, the Community Health Status Indicators Project (CHSI)—a collaborative effort of the Association of State and Territorial Health Officials, the National Association of County and City Health Officials (NACCHO), and the Public Health Foundation—has developed report indicators and formats for county-specific information that allows comparisons with similar "peer" counties throughout the country (NACCHO, 2004). A CHSI report contains information on behavioral risks, preventive services use, access, and summary health measures. To assist in obesity prevention efforts, community health report cards should use measures that assess the community's progress toward encouraging good nutrition and physical activity. These measures could rate the built and social environments, local school policies and practices (Chapter 7), the community food environment, and the degree of involvement of local businesses, organizations, and other groups in supporting and participating in obesity prevention efforts.

To streamline efforts and encourage communities to engage in these types of evaluation efforts, common evaluation tools should be developed and shared, while also ensuring that evaluation tools have the flexibility to be sensitive to the needs of local communities. This is an area where it will be important to build on tools (those discussed above and others) that have already been developed. Leadership for these efforts should involve CDC, NACCHO, the American Planning Association, and other relevant organizations, including foundations such as the Robert Wood Johnson Foundation, with interests in community-based obesity prevention efforts.

Communities should use evaluation tools (e.g., health impact assessments, audits, or report cards) to assess the availability and impact of local opportunities for physical activity (e.g., sidewalks, parks, recreational facilities) and for healthful eating (e.g., grocery store access, farmers' markets).

Recommendations

Mobilizing communities to address childhood obesity will involve changes in the social and built environment. Several large-scale community-based interventions—primarily focused on improving diet and physical activity levels to address cardiovascular outcomes—show the feasibility of such efforts, although much remains to be learned about how to increase their effectiveness, particularly with regard to obesity prevention in youth. Efforts to address other public health issues such as tobacco prevention and control provide models for community coalition efforts.

A relatively new field of research is merging urban planning, transportation, and public health research tools to examine the impact of the built environment on human health. Observational and correlational studies, primarily conducted in adult populations, have shown that features in the built environment such as the walkability of neighborhoods or availability of recreational facilities are associated with level of physical activity. A few small-scale intervention studies have examined the effects of changes to the built environment; however, research is needed to explore what specific changes to the built environment will be the most effective in preventing childhood obesity. The committee recommends the implementation and evaluation of a range of community changes to facilitate improved nutrition and increased physical activity. These efforts are an integral part of a comprehensive approach to create healthier environments for children and youth.

Recommendation 6: *Community Programs*

Local governments, public health agencies, schools, and community organizations should collaboratively develop and promote programs that encourage healthful eating behaviors and regular physical activity, particularly for populations at high risk of childhood obesity. Community coalitions should be formed to facilitate and promote cross-cutting programs and community-wide efforts.

To implement this recommendation:

- Private and public efforts to eliminate health disparities should include obesity prevention as one of their primary areas of focus and

should support community-based collaborative programs to address social, economic, and environmental barriers that contribute to the increased obesity prevalence among certain populations.

- Community child- and youth-centered organizations should promote healthful eating behaviors and regular physical activity through new and existing programs that will be sustained over the long term.
- Community evaluation tools should incorporate measures of the availability of opportunities for physical activity and healthful eating.
- Communities should improve access to supermarkets, farmers' markets, and community gardens to expand healthful food options, particularly in low-income and underserved areas.

Recommendation 7: *Built Environment*

Local governments, private developers, and community groups should expand opportunities for physical activity including recreational facilities, parks, playgrounds, sidewalks, bike paths, routes for walking or bicycling to school, and safe streets and neighborhoods, especially for populations at high risk of childhood obesity.

To implement this recommendation:

Local governments, working with private developers and community groups, should:

- Revise comprehensive plans, zoning and subdivision ordinances, and other planning practices to increase availability and accessibility of opportunities for physical activity in new developments
- Prioritize capital improvement projects to increase opportunities for physical activity in existing areas
- Improve the street, sidewalk, and street-crossing safety of routes to school, develop programs to encourage walking and bicycling to school, and build schools within walking and bicycling distance of the neighborhoods they serve

Community groups should:

- Work with local governments to change their planning and capital improvement practices to give higher priority to opportunities for physical activity

DHHS and the Department of Transportation should:

- Fund community-based research to examine the impact of

changes to the built environment on the levels of physical activity in the relevant communities and populations.

HEALTH CARE

Because health care is usually provided at the local level, it is best addressed in a community context. Health-care professionals have frequent opportunities to encourage children and youth to engage in healthful lifestyles. Unfortunately, treatment of obesity per se is rarely considered a reimbursable interaction between patient and doctor, and our current health-care system is not yet focused on preventive measures for childhood obesity. But the health-care delivery system can still have a significant impact on this issue. It is now up to health-care professionals and their professional organizations, as well as health insurers and quality improvement and accrediting agencies, to make obesity prevention a part of routine preventive health care.

Health-Care Professionals

Health-care professionals—physicians, nurses, and other clinicians—have an influential role to play in preventing childhood obesity. As health-care advisors both to children and their parents, they have the access and the influence to make key suggestions and recommendations on dietary intake and physical activity throughout children's lives. They also have the authority to elevate concern about childhood obesity and advocate for preventive efforts.

The 2002 National Health Interview Survey found that 74.5 percent of children (aged 18 years or younger) had seen a health-care professional at some time during the past six months (Dey et al., 2004), thereby providing numerous opportunities for doctors and other clinicians to measure and track height, weight, and BMI and to counsel the children—as well as their parents or other caregivers—about proper nutrition and physical activity. Measuring height and weight and plotting these measures on growth charts is already a standard part of children's health care, and recent recommendations by the American Academy of Pediatrics have added BMI to this list (AAP, 2003). Although there is little direct evidence of the impact of height, weight, and BMI screening and tracking on preventing obesity in children, BMI measures for adults have been found to be both easy to measure and a highly reliable method for identifying patients at risk of morbidity and mortality due to obesity (McTigue et al., 2003). The U.S. Preventive Services Task Force (USPSTF) recommends that clinicians use BMI to screen all adult patients for obesity (USPSTF, 2003). A survey of 940 pediatric health-care providers, however, found that more used clinical impression

and weight-for-age or weight-for-height measures than used BMI or BMI percentiles (Barlow et al., 2002).

Because there are standardized BMI charts for children, and given that BMI is a reasonably good surrogate for adiposity, it is sensible to include BMI calculations in all health supervision visits for children. By routinely measuring height and weight and calculating BMI, clinicians communicate that this is an important matter, just as important as routine immunizations or screening tests in protecting children's health (see Chapter 8). Furthermore, BMI measures on an annual or similarly regular basis allow assessment of the individual child's growth trajectory, which offers better insights, and on an earlier basis, than height or weight measurement alone (see Chapter 3).

After determining the child's weight status, health-care professionals have a responsibility to carefully communicate the results to parents and, in an age-appropriate manner, to the children themselves; provide the information that the families need to make informed decisions about physical activity and nutrition; and explain the risks associated with childhood overweight and obesity. Behaviors that can be targeted include those most closely associated with improved nutrition and increased physical activity: increased breastfeeding, limited consumption of sweetened beverages, reduced television viewing or other screen time, and a greater amount of outdoor play (Whitaker, 2003). Careful attention should be paid to minimizing the stigmatization of obesity (Schwartz and Puhl, 2003).

Studies of such counseling on obesity-related issues have shown positive results. In one trial, African-American families were randomized to receive primary-care-based counseling alone or counseling plus a behavioral intervention (including goal-setting and an electronic television-time manager) as part of their regular clinic visits (Ford et al., 2002). Both groups reported similar within-group decreases (from baseline) in children's television, videotape, and video game use. In the between-group comparison, the behavioral intervention group reported medium to large (and statistically significant) increases in organized physical activity and increases in playing outside. There was also a slight decrease for the intervention group in the number of meals eaten in front of the television, though the differences were not statistically significant (Ford et al., 2002). A four-month primary-care-based assessment and counseling intervention involving adolescents showed the feasibility of such efforts and found short-term improvements in dietary and physical activity outcome measures (Patrick et al., 2001).

More generally, studies of counseling for adults may provide insights into the potential effectiveness of counseling for children and their parents. The USPSTF review of dietary intake counseling for adults in primary-care settings found it to be effective in reducing dietary fat consumption and

increasing fruit and vegetable consumption (Pignone et al., 2003). The best evidence was for patients with known risk factors for cardiovascular and other chronic diseases, but there was also fair evidence that brief counseling in primary care can produce some improvements in diet among unselected patients as well.

Similar reviews of studies that focused on physical activity counseling of adults in primary care found mixed results, although most of the studies showed a trend toward increased physical activity in the intervention groups (Sallis et al., 2000b; Eden et al., 2002). For example, a nonrandomized controlled trial in healthy sedentary adults found short-term increases in moderate physical activity, particularly walking, among those who had received three to five minutes of physical activity counseling by their physician (Calfas et al., 1996).

Although research on the effectiveness of counseling children and their caregivers about obesity prevention is limited to date, and much remains to be learned, the seriousness of the problem and the emergence of tested strategies argue for routine counseling. The evidence that routine smoking-cessation counseling is effective, at least in changing adult behaviors, is another precedent for this kind of guidance (DHHS, 2000a).

Additionally, as visible and influential members of their communities, health-care professionals can serve as role models for good nutrition, for being physically active, and for maintaining a healthy weight. Health-care professionals can also have influential voices in increasing community awareness and advocating for actions to prevent childhood obesity. By giving speeches or conducting workshops at schools, testifying before legislative bodies, working in community organizations, or speaking out in any number of other ways, health-care professionals can press for changes to make the community one that supports and facilitates healthful eating and physical activity. A notable precedent is that physicians and other health-care professionals have played crucial roles in changing tobacco-related behaviors; they have been advocates both at the local and national levels, and they have served as personal role models by quitting smoking or by not starting in the first place.

Pediatricians, family physicians, nurses, and other clinicians should take active roles in the prevention of obesity in children and youth. As discussed above, this includes routinely measuring height and weight; tracking BMI; and providing feedback, interpretation, counseling, and guidance on obesity prevention to children, parents, and other caregivers. This assumes that clinicians will have learned the appropriate skills to deliver these preventive services, which has implications for training at all levels (see below). They should also serve as role models for healthful eating and regular physical activity and take leadership roles in advocating for childhood obesity prevention in local schools and communities.

Similarly, health-care professional organizations and their members have important roles to play in advocating across the range of community institutions for obesity prevention activities and policies (AAP, 2003). Areas of possible involvement include health insurance coverage policies, school nutrition and physical education, and community recreation and zoning policies. Professional organizations can also be influential in encouraging their members to adopt a more healthful lifestyle and serve as role models to their patients as well as to become more active in their offices and communities in working to prevent obesity. For example, the leadership of the American Academy of Family Physicians (AAFP) has recently challenged all of its members to increase their personal physical activity levels in order to serve as role models for their patients (as well as improve their own health); additionally, AAFP has initiated a program called “Americans in Motion” to help patients, their families, and communities fight obesity (AAFP, 2004).

Furthermore, many professional organizations are providing information on topics relevant to obesity prevention. The American Academy of Pediatrics has issued position statements on children’s television viewing and on physical fitness and activity in schools (AAP, 2000, 2001). The American Medical Association recently published a 10-part monograph on assessment and treatment of adult obesity (Kushner, 2003); similar materials on children should also be prepared. Collaboration between groups could broaden their effectiveness; if health-care professional organizations work together to implement obesity prevention programs and initiatives and develop clinical guidance, they would help ensure that consistent messages are reaching both health-care professionals and their patients.

Health- and medical-care professional organizations should make childhood obesity prevention a high-priority goal for their organizations. This includes creating and disseminating evidence-based clinical guidance and other materials on obesity prevention; establishing programs to encourage members to be role models for proper nutrition and physical activity; advocating for childhood obesity prevention initiatives; and coordinating their efforts, wherever possible, with other health-care professional organizations.

It is also critical to address current limitations in health-care training with regard to obesity prevention, nutrition, and physical activity. Medical and other health-care students have traditionally received little education in nutrition and physical activity; further, instruction on counseling about these topics generally has not been included either in medical school or primary-care residency training curricula (Taren et al., 2001). Such omissions should be corrected in curricula at all levels, from preclinical science through the clinical training years and into postgraduate training programs and continuing medical education for practicing clinicians. In addition, if

certifying entities such as medical specialty boards included questions about these areas in their formal examinations, this would provide an incentive to students and residents to master the associated material. Programs such as the Nutrition Academic Award Program sponsored by the National Heart, Lung, and Blood Institute have begun to focus attention on improving nutrition education efforts in medical schools (Pearson et al., 2001), and further efforts are needed regarding other relevant areas. A recent Institute of Medicine report confirms the need for expanding behavioral and social-science content in medical schools' curricula (IOM, 2004). **Health-care professional schools, postgraduate training programs, continuing professional education programs, professional organizations, and certifying entities should require knowledge and skills related to obesity prevention (e.g., child and adolescent BMI interpretation, nutritional and physical activity counseling) in their curricula and examinations.**

Health-Care Insurers, Health Plans, and Quality Improvement and Accrediting Organizations

Until recently, health-care concerns had largely focused on the treatment—as opposed to the prevention—of obesity, particularly the severe forms of adult obesity. But epidemiologic data showing increases in the numbers of obese children and youth, along with a rise in the prevalence of type 2 diabetes (formerly termed “adult onset diabetes”) and increased hypertension in children (Muntner et al., 2004), have raised awareness that childhood obesity might be best addressed from a prevention perspective. Furthermore, the high economic costs of obesity (Chapter 2) provide incentives to health-care insurers and health plans to encourage healthful lifestyles and thereby reduce their costs.

The health-care insurance industry in particular has several paths by which it may address obesity prevention. For individuals and their families, health insurance companies and health plans can develop innovative strategies for encouraging policy holders and their children to maintain a healthy weight, increase their levels of physical activity, and improve the quality of their diet. Creative options may include incentives for participating in and documenting regular physical activity, or programs that provide discounts or other incentives for wellness-related products. For example, one insurance company includes discounts on health and wellness magazines as well as lowered fees for health club memberships and weight-reduction programs for adults (CIGNA, 2004). Furthermore, health-care insurers can take an active role in community coalitions and other activities; one example is the Jump Up and Go Program in Massachusetts (Blue Cross Blue Shield of Massachusetts, 2004). It will be particularly important for health-care insurers and health plans to consider incentives that are useful to high-

risk populations, who often live in areas where easy access to recreational facilities is lacking or where costs are prohibitive.

For the providers of health-care services, it is important that obesity prevention (including assessment of weight status as well as counseling on nutrition and physical activity) become a routine part of clinical care. Moreover, measures related to successful delivery of clinical preventive services, such as rates of screening tests, should be important components of health-care quality-improvement programs that are promoted by health plans. The National Committee for Quality Assurance (NCQA) and other national quality-improvement and accrediting organizations should add obesity prevention efforts—such as routine measurement and tracking of BMI, counseling of children and their parents on diet and exercise—to the measures they develop and assess.

There may also be opportunities for incorporating obesity prevention measures and counseling into ongoing federal, state, and local programs that provide disease prevention and health promotion services to children. For example, Medicaid's Early and Periodic Screening, Diagnostic, and Treatment program offers preventive screenings for eligible children (generally in underserved populations) and it includes a comprehensive health and developmental history. More than 8.7 million children participated in the screening program in 1998 (CMS, 2004), thus offering many potential opportunities for obesity prevention in children.

As with other sectors, those involved in delivering and paying for health care need to become more proactive, preferably through a multifocal, coordinated set of initiatives, in working with families to promote physical activity and healthful diets among children. Medicare has recently removed barriers to coverage for obesity-related services (DHHS, 2004). Although this, of course, does not relate directly to children, it is an action that may well be emulated by other insurers and for preventive services as well as for treatment.

Health insurers, health plans, and quality-improvement and accrediting organizations should designate childhood obesity prevention as a priority health promotion issue. Furthermore, health plans and health-care insurers should provide incentives to individuals and families to maintain healthy body weight and engage in routine physical activity. Health insurers, health plans, and quality improvement and accrediting organizations (such as NCQA) should include screening and obesity prevention services (e.g., routine assessment of BMI or other weight-status measures, counseling of children and their parents on nutrition and physical activity) in routine clinical practice and in quality assessment measures relating to health care.

Recommendation

The health-care community offers a range of opportunities for interactions with children and youth regarding obesity prevention. Several controlled trials of counseling by health-care providers have resulted in patient improvements in physical activity levels or diet, although these studies have generally been conducted with small numbers of patients and have focused on counseling of adult patients. Further research is needed on effective counseling or other types of obesity prevention interventions that could be provided in health-care settings. Improved professional education regarding obesity prevention is an important next step, as is the active involvement of health professional organizations, insurers, and accrediting organizations, in making childhood obesity prevention efforts a priority.

Recommendation 8: *Health Care*

Pediatricians, family physicians, nurses, and other clinicians should engage in the prevention of childhood obesity. Health-care professional organizations, insurers, and accrediting groups should support individual and population-based obesity prevention efforts.

To implement this recommendation:

- **Health-care professionals should routinely track BMI, offer relevant evidence-based counseling and guidance, serve as role models, and provide leadership in their communities for obesity prevention efforts.**
- **Professional organizations should disseminate evidence-based clinical guidance and establish programs on obesity prevention.**
- **Training programs and certifying entities should require obesity prevention knowledge and skills in their curricula and examinations.**
- **Insurers and accrediting organizations should provide incentives for maintaining healthy body weight and include screening and obesity preventive services in routine clinical practice and quality assessment measures.**

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Schools

Schools are one of the primary locations for reaching the nation's children and youth. In 2000, 53.2 million students were enrolled in public and private elementary and secondary schools in the United States (U.S. Department of Education, 2002). Many of these schools are also locations for preschool, child-care, and after-school programs in which large numbers of children participate.

The school environment has the potential to affect national obesity prevention efforts both because of the population reach and the amount of time that students spend at school each day. Children obtain about one-third¹ of their total daily energy requirement from school lunch (USDA, 2004a), and should expend about 50 percent of their daily energy expenditure while at school, depending on the length of their school day. Given that schools offer numerous and diverse opportunities for young people to learn about energy balance and to make decisions about food and physical activity behaviors, it is critically important that the school environment be structured to promote healthful eating and physical activity behaviors. Further-

¹These estimates are for a school day and do not take into account weekends, holidays, or school vacations. Students who eat breakfast at school could consume approximately 58 percent of their total daily energy requirement at school. This estimate is based on the federal School Breakfast Program's goal of providing one-fourth of the Recommended Dietary Allowances (RDAs) of certain nutrients through school breakfast and the National School Lunch Program's goal of providing one-third of the RDAs through school lunches (7CFR210.10; 7CFR220.8; USDA, 2004a).

more, consistency of the messages and opportunities across the school environment is vital—from the cafeteria, to the playground, to the classroom, to the gymnasium.

Increasingly, schools and school districts across the country are implementing innovative programs focused on improving student nutrition and increasing their physical activity levels. Parents, students, teachers, school administrators, and others play important roles in initiating these changes, and it is important to evaluate these efforts to determine whether they should be expanded, refined, or replaced and whether they should be further disseminated.

It is acknowledged that the school environment is complex, and schools face many economic and time constraints on their ability to address a broad array of student needs. Further, many food- and physical activity-related policies and practices are linked at multiple levels. A change in one practice may impact other areas of the school environment, either related directly to food or physical activity or indirectly to other areas (such as academic, extracurricular, financial, or administrative). The recommended actions, described below, therefore, were developed with the goal of being implemented concurrently and not as stand-alone strategies. Moreover, these actions should reinforce and support each other not only in the schools but in other settings, including the community and home environments (Chapters 6 and 8). Recommendations regarding schools also must acknowledge the diverse ways in which public schools are governed and funded throughout the United States. Although public school governance is primarily local (school boards that oversee school districts), there is variability in the additional role that states play (NRC, 1999).

The recommended actions in this chapter are intended to apply, as relevant, to all the settings where children and youth spend a majority of their organized time outside the home. For most children and youth over the age of 5 years, this will be a school setting (i.e., elementary school, middle school, or high school). For children below the age of 5 years, this may be kindergarten, formal preschool, early childhood education program, child development center, child-care center, or family or other informal child-care setting.

FOOD AND BEVERAGES IN SCHOOLS

The school food environment has undergone a rapid transition from a fairly simple to a highly complex environment, particularly in high schools. Traditionally, school cafeterias offered only the U.S. Department of Agriculture (USDA) federally subsidized school meal, which is required to meet defined nutritional standards. Recently there have been increases, however, in the amount of “à la carte” foods and beverages—items offered individu-

ally and not as part of a school meal—sold in or near the school cafeteria in tandem with the federally reimbursed school meal. Individual foods and beverages are also sold or served in vending machines, at school stores, or at school fundraisers.

Foods and Beverages Sold in Schools

Federal School Meal Programs

The National School Lunch Program (NSLP) was established in 1946 to “safeguard the health and well-being of the Nation’s children and to encourage the domestic consumption of nutritious agricultural commodities and other food” (7CFR210.1). Each school day approximately 28 million school-aged children participate in the NSLP and some 8 million participate in the School Breakfast Program (SBP) (USDA, 2003).

Nutrition guidelines for the school meal programs have been revised periodically to maintain consistency with changes in nutritional recommendations. Current regulations for the programs require that the meals be consistent with the Dietary Guidelines for Americans and adhere to the RDAs for energy, protein, calcium, iron, vitamin A, and vitamin C. These guidelines are described in Box 7-1.

Several food-based menu-planning approaches are used in the NSLP to ensure that lunches and breakfasts are nutritionally balanced. The majority of schools use the “traditional” food-based menu-planning system, which

BOX 7-1 **USDA Requirements for School Meal Programs**

- Meet the applicable recommendations of the Dietary Guidelines for Americans, which recommend that no more than 30 percent of an individual’s calories come from fat, and that less than 10 percent from saturated fat.
- Provide one-third of the RDAs of protein, vitamin A, vitamin C, iron, and calcium through school lunches and provide one-fourth of the RDA requirements through school breakfasts.
- “Foods of minimal nutritional value” (FMNV) as defined by federal regulations, cannot be sold in food service areas during the school meal periods. The four categories of foods defined as FMNV are soda water, water ices, chewing gum, and certain candies (including hard candy, jellies and gums, marshmallow candies, fondant, licorice, and spun candy).

SOURCES: 7CFR210.10; 7CFR220.8; 7CFR Appendix B to Part 210.

requires school lunches to offer five food items selected from four food types: fluid milk; meat or meat alternative; at least one serving of bread or grain products; and two or more servings of fruit, vegetables, or both. A second approach is the “nutrient-based” menu-planning approach used by about one-fourth of schools (USDA, 2004c). School food authorities prepare a nutrient analysis of meals for a one-week period to determine whether these meals meet the nutritional requirements outlined by the dietary guidelines (USDA, 2004b). Schools that use this approach must serve milk and offer at least one entrée and one side dish per meal. Requirements for fruit and vegetable servings are not specified under the current guidelines (USDA, 2004b), and it should be noted that high-calorie, energy-dense items (e.g., cookies, cake, and batter-fried foods) can be served to students as part of their school meals.

The target goals for the NSLP and SBP are that no more than 30 percent of calories should come from fat and less than 10 percent of calories from saturated fat (USDA, 2004b). Because milk with high saturated fat content has been a particular concern regarding the students’ dietary intake, schools were required to offer both whole and low-fat milk (currently defined as having 1 percent fat content or less) beginning in 1994 (USDA, 2004b).

In response to research in the early 1990s indicating that school meals were generally not meeting key nutritional goals, USDA launched the School Meals Initiative for Healthy Children in 1995, which provides schools with educational and technical resources for meal planning and preparation (USDA, 2001b). According to data from the second School Nutrition Dietary Assessment Study (SNDAS-II), a nationally representative study of the NSLP and SBP conducted in the 1998-1999 school year, lunches in elementary schools provided an average of 33 percent of calories from fat (target goal is 30 percent or less) and 12 percent of calories from saturated fat (target goal is less than 10 percent). The average lunch in secondary schools provided about 35 percent of calories from fat and 12 percent of calories from saturated fat, also failing to meet the targets (USDA, 2001b). However, compared with the first SNDAS survey in the 1991-1992 school year, there were significant increases in the percentages of schools that served meals consistent with the Dietary Guidelines regarding fat and saturated fat content. In the second survey, approximately two-thirds of NSLP menus offered two fruit and vegetable choices, and more than 25 percent included five or more fruit and vegetable choices (USDA, 2001b).

All students are eligible to take advantage of the NSLP and SBP. The 1998-1999 SNDAS-II survey found that approximately 60 percent of students at participating schools did so, either through full-price or reduced-cost purchase or by being eligible to receive free meals. Participation was highest in elementary schools (67 percent) and lowest in high schools (39

percent) (USDA, 2001b). Participation was highest among students approved to receive free meals (80 percent) as compared with students receiving reduced-price meals (69 percent) or students paying full price (48 percent).

Only a few studies have compared dietary quality of NSLP participants and nonparticipants. Cullen and colleagues (2000) found that fifth-grade students who selected only the NSLP meal reported consuming up to twice as many servings of fruit, juice, and vegetables than students who ate from the snack bar or brought their lunch from home. In a two-year follow-up study, diets of students as fourth-graders (when they had access to NSLP lunches only) were compared with their diets during the subsequent year, when as fifth-graders they had access to the snack bar in middle school (Cullen and Zakeri, 2004). During that second year the students consumed fewer fruits, fewer nonfried vegetables, less milk, and more sweetened beverages.

Competitive Foods

The term “competitive foods” is used to describe all foods and beverages served or sold in schools that are not part of the federal school meal programs. This includes “à la carte” foods and beverages offered by the school food service; items sold from vending machines located inside or outside the school cafeteria; foods and beverages sold anywhere in the school as part of fundraising efforts by student, faculty, or parent groups; items served in the classroom for snacks and rewards; and foods and beverages made available during after-school activities. As discussed below, competitive foods from these various sources are typically lower in nutritional quality than those offered as part of the school meal programs.

Current federal nutritional guidelines for competitive foods are limited. Foods of “minimal nutritional value”—narrowly defined primarily as soft drinks and certain types of candy (Box 7-1) (7 CFR Appendix B to Part 210)—are prohibited from sale in the school cafeteria while meals are being served. However, no other national standards currently exist to screen competitive foods for nutritional quality within the school setting. Thus items of low nutrient density or high energy density, including cookies, candy bars, potato chips, and other salty or high-fat snack foods, are often allowed for sale in direct competition with the school meals. Furthermore, federal guidelines do not prohibit foods of minimal nutritional value from being sold in vending machines near the cafeteria or at other school locations.

States and school districts, however, may implement their own more-restrictive policies regarding competitive foods, and many states have passed legislation that limits the types of foods allowed for sale in the schools and

the hours during which they are available. A recent report by the General Accounting Office (GAO) found that 21 states had policies that restrict competitive foods beyond USDA regulations (GAO, 2004). For example, California has mandated guidelines for foods and beverages offered in schools. This 2001 legislation includes a provision for funding pilot programs that would, among other things, require fruits and vegetables to be offered for sale in any school location where food or beverages are sold. Additionally, the board of the Los Angeles Unified School District in 2001 voted to implement standards for beverages, which led to a ban on the sale of carbonated beverages on all school campuses (Los Angeles Unified School District, 2004). West Virginia prohibits schools from serving or selling candy bars, foods, or drinks consisting of 40 percent or more added sugar or other sweeteners; juice or juice products containing less than 20 percent real juice; and foods with more than 8 grams of fat per 1-ounce serving. In addition, all soft drinks are prohibited in West Virginia elementary and middle schools (Stuhldreher et al., 1998; Wechsler et al., 2000). Local schools and school districts are also implementing their own restrictions on competitive foods (GAO, 2004). The issues surrounding competitive foods are currently being discussed in many other states and school districts.

Specific policies and nutritional standards are still needed, however, in most school districts. Data from the 2000 School Health Policies and Programs Study (SHPPS) found that only about 40 percent of school districts, but almost no state governments, required schools to offer a choice of two or more fruits or two or more vegetables at lunch time (Wechsler et al., 2001). With the exception of California, the 2000 SHPPS found that no states require schools to offer fruits and vegetables in school stores, snack bars, or vending machines. At the district level, 3.7 percent of school districts require fruits and vegetables to be available in school stores and snack bars, and 1.7 percent require fruits and vegetables to be available in vending machines (Wechsler et al., 2001). A recent statewide survey of Minnesota secondary school principals found that only 32 percent of their schools had policies of any kind about nutrition and food and that 18 percent had policies regarding items sold from school vending machines (French et al., 2002). Seventy-seven percent of these school principals reported having vending machine contracts with soft drink companies.

Competitive foods represent a significant share of the foods that students purchase and consume at school, particularly in high schools (Wechsler et al., 2001). National survey data from the 2000 SHPPS show that competitive foods are widely available in many elementary schools, most middle schools, and almost all secondary schools (Wechsler et al., 2001). In 2000, food and beverage items were sold to students from vending machines, school stores, or snack bars in 98 percent of secondary schools, 74 percent of middle schools, and 43 percent of elementary schools.

Data from a recent study of 20 high schools in Minnesota found a median of 11 vending machines in each school—typically four soft drink machines, five machines dispensing other beverages (e.g., fruit juice, sports drinks, or water), and two snack machines (French et al., 2003).

Available data show that competitive foods are often high in energy density (often high fat or high sugar) and low in nutrient density (Story et al., 1996; Harnack et al., 2000; Wechsler et al., 2001; Zive et al., 2002; French et al., 2003). National data from the SHPPS survey show that 80 percent of the à la carte areas in high schools sell high-fat cookies and baked goods, and 24 percent sell chocolate candy (Wechsler et al., 2001). Although fruits and vegetables are generally available—they are sold in the à la carte areas of 68 percent of elementary schools, 74 percent of middle schools, and 90 percent of secondary schools—energy-dense foods tend to comprise the majority of competitive foods offered for sale. For example, at the 20 Minnesota high schools noted above, chips, cookies, pastry, candy, and ice cream accounted for 51.1 percent of all à la carte foods offered, while fruits and vegetables were at 4.5 percent, and salads 0.2 percent (French et al., 2003).

Because students' food choices are influenced by the total food environment, the simple availability of healthful foods such as fruits and vegetables may not be sufficient to prompt the choice of these targeted items when other food items of high palatability (often high-fat or high-sugar items) are easily accessible, especially those that are heavily marketed to children and youth. Data from two recent studies conducted in middle schools provide empirical evidence for this hypothesis (Cullen et al., 2000; Kubik et al., 2003). Fruit and vegetable intake was lower among students at schools where à la carte foods were available, in comparison with schools where à la carte foods were not available. Not surprisingly, when given the choice many students select the higher fat and higher sugar items. However, data from a recent randomized trial involving 20 high schools indicate that offering a wider range of healthful foods can be an effective way to promote better food choices among high school students (French et al., 2004). In combination with student-led schoolwide promotions, increases in the availability of healthier à la carte foods led to significant increases in sales of the targeted foods to students over a 2-year period. Taken together, such findings suggest that restricting the availability of high-calorie, energy-dense foods in schools while increasing the availability of healthful foods might be an effective strategy for promoting more healthful food choices among students in schools.

The present reality, however, falls short of this situation. The rapid growth in the availability and marketing of à la carte foods and beverages, of soft drinks and other high-sugar beverages in school vending machines, and of other sources of competitive foods throughout the school environ-

ment has become an important issue. Bearing significantly as it does on student nutrition and obesity prevention efforts, this issue urgently needs attention from leaders at national, state, and local levels. New policies are needed, both to ensure that the foods available at schools are consistent with current nutritional guidelines and to support the goal of preventing excess energy intake among students and helping students achieve energy balance at a healthy weight.

School-Based Dietary Intervention Studies

School-based interventions to improve food choices and dietary quality among students have been designed primarily as multifaceted interventions that include one or more of the following components:

- Changes in food service and the food environment (e.g., food availability, preparation methods, price)
- Promotional activities (cafeteria-based or schoolwide)
- Classroom curricula on nutrition education and behavioral skills
- Parental involvement (e.g., informational newsletters or parent-child home activities).

Most often these interventions have targeted total fat, saturated fat, or fruit and vegetable intake. In addition, they may have addressed other weight-related behaviors such as physical activity or television viewing (reviewed later in this chapter). This section focuses on the large-scale controlled intervention studies that have examined weight status or body mass index (BMI) changes as an outcome measure. A much larger literature exists on school-based interventions to change the dietary behaviors of students, including the 5-A-Day and Know Your Body studies (Walter et al., 1985; Hearn et al., 1998).

Evaluation of the literature on such interventions is complicated because of their variety and the multicomponent nature of their designs, making comparisons of results difficult. In addition, differences exist across studies in the number and types of food-related behaviors and age groups targeted. Studies based in elementary, middle, and high schools differ not only in the developmental stage of the students, but in the corresponding physical and social environments, which contrast dramatically, for example, in the availability of à la carte foods, fast foods, snack bars, and vending machines. High school students are also more likely than elementary or middle school students to leave campus during the lunch period. These variables may moderate the effects of interventions designed to influence food choices in the school setting.

The Child and Adolescent Trial for Cardiovascular Health (CATCH), the largest and most comprehensive school-based intervention yet undertaken, targeted diet and physical activity behaviors as secondary outcome variables (Box 7-2). This randomized trial involving 96 elementary schools did not result in significant changes in body weight; however, significant changes did occur in the school food environment and in reported dietary intakes by students (Luepker et al., 1996). Compared to control schools, the fat content of meals at the intervention school meals was substantially lowered, and intervention students' reported dietary fat intake was significantly reduced relative to that of control students. Also, as noted below in the discussion on physical activity, the percentage of physical education classroom time with moderate to vigorous physical activity increased in the intervention schools. The researchers speculated that the reasons for the lack of changes in physiologic risk factors may be related to the growth and development stage of the students or to the relatively low magnitude of the changes in food intake and physical activity levels (Luepker et al., 1996).

Pathways, a large, multicomponent school-based intervention designed as an obesity prevention study, was conducted among third- to fifth-grade American-Indian children in reservation schools over a 3-year period (Caballero et al., 1998). Pathways did not significantly affect body-weight change, but significant intervention-related changes were observed for some dietary and physical activity behaviors, including lower fat intake and higher self-reported physical activity levels in the students in the intervention schools (Caballero et al., 2003). The goal of the food service intervention—to reduce the fat content of the school meals—was achieved. Both the CATCH and Pathways interventions show the feasibility of making positive changes in the school food environment, but also the challenges still to be faced in designing primary obesity prevention interventions in schools. As pointed out by the researchers in the Pathways study, restriction of energy intake is not an option in schools because there are students who are below the fifth BMI percentile, additionally, the school meals programs have to meet minimum mandatory levels for calorie content (Caballero et al., 2003).

Several other school-based intervention studies have shown significant effects on body-weight outcomes; these studies tested multicomponent interventions not limited only to targeting dietary change. Planet Health reported reductions in the prevalence of obesity among girls only (Gortmaker et al., 1999), and the Stanford Adolescent Heart Health Program observed reductions in BMI, triceps skinfold thickness, and subscapular skinfold thickness among boys and girls (Killen et al., 1988).

Overall, school-based interventions, both multicomponent and single component, have produced healthful food choices among students. Envi-

BOX 7-2 **Selected School-Based Interventions**

Child and Adolescent Trial for Cardiovascular Health (CATCH)—Designed as a health behavior intervention for the primary prevention of cardiovascular disease, CATCH was evaluated in a randomized field trial in 96 elementary schools in California, Louisiana, Minnesota, and Texas (Luepker et al., 1996). CATCH schools received school food service modifications and food service personnel training, physical education (PE) interventions and teacher training, and classroom curricula that addressed eating behaviors, physical activity, and smoking (Luepker et al., 1996). The primary individual outcome examined was change in serum cholesterol concentration; school-based outcomes were also examined.

Pathways—Designed to reduce obesity in American-Indian children in grades three through five, a randomized trial was conducted in 41 schools serving American-Indian communities in Arizona, New Mexico, and South Dakota (Caballero et al., 1998; Davis et al., 1999). This multicomponent program involved incorporation of high-energy activities in PE classes and recess; food service training and nutritional educational materials; classroom curricula enhancements; and family efforts including family fun nights, take-home action- and snack-packs, and family advisory councils. The primary outcome measure was the mean difference between intervention and control schools in percentage of body fat at the end of the fifth grade.

Planet Health—A curriculum-based health intervention, Planet Health lessons were integrated into the math, language arts, social studies, science, and PE curricula of grades six through eight. The lessons focus on teaching better dietary

ronmental interventions, which target reduced consumption of high-fat foods and greater intake of fruits and vegetables through variations in availability, pricing, and promotion in the school environment (Whitaker et al., 1993, 1994; Luepker et al., 1996; Caballero et al., 1998; Perry et al., 1998, 2004; Reynolds et al., 2000; French et al., 2001, 2004; French and Stables, 2003) may have a particularly significant independent effect on food choices (French et al., 2001; French and Stables, 2003). But their impacts are perhaps smaller in magnitude than when deployed as part of a multicomponent intervention program (Perry et al., 1998, 2004; French et al., 2001; French and Stables, 2003).

Because classroom education/behavioral skills curricula, for example, have typically been embedded in a multicomponent program, the effectiveness of this intervention component is difficult to evaluate as an isolated strategy. Furthermore, caution is needed in interpreting studies of self-reports of dietary intakes, which may be subject to reporting errors and bias.

habits, promoting physical activity, and reducing television viewing (Gortmaker et al., 1999). Evaluation of the intervention involved comparing obesity prevalence and behavioral changes among students in five intervention and five control schools in the Boston area.

Sports, Play and Active Recreation for Kids (SPARK)—A school-based intervention designed to improve the quantity and quality of physical education, the evaluation involved seven elementary schools in southern California in a 3-year study (McKenzie et al., 1997). The SPARK program involves enhancements to the PE curriculum, implementation of a self-management curriculum, and teacher in-service training programs. Outcomes assessed included changes in student BMI and physical activity levels.

Stanford Adolescent Heart Health Program—Designed to reduce cardiovascular disease risk factors in high school students, the intervention consisted of 20 50-minute classroom sessions on physical activity, nutrition, smoking, and stress (Killen et al., 1988). The evaluation of the intervention compared the results of 10th-grade students in four high schools in northern California on behavioral changes and physiological variables including BMI.

Stanford S.M.A.R.T. (Student Media Awareness to Reduce Television)—Designed to motivate children to reduce their television watching and video game usage, the intervention was evaluated in two elementary schools in California (Robinson, 1999). Students in the intervention third- and fourth-grade classrooms participated in an 18-lesson, six-month curriculum and families could use an electronic television time manager. The primary outcome measure was BMI; other physiologic variables and behavioral changes were also assessed.

Recent and Ongoing Pilot Program

Several pilot programs have been developed at the school, district, state, and federal levels to explore strategies to increase fruit and vegetable consumption among students in school. The committee is not aware of any published outcome evaluation of these studies but the programs are described here to illustrate current approaches that may warrant continued funding and more systematic analysis. The most recent and perhaps largest effort to increase the availability and consumption of fresh fruits and vegetables was implemented by USDA during the 2002-2003 school year (Buzby et al., 2003). One hundred schools in four states (Indiana, Iowa, Michigan, and Ohio) and seven schools in New Mexico's Zuni Indian Tribal Organization participated in the pilot program, which distributed fruit and vegetables free to participating schools. Schools could choose when and how to distribute the produce to students. The program requested, however, that the fruits and vegetables be made available to students outside the regular school meal periods. Due to limited funding, no

quantitative data were collected on the effects of the program on students' fruit and vegetable consumption or on any other dietary outcomes. However, schools and school food-service staff reported that the program was positively received (Buzby et al., 2003), and there are plans to expand the program. A similar program was developed and pilot-tested on a national basis in the United Kingdom beginning in 2000. As far as the committee is aware, no quantitative evaluation data are available (United Kingdom Department of Health, 2002).

The Department of Defense's Fresh Produce Program has been working with schools in several states to provide fresh produce for the school meal programs. Schools have also begun to incorporate produce from school gardens (Morris and Zidenberg-Cherr, 2002; Stone, 2002), school salad bars (USDA, 2002), and farmers' markets (Misako and Fisher, 2002) into the school meal program in an effort to increase student participation and specifically to increase their fruit and vegetable consumption (Box 7-3). Evaluation of these and other similar programs is important in determining the effects of these changes on student dietary behaviors.

Next Steps

As discussed above, several large-scale school-based intervention studies demonstrate that changes in the school food environment can impact students' dietary choices and improve the nutrient quality of their diets while at school.

Schools, school districts, and state educational agencies need to ensure that all meals served or sold in schools are in compliance with the Dietary Guidelines for Americans. Additionally, schools should focus on improving

BOX 7-3 Edible Schoolyard

The Edible Schoolyard is a nonprofit program conducted at the Martin Luther King Junior Middle School in Berkeley, California, a public school for sixth- through eighth-graders. Students participate in all phases of the Seed to Table approach—planting vegetables, grains, and fruits; tending and harvesting the crops; preparing meals with the produce they have grown; and recycling the vegetable scraps back to the garden. This cooking and gardening program involves classroom lessons and hands-on experience in the garden and in the kitchen. The program's goals include an enhanced understanding of the cycle of food production; the focus of evaluation efforts to date has been on ecoliteracy.

SOURCE: Edible Schoolyard, 2004.

food quality in the school meal programs. Increasing the availability of whole-grain foods, low-fat milk, and fresh local produce will not only be more healthful for participating students, but has the potential to attract greater participation.

Current nutritional standards are extremely limited for regulating competitive foods sold in schools, and many schools are selling high-calorie, energy-dense food and beverage items, often in competition with school meal programs. To ensure that foods and beverages sold or served to students in school are healthful, **USDA, with independent scientific advice, should establish nutritional standards for all food and beverage items served or sold in schools.** Such standards need to be applied to *all* meals and *all* foods and beverages served or sold within the school environment.² Among the many nutritional issues, consideration should be given to setting standards for the fat and sugar content of school foods, because they are often high in calories and in energy density. **State education agencies and local school boards should adopt and implement these standards or develop stricter standards for their local schools.** Without such schoolwide standards, different sources compete for student sales under unequal conditions. Such competitive practices often give unfair advantage to those selling less healthful food and beverage items to students. Providing and enforcing uniform standards for meals, foods, and beverages on a schoolwide basis also establishes a social norm for healthful eating behaviors. The standards ensure that the school environment is one in which healthful eating is promoted and modeled, consistent with nutrition education messages taught in the classroom.

It is important that evaluations be conducted to assess the impact of changes on competitive foods' nutritional value and availability, on student dietary quality, and on revenues generated by food and beverage sales. Evaluations of the school food environment may benefit from point-of-service purchase information available from automated systems in school cafeterias. Additionally, evaluations of the efficacy and effectiveness of school-based multicomponent interventions are needed to determine whether these programs should be continued, replicated, expanded, or replaced.

In efforts to make changes in school foods, the school food industry should be an important partner in developing innovative approaches to preparing and serving healthful foods and beverages. Training of school

²Such changes in federal regulations may require changes in USDA's authority, as USDA's current authority extends only to foods sold in the cafeteria and other school food-service areas during school meal periods (GAO, 2004).

nutrition and food-service personnel should include a focus on obesity prevention efforts. Furthermore, as schools are built or renovated, school districts should take into consideration plans for school kitchens that have adequate preparation and serving space as well as plans for school cafeterias that are of adequate size and layout so that students will not be rushed, uncomfortable, or scheduled to eat lunch too early or too late in the school day.

Funding and Sales of School Meals and Competitive Foods

School Meal Funding

School nutrition programs are financially self-supporting and must generate sufficient revenues to pay for food-service staff, food purchases, and equipment. Schools that participate in the NSLP receive a fixed amount of reimbursement for each school meal served. Federal reimbursement rates are typically 9 to 10 times higher for free meals than for reduced-price or paid meals (FNS/USDA, 2003). Although some states contribute a supplemental amount and most schools also receive donated commodity foods through USDA, federal reimbursements at their present levels are insufficient to cover the remainder of the meals' actual costs.

To generate funds needed to function, school food services often sell additional foods and beverages that are not part of the school meals program (GAO, 2003). As noted earlier, these items are called "competitive foods" because they compete with the meal programs for students' spending on foods and beverages while in school. Thus, the federal funding structure places a school food service in the paradoxical situation of competing with itself as well as with other sources that sell food or beverages in school—such as student groups or the school administration (through vending machine contracts)—for student patronage.

In fact, the nationwide SNDAS-II school survey found that sales of à la carte items were inversely related to sales of NSLP meals (USDA, 2001b). Not surprisingly, states that restricted competitive food sales, such as Georgia, Louisiana, Mississippi, and West Virginia, had school meal program participation rates that were higher than the national average (USDA, 2001a).

Full funding for the school meal programs could relieve the pressure on schools' food services to generate extra funding through the sales of competitive foods. Such a policy may enhance food services by focusing on providing high-quality nutritious meals to encourage maximum participation and may also help alleviate any perceptions among students that only low-income individuals eat the school meals.

Sales of Competitive Foods

Local schools and school education agencies should consider examining policies and practices on the sale of competitive foods and beverages, including those sold in vending machines and as fundraisers. As discussed above, these foods and beverages are often calorie-laden and low in nutrient density. If nutritional standards are developed and implemented for competitive foods and beverages, as recommended in this report, the standards would apply to all food and beverage items sold in the schools, including those sold through vending machines and in fundraising. As seen in states and districts that have already implemented nutritional standards, the result of these standards and policies is that soft drinks and energy-dense foods are often precluded from being sold. The goal is, of course, a “win-win” situation where sales of healthful foods and beverages in vending machines and other venues would be more healthful for students as well as profitable to schools and school groups.

Current policies vary widely between schools and school districts about how funds are used from the different types of food and beverage sales. Vending machine revenues are often used by school administrators for discretionary budget purposes (Wechsler et al., 2000); examples include purchases of computers, sports equipment, and funding of other school programs and activities that are not funded in the school budget (Nestle, 2000). One of the issues that has been raised is the exclusivity of some schools’ marketing contracts with specific soft drink companies that may include financial and in-kind incentives for the volume of beverages sold (Nestle, 2000; Wechsler et al., 2000).

Food and beverage sales have been used at special events to generate funds needed by student groups, school administrators, and booster clubs to support worthwhile activities such as field trips or the acquisition of uniforms, equipment, or other supplies that are not covered by existing budgets. Schools and school districts should consider adopting policies to discourage the sale of foods and beverages and instead encourage other types of fundraising activities, such as walkathons or fun runs.

Pricing strategies may also be an effective means of promoting the sales of healthful foods, while discouraging sales of high-fat or energy-dense foods and beverages. In an initial pilot study, purchase of fresh fruit and vegetables from à la carte areas in two high schools increased two- to four-fold when prices were reduced by 50 percent (French et al., 1997). In a second study over a 2-year period at 12 high schools and 12 worksites, purchases of more healthful vending machine snacks successively increased when prices of lower fat foods were reduced by 10 percent, 25 percent, and 50 percent compared to prices of the higher fat snacks that were also available (French et al., 2001). Importantly, no significant reduction in

vending machine profits were observed during the price reduction intervention. More generally, reducing the prices of targeted foods has consistently produced increases in their purchase among adolescents in school settings, regardless of whether the target foods were vending machine snacks or fresh fruits and vegetables sold in food-service areas.

These pilot studies point to the need for further research and evaluation of pricing strategies. If competitive food sales to students continue, school food services should consider the strategy of price increases on higher fat, low-nutrient-dense foods in tandem with lower prices on more healthful foods (Hannan et al., 2002). This strategy could achieve the dual goals of promoting healthful food choices among students and maintaining needed school food-service revenues.

Next Steps

Innovative approaches are needed to encourage students to consume nutritious foods and beverages. Pilot programs offer the potential to implement and carefully evaluate a variety of strategies related to pricing and funding issues.

The committee proposes that USDA conduct pilot studies to examine the benefits and costs of providing full funding for school breakfast, lunch, and snack programs in a targeted subset of schools that include a large percentage of children at high risk for obesity. Outcomes to be examined would include the impact on student nutritional status and on obesity prevalence. It may also be valuable to examine whether the cost of providing free meals is less expensive than the cost to monitor and track free and reduced-price eligibility for school meals.

Pilot programs could also be used to develop, implement, and evaluate alternative models to financially support school and student programs without relying significantly on food and beverage sales.

Experimental research is needed to examine the effects of school-based interventions and policy changes on students' dietary intake and eating behaviors. For example, changes in food availability and access to both healthful and less healthful foods, pricing of foods and beverages sold through competitive food sources and pricing of the school meals, promotional programs to support healthful food choices, and corporate-sponsored in-school food and beverage marketing activities need to be evaluated to determine their effects on students' diet and eating behaviors. Experimental and quasi-experimental studies are needed to evaluate the effects of school- and district-level policies regarding school food and beverage availability and marketing on student dietary intake and on school revenues. Academic performance and classroom and social behavior are secondary outcomes of interest.

It is important to note that research should also focus on food service at child-care centers, preschools, and other sites that serve meals to young children. More needs to be known about improving nutrition for young children.

PHYSICAL ACTIVITY

At a time when many children and youth need to increase their physical activity levels, schools offer the environment, the facilities, and the teachers not only for meeting students' current physical activity needs, but for helping them form the lifelong habits of incorporating physical activity into their daily lives. As discussed in Chapter 3, current recommendations are for children to accumulate a minimum of 60 minutes of moderate to vigorous physical activity each day (Biddle et al., 1998; USDA and DHHS, 2000; Cavill et al., 2001; IOM, 2002; NASPE, 2004). Because children spend over half of their day in school, the committee felt it reasonable to recommend that at least 30 minutes, or half of the recommended daily physical activity time, be accrued during the school day. In addition to its contribution to preventing obesity, regular physical activity has numerous ancillary health and well-being benefits (Chapter 3).

Researchers are examining the extent and nature of the relationship between increased physical activity and enhanced academic performance, but the results to date are inconclusive. In a study involving 7,961 Australian children, Dwyer and colleagues (2001) found that higher academic performance was positively associated with physical fitness and physical activity. Other cross-sectional studies and a few limited longitudinal studies have found similar results, although correlations are often weak (reviewed by Shephard, 1997). Explanations for a positive association include improved motor development, increased self-esteem, and improved behavior due to physical activity; however, there are numerous confounders, including genetic factors, family environment, and changes in teacher and student attitudes.

Physical Education Classes and Recess During School Hours

Daily physical education (PE) for all students is a goal supported by several national health- and education-related organizations, including the National Association for Sport and Physical Education, the American Academy of Pediatrics, and the U.S. Department of Health and Human Services (CDC, 1997; AAP, 2000; DHHS, 2000; NASPE, 2004). But although more than three-fourths of the states and school districts responding to the SHPPS survey required that PE be taught, the nature and duration of the classes varied widely in practice (Burgeson et al., 2001) and the percentages requir-

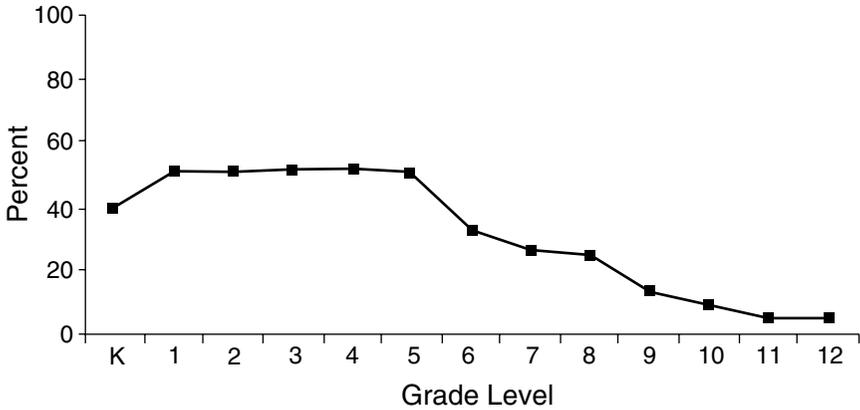


FIGURE 7-1 Percentage of schools that require physical education, by grade. SHPPS 2000.

SOURCE: Burgeson et al., 2001.

ing PE for all students were low. Only 8.0 percent of elementary schools, 6.4 percent of middle/junior high schools and 5.8 percent of senior high schools provided daily PE³ for the entire school year for all of the students in each grade. Higher percentages of schools (though generally less than one-third) provided PE three days a week or for part of the school year for all students (Burgeson et al., 2001), but for the grades after elementary school the percentages steadily decreased (Figure 7-1 and Figure 7-2).

There have also been concerns about the nature and duration of physical activity levels during PE classes. The 2000 SHPPS survey found that in a typical PE class (lasting an average of 45 minutes), students at all levels spent an average of 15.3 minutes participating in games, sports, or dance and 9.6 minutes doing skill drills (Burgeson et al., 2001). Of the 55.7 percent of high school students who reported participating in PE class in the 2003 YRBSS survey, 80.3 percent reported that they exercised or played sports for more than 20 minutes in the average PE class (CDC, 2004b). Simons-Morton and colleagues (1993) found that in a typical 30-minute elementary school PE class, the average child was vigorously active for only two to three minutes (approximately 9 percent of the class time).

Traditionally PE teachers have been trained to conduct classes around

³Daily PE was defined as 150 minutes per week of PE class for elementary school students and 225 minutes for both middle/junior high and senior high school students (Burgeson et al., 2001).

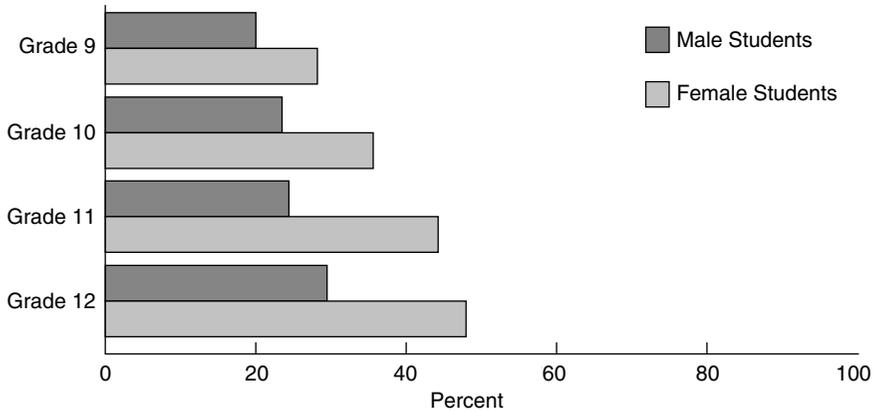


FIGURE 7-2 High school students not engaging in recommended amounts of physical activity (neither moderate nor vigorous) by grade and sex, United States, 2001. SOURCE: CDC, 2003.

a motor skill instruction paradigm. There are opportunities for exploring a variety of teaching methods that both optimize physical activity and that make PE classes more fun. Including a range of physical activity interests including dance and nontraditional activities such as Tai Chi and kick boxing is also important.

Recess is generally defined as unstructured time for physical activity during the school day. The Centers for Disease Control and Prevention's (CDC's) Guidelines for School and Community Programs to Promote Lifelong Physical Activity Among Young People recommend that schools provide ample time for unstructured physical activity and that this time should complement, not substitute for, PE classes (CDC, 1997). Elementary schools differ greatly in their recess policies. While only a small minority of states actually require elementary schools to provide students with regularly scheduled recess, many more (22.4 percent) recommend this practice (Burgeson et al., 2001). Among elementary schools surveyed in the 2000 SHPPS, 71.4 percent provided recess for all grades, and 96.9 percent offered regularly scheduled recess during the school day for students in at least one grade. (Burgeson et al., 2001). Among these schools, students were scheduled to have recess an average of 4.9 days per week for an average of 30.4 minutes per day.

Alternative approaches for incorporating physical activity into the school day continue to be explored and include integrating brief episodes of physical activity into the classroom curriculum.

School-Based Interventions

There have been few studies examining the possible correlations between PE enrollments and physical activity levels. Using the 1990 YRBSS data, Pate and colleagues (1996) found that 59 percent of high-active students were enrolled in PE as compared to 29 percent of low-active students. As described below, several large-scale school-based intervention studies have demonstrated increases in physical activity in PE classes, but only in isolated smaller scale studies have school interventions increased physical fitness, reduced obesity, or increased physical activity outside of PE classes.

To date, interventions focused on elementary school children have been the most successful at increasing activity levels, with interventions such as Go For Health (Simons-Morton et al., 1997) and SPARK (Sallis et al., 1997) reporting significant increases in the amount of moderate to vigorous physical activity performed during PE classes. In the SPARK intervention, students in the classes taught by physical education specialists spent more time being physically active (40 minutes) than those in the teacher-led classes (33 minutes) or those in control classes (18 minutes) (Sallis et al., 1997).

The largest elementary-school-based intervention to date has been CATCH, a multicenter trial (described above) that tested the effectiveness of a cardiovascular health promotion program in 96 elementary schools. Students in CATCH intervention schools participated in significantly more moderate-to-vigorous physical activity during PE classes than did students in control schools, but significant improvements in physical fitness levels or body weight were not observed (Luepker et al., 1996). An assessment of CATCH 5 years later found that the proportion of PE time spent in moderate to vigorous physical activity had been maintained in intervention schools, but vigorous activity levels declined (McKenzie et al., 2003). School-based programs are less likely to increase physical activity outside of PE classes, although students in the CATCH intervention schools did report participating in more vigorous physical activity during out-of-school hours, an effect that a 3-year follow-up study noted was still being maintained (Nader et al., 1999).

Although some elementary-school-based interventions have shown increased physical activity in PE classes, few have shown significant effects on physiological health risk variables such as body weight or composition. One notable exception was the South Australian Daily Physical Activity Program (Dwyer et al., 1983), which observed the effects of two interventions that markedly increased the exposure of elementary school children to PE. The first intervention emphasized participation in vigorous physical activity through endurance training for 75 minutes every day for 14 weeks, while the second maintained a traditional emphasis on motor-skill instruc-

tion but increased the duration and frequency to 75 minutes every day. Both of these interventions were compared to traditional PE classes for 30 minutes three days per week. Only the intervention that emphasized vigorous physical activity produced a significant reduction in skinfold thickness and an increase in objectively measured physical fitness, while traditional PE, even at increased frequency and duration, did not. The findings of this study suggest that physical education has the potential to improve body composition in children, but only if activity is at high intensity, with increases in frequency and duration. Physical education classes of 75 or more minutes are not feasible within most current school days; however, the impact of this intervention on students' BMI encourages the development of approaches for increasing physical activity that can realistically be implemented.

The other PE intervention that has demonstrated significant effects on body weight was the Stanford Dance for Health intervention, which substituted popular and aerobic dance classes (40 to 50 minutes, three times per week, over 12 weeks) for the standard physical activity class (Flores, 1995). In a randomized controlled trial among mostly low-income African-American and Latino middle-school students, girls who were randomized to the dance intervention significantly improved their physical fitness and reduced their BMI gain compared to girls in the standard class. There were no significant differences among boys. As in the South Australian study, changes in fitness and body weight/fatness were seen when the content of PE was made more vigorous.

A small number of school-based studies have focused on increasing physical activity in older students. The Lifestyle Education for Activity Program was a group randomized trial that examined the effects of a comprehensive school-based intervention on high school girls' physical activity levels. Girls in the intervention schools were significantly more likely to participate in vigorous physical activity, both in PE classes and in other settings, than girls in the control schools (Dishman et al., 2004). The Middle-School Physical Activity and Nutrition study tested the effects of an environmental and policy intervention on physical activity and fat intake in 24 middle schools. Boys in the intervention schools participated in significantly more physical activity than boys in the control schools, both in and out of PE classes. The same across-the-board effect was not observed for girls, although girls in the intervention schools did participate in more physical activity during PE classes (Sallis et al., 2003). The study found significant reductions in the BMIs of boys in the intervention schools as compared to boys in the control schools, based on self-reports of height and weight; however, similar results were not seen for girls. Issues regarding gender differences had been considered (e.g., the outside-of-PE component of the intervention was staffed primarily by female volunteers and the study

involved physical activities of interest to middle-school girls), but much remains to be learned about how to design interventions that impact physical activity levels in both boys and girls. A recent comprehensive review of school-based physical activity programs (Kahn et al., 2002) identified 12 well-designed programs that met the CDC's *Guide to Community Preventive Services* criteria (Dwyer et al., 1983; Simons-Morton et al., 1991; Hopper et al., 1992, 1996; Vandongen et al., 1995; Donnelly et al., 1996; Fardy et al., 1996; Luepker et al., 1996; McKenzie et al., 1996; Sallis et al., 1997; Ewart et al., 1998; Manios et al., 1999; Harrell et al., 1999). These studies reported consistent increases in reported or observed time spent in physical activity in school, primarily through increases in moderate to vigorous physical activity in PE classes. Some of the studies also reported increases in energy expenditure and aerobic capacity. The effects on BMI and body fat, however, were minimal or inconsistent. Positive effects on physical activity were observed in both elementary school and high school studies, although the number of high school studies included in this review was small.

Inexpensive ways to enhance school breaks and recess periods to increase opportunities for physical activity have also been examined, including providing game equipment such as balls and painting school playground areas with markings for games (Jago and Baranowski, 2004).

Extracurricular Programs to Increase Physical Activity

One initiative that has shown a positive effect on physical activity is the Title IX legislation, which in recent decades increased the extent of interscholastic sports programs and participation, particularly for high school girls (Lopiano, 2000). However, these programs tend to serve only youth at the high school level, and only those who are attracted to competitive sports. The 2003 YRBSS nationwide survey found that 57.6 percent of students (grades 9 to 12) played on one or more sports teams during the previous year (CDC, 2004b). The 2000 SHPPS survey found that most middle and high schools had interscholastic sports teams, while only 49 percent offered intramural activities or PE clubs (Burgeson et al., 2001).

Research has shown that physical activity levels often decrease for middle- and high school students, especially among girls (Sallis, 1993; Pate et al., 1994; Trost et al., 2002). In those grades, there are fewer options for students who are not advanced athletes to be involved in physical activity. To fill that void, intramural sports and other physical activity opportunities—through clubs, programs, and lessons—can be tailored to meet the needs and interests of all students, with a wide range of abilities, who may lack the time, skills, or confidence to play interscholastic sports. Encourag-

ing such a range of physical activity options in local schools and communities, through the development of programs and provision of support, may involve not only schools, but also the private sector and nonprofit foundations and organizations. It is critically important that a focused effort be made to enhance funding and opportunities so that intramural sports teams, as well as nonteam sports and activities, become staples of school and after-school programs.

Next Steps

There are opportunities for schools to improve the extent and nature of the physical activity opportunities that are offered so that students can attain at least 50 percent of their daily recommended physical activity (or approximately 30 minutes) while in school. Few studies of physical activity during school have examined weight status or body composition measures; most studies have focused on changes in the intensity or duration of physical activity during PE classes. School-based interventions that have involved teacher training, PE curriculum changes, increases in duration or intensity of physical activity, and other changes have resulted in increased levels of activity and in some cases reported increases in energy expenditure and aerobic capacity. An expansion of physical activity opportunities available through the school may result in benefits not only for students' health and well-being but also may potentially foster the formation of a lifelong practice of daily physical activity.

Schools should ensure that all children and youth participate in a minimum of 30 minutes of moderate to vigorous physical activity during the school day. This includes time spent being active during PE classes. This objective is equally important for young children in child development centers and other preschool and child-care settings, including Head Start programs—the benefits to young children include the nurturing and refinement of their gross motor development skills.

Furthermore, **schools should expand the physical activity opportunities available through the school, including intramural and interscholastic sports programs, and other physical activity clubs, programs, and lessons that meet the needs and interests of all students.** This includes physical activity programs both during the school day and after school.

Additionally, **schools should promote walking and bicycling to school.** As more thoroughly discussed in Chapter 6, schools should develop policies and promote programs that encourage these active ways of getting between school and home. Changes that are needed may include more support for crossing guards, bike racks, and education on pedestrian and biking safety.

Strategies and recommendations to achieve these goals include:

- Schools should provide PE classes of 30 to 60 minutes' duration on a daily basis. While attending these classes, children and youth should be engaged in moderate to vigorous physical activity for at least 50 percent of class time. Schools should examine innovative approaches that include an array of diverse and fun activities to appeal to the broad range of student interests.

- Child development centers, elementary schools, and middle schools should provide recess that includes a total of at least 30 to 60 minutes daily of physical activity.

- Schools should offer a broad array of after-school programs, such as interscholastic sports, intramural sports, clubs, and lessons, that together meet the physical activity needs and interests of all students.

- Schools and child development centers should support and encourage physical activity opportunities for teachers and staff for their own well-being and because they are important role models for their students.

- Schools should be encouraged to extend the school day as a means of providing expanded instructional and extracurricular physical activity programs.

- Regulations for managing Head Start and other publicly funded or licensed early-childhood-education programs should ensure that children engage in appropriate physical activity as part of the programs.

- Congress, state legislatures, state education agencies, local governments, school boards, and parents should hold schools and child development centers responsible for providing students with recommended amounts of physical activity. Concurrently, these authorities should ensure that schools and child development centers have the resources needed to meet the applicable standards.

- Schools should regularly evaluate the quantity and quality of their physical activity programs, and the results of these evaluations should be reported to the public.

The committee acknowledges the constraints and pressures on school boards and administrators, particularly limited resources and the focus on academic programs and homework to improve standardized test scores. Nevertheless, it urges schools and child-development centers to increase opportunities for students to participate in physical activity and to implement evidence-based programs. These institutions will need the help of federal, state, and local authorities, who should initiate and implement the necessary regulatory and curriculum changes. Such actions could well have influence beyond their nominal purposes. Programmatic requirements imposed by the state or district—which likely will be evaluated systematically, with results reported to the public—could provide the impetus for significant changes and innovative programs.

Much research is needed to identify effective school-based interventions for promoting and providing physical activity to children and youth. Specifically, large-scale studies are needed to identify ways in which modifications of physical education, school sports, intramural programs, and recess—singly and in combination—contribute to physical activity goals. It is important, moreover, to learn the effects of such interventions not only on physical activity during the school day, but also after school. Studies should also determine the influence of district or school-level policies on school practices and student physical activity. Furthermore, research is needed to determine the effects of school-based physical activity interventions on student academic performance, dietary and nutritional outcomes, classroom behavior, and social outcomes.

Research specific to preschool and child-care settings should emphasize feasible and generalizable interventions designed to increase physical activity (e.g., manipulations of outdoor play time), decrease sedentary behaviors (e.g., parenting skills interventions to reduce children's screen time), and improve dietary behaviors (e.g., systematic exposure to fruits and vegetables in a positive context to enhance taste preferences).

CLASSROOM CURRICULA

Health Education Requirements and Practices

National education and health organizations recognize the important role that schools can play in fostering healthful behaviors among children and youth (Kann et al., 2001). Priorities for health education include behavioral skills development, a set amount of time devoted to energy balance in the classroom curricula, adequately trained teachers, and periodic curriculum evaluation (NASBE, 1990; Kann et al., 2001). A comprehensive set of guidelines and recommendations for school health programs has been developed by CDC (1997). In practice, health education standards of the Joint Committee on National Health Education Standards (1995), which are followed by most states and school districts, also emphasize the importance of teaching students behavioral skills—such as effective decision-making and goal-setting—thereby making healthful behaviors more likely.

National data show that 69 percent of states require health education curricula to include instruction on nutrition and dietary behaviors, and 62 percent require the inclusion of physical activity and fitness (Kann et al., 2001). In 69 percent of districts, schools are required to follow national, state, or district-level standards or guidelines; 77.8 percent of the schools use the National Health Education Standards (Joint Committee on National Health Education Standards, 1995; Kann et al., 2001). Assessment of

students' acquired skills is weak, however; only 16 percent of states require that they be tested on health education topics (Kann et al., 2001).

Numerous topics—including safety, first aid, alcohol and tobacco use prevention, growth and development, and personal hygiene—need to be covered in health education classes varying by the ages of the students. In the 2000 survey, 75 percent of health courses and 51 percent of other courses included content on nutritional and dietary behavior, and 69 percent and 29 percent, respectively, addressed physical activity and fitness (Kann et al., 2001). An average total of about five hours per year is spent on topics related to nutritional and dietary behavior, and about four hours per year on physical activity and fitness (Kann et al., 2001).

Behavioral Nutrition and Physical Activity Curricula

As described below, research findings support the effectiveness of behavior-oriented curricula—based on self-monitoring, goal-setting, feedback about behavior change efforts, incentives, and reinforcement methods—in promoting healthful food choices and physical activity. Skill-building activities, in which students engage in the desired behaviors and have a chance to practice new behaviors and receive feedback, are effective learning strategies.

However, there is still much to learn about the elements of nutrition and physical activity education programs that are key to changing behaviors and, subsequently, body weight. The most commonly used theoretical framework for developing behavior-based school interventions is social cognitive theory (SCT) (Bandura, 1986). “Self-efficacy,” in particular, or the confidence in one’s ability to perform a specific behavior, is a central concept in SCT. Self-efficacy is enhanced through skills building, practicing and mastering the behavior with feedback and reinforcement, and observing modeled behavior.

A recent review of 16 school-based cardiovascular risk factor prevention intervention studies found that interventions were most effective in changing cognitive variables, such as self-efficacy and outcome expectations, and were least effective in changing physiological variables such as body fatness (Resnicow and Robinson, 1997). However, these studies are difficult to compare because of the diversity of their intervention components and the primary outcomes targeted. Some interventions were only based on classroom curricula, while others include changes in the school food environment or PE classes.

Two of the most ambitious health behavior change interventions have been CATCH and Pathways, described above (Box 7-2). But despite tremendous commitments of resources and expertise, intervention effects were significant for some of the reported behavioral changes but not for the

objectively measured physiological changes, including BMI or body fatness (Luepker et al., 1996; Caballero et al., 1998; Davis et al., 1999). The specific effects of the classroom curricula could not be evaluated because the studies were implemented as multicomponent interventions, including individual-level intervention targets (e.g., student knowledge and behavior) and environmental intervention targets (e.g., school meals, PE classes).

An interesting contrast is provided by the results of the Planet Health intervention (Gortmaker et al., 1999), which aimed to reduce the prevalence of obesity among students in grades six through eight. Ten schools were randomized to intervention or control for a 2-year period, and the interventions were classroom-based only; they did not include school food service, physical activity, or other environmental-change components. Classroom intervention sessions, which featured behavioral skills development and strategies (e.g., self-assessment and goal-setting) were incorporated into different curriculum content areas; behaviors targeted for change included increases in fruit and vegetable intake, increases in physical activity, and decreases in television viewing time. At the end of the study, obesity prevalence among girls in the five intervention schools was significantly lower than among girls in the five control schools. Differences in obesity prevalence were not significant among boys. Analysis of changes in behavioral variables showed that decreases in television viewing were significantly associated with decreases in obesity prevalence among the girls. The reason for the lack of an intervention effect in boys is not clear. There are few controlled studies in this area and further research is needed.

Curriculum-only interventions have also resulted in significant reductions in BMI or skinfolds among both boys and girls. The Stanford Adolescent Heart Health Program targeted tenth-graders in a four-school randomized controlled trial (Killen et al., 1988). In addition to changes in body composition, the 20-session classroom curriculum also produced significant improvements in fitness.

Reducing Sedentary Behaviors

Television viewing time reduction has been examined in several school-based studies as a strategy for preventing obesity (Gortmaker et al., 1999; Robinson, 1999). In contrast to most other curriculum efforts, these intervention studies have shown positive effects on reducing the prevalence of obesity or weight gain. For example, Robinson (1999) examined the effects of the Stanford SMART (Student Media Awareness to Reduce Television) curriculum on changes in BMI among third- and fourth-grade children in two public elementary schools. Students in the intervention school received an 18-lesson, six-month curriculum designed solely to help children and families reduce television viewing time and videotape and video game use.

No other behaviors were targeted in the study in order to “isolate” the specific effects of reduced television viewing on changes in BMI. In addition to the classroom curriculum, parents also received newsletters and a television time-management monitor that allowed them to set time limits on the home television; 42 percent of parents reported that they actually installed the device. Results revealed significant reductions in BMI, triceps skinfold thickness, waist circumference, and waist-to-hip ratios among children in the intervention school compared with children in the control school, over a single school year.

The Planet Health intervention—a curriculum-based intervention for sixth- and seventh-grade students using behavioral choice and social cognitive approaches (discussed earlier)—also focused on reducing television viewing (Gortmaker et al., 1999). Other lessons included an emphasis on dietary and physical activity change. Teacher training sessions were held prior to implementation. Obesity prevalence decreased in girls in the intervention schools (from 23.6 percent to 20.3 percent) and increased in girls in the control schools (from 21.5 percent to 23.7 percent). For boys, obesity prevalence decreased in both groups, with no significant differences between groups. Number of television hours declined for both genders in the intervention schools as compared with controls and for girls in the intervention schools there was an increase in fruit and vegetable consumption.

The positive results of Stanford SMART and Planet Health suggest that obesity prevention efforts should involve reductions in sedentary television viewing time (see Chapter 8) and that school curricula should include television viewing reduction components.

Next Steps

Evidence from school intervention studies demonstrates some effectiveness of behavior-based nutrition and physical activity curricula. Evidence is most compelling from curricula for reducing television viewing, from vigorous PE interventions, and from large-scale, multicomponent intervention studies.

The extent to which schools are currently implementing such curricula, however, is unclear. Constraints include the limited availability of health educators who are trained in behavior-change methods, and the lack of sufficient time in the school day for specifically focusing on eating and physical activity behaviors. More staff training and the allocation of more time are two priorities. The impact of health education material can also be expanded by incorporating nutrition and physical activity information into science, math, history, social studies, and other courses.

Schools should ensure that nutrition, physical activity, and wellness concepts are taught throughout the curriculum from kindergarten through

high school. Schools should implement as part of the health curriculum an evidence-based program that includes a behavioral skills focus on promoting physical activity, healthful food choices, and energy balance and decreasing sedentary behaviors.

Given the limited resources in many schools and their varied priorities regarding the nature and duration of nutrition, health, and physical education classes and curricula, it is critically important for innovative approaches to be developed and evaluated to address obesity prevention in the schools. These approaches should involve evidence-based curricula that teach effective decision-making skills in the areas of diet and physical activity. Teacher training in health education and behavioral-change teaching methods is needed. **The departments of education and health at the state and federal levels, with input from relevant professional organizations, should develop and evaluate pilot programs to explore innovative approaches to both staffing and teaching about wellness, healthful choices, nutrition, physical activity, and sedentary behaviors.** Furthermore, it is hoped that health educators, school psychologists, and professional organizations (e.g., American Federation of School Teachers, American Psychological Association) will be brought into the discussions on how best to develop innovative curricula in this area.

ADVERTISING IN SCHOOLS

There have been growing concerns in recent years about the extent of commercial advertising in public schools and the influence that it may have on children's decision-making both for foods and other goods (Consumers Union, 1990, 1995; Greenberg and Brand, 1993; Bachen, 1998; Levine, 1999). Branded products are often advertised to students in a variety of school venues. Examples of these venues include required in-school television viewing such as Channel One, school textbooks, corporate-sponsored classroom materials, sports equipment, school cafeteria foods, signage and equipment (refrigerated display cases), vending machine signage, uniform logos, advertising on school buses, product giveaways, coupons, incentive contests, book covers, mouse pads, and book clubs.

Commercial activities involving schools have been categorized as follows (GAO, 2000; Wechsler et al., 2001):

- **Product sales:** short-term fundraising activities benefiting a specific student activity; cash or credit rebate programs; and commerce in products that benefit a district, school, or student activity (e.g., vending machine contracts; class ring contracts)
- **Direct advertising on school property:** billboards, signs, and product displays; signs on school buses; corporate logos or brand names on

school supplies or equipment; ads in school publications; media-based advertising (e.g., Channel One News); and free samples and coupons

- Indirect advertising: corporate-sponsored educational materials; teacher training; contests; incentive programs; and, in a small percentage of schools (<2 percent), lesson plans or curricula sponsored by companies (Wechsler et al., 2001)
- Market research conducted through or at schools: questionnaires, taste tests, and Internet surveys.

Only limited data are available on the extent of advertising in schools. The 2000 SHPPS nationwide survey found that the majority of high schools (71.9 percent) have contracts with one or more companies to sell soft drinks at the school (Wechsler et al., 2001). The percentages at middle schools (50.4 percent) and elementary schools (38.2 percent) are lower but still significant (Wechsler et al., 2001). Of those schools with soft drink contracts, most (91.7 percent) receive a proportion of the sales; some of the contracts include incentives for increased sales such as equipment, supplies, or cash awards. Advertising by soft drink companies is allowed in the school building at 37.6 percent of the schools with contracts; advertising is allowed on school grounds at 27.7 percent; and advertising on school buses is allowed by only 2.2 percent (Wechsler et al., 2001).

Data from the SHPPS survey (Table 7-1) give an overview of some of the commercial involvement of schools. In the 19 schools visited for the GAO report, most of the advertising was seen in high schools; examples included advertising on scoreboards, vending machines, posters, and on promotional materials such as free book covers and product samples (GAO, 2000). In many schools television programming is provided through Channel One News⁴—10 minutes of news, music, contests, and public service announcements interspersed with 2 minutes of commercials, including advertisements for candy, food, and beverages.

Although there is little published research on school commercialism, there are some indications of increases in the extent of commercialism in schools. In a survey of high school principals in North Carolina, 51.1 percent of the 174 respondents believed that corporate involvement in their school had increased over the past 5 years (Di Bona et al., 2003), the largest involvement being in the form of incentive programs (41.4 percent). Such changes have been noted by the press. An analysis of media references to school commercialism has found significant increases over the past 6 years (Molnar, 2003).

⁴Launched in 1990, Channel One News is viewed in approximately 12,000 U.S. schools representing an audience of 8 million teenagers (Di Bona et al., 2003).

TABLE 7-1 Schools That Allow Food Promotion or Advertising

	Total Schools (%)	
Soft drink contracts:		
Have contract with company to sell soft drinks	Elementary schools:	38.2
	Middle/junior high schools:	50.4
	Senior high schools:	71.9
Of schools with soft drink contracts:		
Receive a specific percentage of soft drink sale receipts		91.7
Receive sales incentives from company ^a	Elementary schools:	24.0
	Middle/junior high schools:	40.9
	Senior high schools:	56.7
Allow advertising by the company in the school building		37.6
Allow advertising by the company on school grounds		27.7
Allow advertising by the company on school buses		2.2
Promotion of candy, meals from fast food restaurants, and soft drinks:		
Allow promotion of these products through coupons		23.3
Allow promotion of these products through sponsorship of school events		14.3
Allow promotion of these products through school publications		7.7
Prohibit or discourage faculty and staff from using these items as rewards		24.8

^aSchools receive incentives such as cash awards or donations of equipment or supplies once receipts reach specified amounts.

SOURCE: Wechsler et al., 2001.

As discussed in Chapter 5, a number of studies have shown that advertising influences children's food and beverage choices. An extensive literature review by Hastings and colleagues (2003) concluded that food advertisements trigger food purchase requests by children to parents; have effects on children's product and brand preferences; and have an effect on consumption behavior. Furthermore, a recent analysis of the cognitive developmental literature (Wilcox et al., 2004) found that young children (generally under the age of 7 to 8 years) do not generally understand that difference between information and advertising.

Because public schools are institutions supported by taxpayer dollars, there are issues regarding whether it is appropriate for public schools to be a site for corporate or commercial advertising and marketing of products to children. Further, schools act in place of parents and advertising in school can be viewed as circumventing parental control over the types of advertis-

ing to which children are exposed. Additionally, children may interpret school-based advertising to mean that teachers or other adults at school endorse the use of the advertised product.

The problem of in-school advertising is complex and warrants a thorough and complete separate examination. Part of the difficulty in addressing issues regarding food and beverage advertising in schools is the issue of distinguishing advertising and promotion of healthful foods and beverages themselves from the companies or brands that may be associated with several different food or beverage products, some of which may be healthful and some less so. In addition, many foods and beverages currently sold in schools are packaged with branded corporate logos and labels. The extent to which such packaging is considered to be advertising is unclear.

The committee acknowledges that there are significant barriers to removing advertising completely from the school environment. Foremost is the anticipated loss of funding from corporate sponsors and what is perceived to be substantial revenue from the sale of soft drinks and other branded items (although this revenue often comes primarily from students and their families). Additionally, there is the potential for loss of free curriculum materials, incentives, sports equipment, food-service equipment, computers, televisions, and other items. However, as discussed earlier in the chapter, options need to be explored so that schools can provide the healthiest possible environment for children. It is important to note that some corporations donate goods, services, or money to schools without seeking advertising or marketing rights in return.

Nineteen states have state laws or regulations that are relevant to this issue, but in most cases they are not comprehensive (GAO, 2000). Throughout most of the United States, the local school districts make the decisions regarding school commercialism and advertising, and some schools and school districts appear to be more ready than others to eliminate such advertising. This presents an important opportunity to systematically study the potential benefits of different policies on obesity and other health and psychological parameters.

Research is needed to examine the impact of such advertising on youth dietary, physical activity, and sedentary behaviors within the school. As a first step, the Department of Education and USDA should fund quasi-experimental research comparing schools that introduce and/or eliminate such advertising, with respect to food and physical activity choices and behaviors at school and outside of school.

To date, the evidence on the impact of advertising in general, particularly on young children, favors removal of advertising and marketing from schools. Furthermore, the school environment needs to reinforce nutrition and physical activity messages taught in the classroom, and advertising may present conflicting messages. **Schools and school districts are urged to de-**

velop, implement, and enforce school policies to create schools that are advertising-free to the greatest possible extent.

SCHOOL HEALTH SERVICES

School health services should play a prominent role in addressing obesity-related issues among students and throughout the school environment. School health clinics and other school-based health services offer an often untapped resource because they have the opportunity to reach large numbers of students and the expertise to provide nutrition and health information as well as referrals to counseling and other health services. However, an emphasis on dietary behaviors and physical activity is not meant to be competitive with the other vital issues that school health services and health education curricula address, including prevention of tobacco and alcohol use and sexual education.

Although the 2000 SHPPS survey found that more than 75 percent of schools had at least a part-time school nurse, the extent and nature of health services at schools vary widely (Brener et al., 2001). Nearly all schools have provisions for administering medications and first aid, but many lack the resources to deliver prevention services. The 2000 SHPPS survey found that 55.3 percent of schools reported offering nutrition and dietary behavior counseling and 37.2 percent offered physical activity and fitness counseling (Brener et al., 2001). Twenty-six percent of states required height and weight to be measured, or BMI to be assessed, in schools; of those, about 61.5 percent required parent notification (Table 7-2). Similarly, the survey found that physical fitness tests were required by approximately 20 percent of states or school districts.⁵ Some states have developed their own fitness test, while others use the President's Challenge or the Fitnessgram (Burgeson et al., 2001). In most schools (91.1 percent) teachers provided students with explanations of what their fitness scores meant; in 59.8 percent of the schools, teachers informed the students' parents as well.

In Chapter 8, the committee recommends that parents make their child's weight status a priority for discussion with their medical-care provider, and in Chapter 6 the committee offers recommendations on the high priority that this issue should be given by health-care professionals themselves. However, there are an estimated 9.2 million children and youth⁶ in the

⁵Physical fitness tests are required in elementary schools by 13.7 percent of states and 18.3 percent of districts, in middle or junior high schools by 15.7 percent of states and 21.3 percent of districts, and in senior high schools by 18 percent of states and 20.4 percent of districts (Burgeson et al., 2001).

⁶In 2001, 12.1 percent of Americans aged 19 years or younger—9.2 million children and youth—were without health insurance all year (Bhandari and Gifford, 2003).

TABLE 7-2 States and Districts Requiring Student Screening and Follow-Up

	States		Districts	
	% Requiring Screening	% Requiring Parental Notification	% Requiring Screening	% Requiring Parental Notification
Height and weight or BMI	26.0	61.5	38.4	81.1
Hearing	70.6	91.4	88.4	98.5
Vision	70.6	91.4	90.4	98.5
Oral health	17.6	87.5	31.1	98.3
Scoliosis	45.1	100.0	68.8	98.6
Tuberculosis	20.0	80.0	17.1	93.7

SOURCE: Brener et al., 2001.

United States whose families do not have health insurance (Bhandari and Gifford, 2003) and who may not be seen on a regular basis by a medical practitioner. Additionally, many children, particularly in their mid-childhood and teen years, do not have annual health-care visits. Parents often do not recognize that their child is overweight or obese, or they may believe that the child will outgrow his or her excess weight (Etelson et al., 2003; Maynard et al., 2003). If children were weighed and measured annually, the history of a particular child could be tracked and any increase in his or her gender- and age-specific BMI percentile would be detected, allowing for actions designed to prevent further increases and perhaps even lower the BMI.

Some states and school systems have begun providing an individualized health “report card” focused on conveying weight-status information to parents (Box 7-4) (Chomitz et al., 2003; Scheier, 2004). Concerns have been raised about unintended consequences of this approach, including potential stigmatization of children, misinterpretation of BMIs, and placement of children on harmful diets (Scheier, 2004). However, such measures are routinely collected at many schools (Table 7-2) and in health-care providers’ clinics. Furthermore, many intervention studies have obtained weight and height measurements on large numbers of students. For example, CATCH collected weight, height, blood pressure, skinfold thickness, aerobic fitness, dietary intake, and physical activity data on 4,019 students in 96 schools in third grade and again in fifth grade (Luepker et al., 1996).

BOX 7-4
Arkansas BMI Initiative

Arkansas Act 1220, approved by the Arkansas General Assembly and Governor in 2003, established a multipronged state initiative to improve the health of Arkansas children (ACHI, 2004). The act mandated that parents be provided with their child's annual BMI, as well as an explanation of the BMI measure and information on health effects associated with obesity.

This mandate is being implemented in three phases using a confidential health report. Eleven schools participated in Phase I in which measurement methodologies, equipment, and reporting forms were developed and tested for validity and accuracy. Phase II consisted of field testing in a second round of schools. The final phase involves the statewide rollout of the program which began in Spring 2004 (ACHI, 2004). Community health nurses are an important part of this effort, because they are first certified in height and weight research measurements at Arkansas Children's Hospital and subsequently train school nurses and other school personnel (ACHI, 2004). Training of health-care professionals involved in pediatric and adolescent development is also a part of this initiative.

The reports being sent to parents include the child's BMI as well as information to assist them in contacting local resources for additional information. Data also will be aggregated at the school, district, and state levels. Evaluation of the program is ongoing and will include focus groups with parents.

Participant safety was continuously monitored by an independent data and safety monitoring board. A study of elementary school students and their parents in Cambridge, Massachusetts, found that, among parents of overweight children, those who received the health report card intervention were more likely to begin or consider looking into clinical services, dieting, or physical activity than those parents who received general information or no information (Chomitz et al., 2003). Evaluation of the report card approach is ongoing, but further research is needed on alternate methods for conducting weight-status assessments and conveying the information thus obtained to parents and to the students themselves (as age appropriate).

Schools should measure yearly each student's weight, height, and gender- and age-specific BMI percentile and make this information available to parents and to the student (when age appropriate). Implementation of yearly measures may be resource-intensive for schools that are currently conducting such measures. However, it is important for parents to have information about their child's BMI and other weight-status and physical fitness measures, just as they need information about other health or academic matters.

The committee recognizes that providing follow-up health-care services for children identified as being obese or at high risk for obesity will present

a number of challenges including the lack of a standardized referral system; pediatricians' general lack of training in how to counsel parents and children on nutrition, physical activity, or weight management (Chapter 6); and the limited availability of nutrition education and physical activity programs to absorb the potential demand. Therefore, efforts on this issue will require working with health-care providers and others to provide the appropriate follow-up information and services.

There are sensitivities and concerns that surround this issue, and it is important that the data on each student are collected and reported validly and appropriately, with the utmost attention to privacy concerns, and with information on referrals available if further evaluation is needed. The committee urges CDC and other relevant federal, state, and local agencies to develop guidelines that assist schools in developing protocols that are not only reliable and useful, but that sensitively collect and communicate this information.

AFTER-SCHOOL PROGRAMS AND SCHOOLS AS COMMUNITY CENTERS

Organized after-school programs, both public and private, are daily opportunities for engaging many children and youth in physical activity and promoting healthy food choices. In addition to serving students shortly after the school day is over, school facilities can also offer similar services during other nonschool hours to the wider community.

An estimated 19 percent of 5- to 14-year-old children—some seven million—care for themselves on a regular basis after school without adult supervision (Smith, 2002). Approximately 14 percent of children ages 5 to 12 with employed mothers attend after-school center programs, and another 15 percent are involved in lessons and other enrichment activities (Vandell and Shumow, 1999). These programs may be school- or community-based and can vary widely in their content, opportunities for physical activity, nature and focus, class size, staff education, and child-staff ratios (Vandell and Shumow, 1999; NRC, 2003).

Some after-school programs concentrate on homework help and tutoring; others emphasize enrichment opportunities (e.g., computer skills, art, and music programs); and some, focused on providing safe havens to children during after-school hours, offer a spectrum of options (NRC, 2000). Given the varied nature of these programs and the range of school or community groups that are responsible, a broad-reaching infrastructure does not exist for disseminating new initiatives in general. However, these programs are often readily amenable to implementing or expanding nutritional and physical activity information and to providing venues for engaging in physical activity as well (Ross et al., 1985).

In that spirit, discussions are ongoing about how best to organize and structure after-school programs, particularly regarding the balance between academic and other pursuits (NRC, 2003). The 21st Century Community Learning Centers program is an example of successfully involving schools and communities in working together to address after-school needs. Funded by the U.S. Department of Education, the program's centers now serve 1.2 million children and 400,000 adults in 6,800 schools (in all 50 states and in more than 1,400 communities) (U.S. Department of Education, 2004). These centers focus on academic improvement but also involve programs in music and other arts and use of computers. Incorporating physical activity programs and an emphasis on good nutrition into the 21st Century Community Learning Centers program and other similar efforts is recommended.

As discussed in Chapter 6, research has shown that access to opportunities for physical activity is associated with *increased* physical activity. In recognition of the positive effects of family activities and parental modeling of healthful behaviors, schools with physical activity facilities that currently go unused during nonschool hours should explore ways of making them available for community use. Expanding the use of school facilities during afternoons, evenings, weekends, and vacation periods is particularly important in communities that do not have publicly supported community recreation centers. For public schools, this objective would also expand the use of public funding.

It is important to take advantage of opportunities for improving nutrition and increasing physical activity for the large number of children who attend after-school programs. Furthermore, communities with limited recreational facilities would benefit from access to school facilities during non-school hours. **After-school programs should encourage and enable daily physical activity, provide healthful nutritional choices, and provide students with the information to foster a better understanding of energy balance. Schools and communities should use school facilities as community centers that provide opportunities for physical activity and for programs that promote energy balance. Such programs are particularly important for children in areas where neighborhood safety concerns may present a barrier to outside physical activity.**

The committee acknowledges that there are hurdles to overcome in implementing these recommendations, particularly in obtaining the funding for their increased staffing and maintenance implications. Coordinating the logistics of the use of equipment and facilities could also be a challenge (Dryfoos, 1999). However, there are numerous benefits of expanding the use of school facilities and offering programs for youth and families—including improved social skills, a heightened sense of community, and reduction in youth crime. Given that a large number of schools in the United States are now being built or refurbished, communities have an

opportunity to design these schools with facilities that can best accommodate after-school or community center programs.

As these programs are pursued, it is critical that the effects of changes in after-school programs and other after-school uses of school facilities (e.g., in the form of community centers) be evaluated. Innovations to encourage children and youth to participate in physical activities and learn about nutrition are particularly encouraged, because they have the potential to help prevent childhood overweight and obesity. Pilot results for after-school obesity prevention programs in low-income African-American communities are already showing promise in this regard (Beech et al., 2003; Robinson et al., 2003), though further research and evaluation is needed.

EVALUATION OF SCHOOL PROGRAMS AND POLICIES

In most if not all states, schools are mandated to perform periodic academic testing to compare student performance against established standards. The committee recommends extending these assessments to include parameters related to healthful eating, physical activity, and other factors related to the risk for obesity.

Recognizing that the school environment is one of the many influences on a child's dietary intake or energy expenditure, it is important to develop effective school-based programs. Thus, schools, school districts, state boards of education, and regional and national institutions have already begun to promote and implement innovative approaches for addressing the rising rates of obesity in children and youth and for promoting their health and fitness. Although these programs can be costly in terms of finances, personnel, and other resources, they have the potential to enhance the educational process.

Without systematic and widespread assessments of obesity-related behaviors and physical activity measures, however, there will be no way to identify which of the many possible strategies are potentially effective, much less the most cost-effective. Specific cause-and-effect inferences will not always be possible, but the availability of pertinent local data will enable schools, parents, school districts, states, policy makers, and researchers to identify some of the more promising approaches for further testing and development.

Many schools now use the School Health Index developed by CDC as a school self-assessment tool (CDC, 2004a). This measure incorporates physical and nutritional education components into evaluations as well as assesses other areas, particularly school health, counseling, health policies, health promotion, and family and community involvement. The committee encourages schools to use the School Health Index or similar school-specific

assessments to identify areas to improve the school's health and safety promotion policies and practices.

In addition, some schools may want to assess more direct measures (such as students' gender- and age-specific BMI percentile, physical fitness, and dietary intake) to help determine whether or not the school's policy and programming changes are reducing the levels of overweight and obesity. Commitment to performing these evaluations will require legislators and other policy makers to allocate sufficient funding, employ professional staffing, and develop statewide mechanisms for reporting these assessments' results to the public.

State and local education authorities should perform periodic assessments of each school's policies and practices related to nutrition and physical activity. These assessments should address curriculum, instructional methods, school environment, extracurricular programming, and relationships with the community. Other components that could be considered based on the needs of the schools are assessments of physical activity, physical fitness, dietary intake, and BMI percentile distribution of a representative sample of students. Results of school evaluations should be reported periodically to the public. If data are collected on a representative sample of students, the results should be publicly reported only in the aggregate.

Research is needed to determine optimum ways to assess the impacts of school programs, policies, and environments on obesity prevention. Research is also needed to explore program adaptations that may be needed to accommodate schools with high levels of cultural diversity.

Potential hurdles in implementing these actions will need to be addressed. In particular, if schools and school districts are to develop valid and easy-to-use assessment measures and protocols, provide sufficient staff training to ensure reliable data collection, and then implement and report the results of these assessments, they will need sufficient funding. If schools were to meet the School Health Index standards under current economic conditions, there would likely be increased financial burden on most school systems.

The committee acknowledges that there is limited published information on schools that have implemented this type of schoolwide evaluation. However, based on the public attention paid to standardized academic testing by parents, teachers, administrators, and policy makers, it is the belief of the committee that assessment and public reporting of health-related outcomes will prove to be an incentive for schools to innovate and adopt more effective health promotion curricula, improved food-service options, and other health and fitness programming (e.g., after-school activities, family-oriented physical activities).

RECOMMENDATION

Schools offer the opportunity for reaching large numbers of young people, during a significant part of their day, and throughout much of the year. Furthermore, schools present opportunities, both in and out of the classroom, for the concepts of energy balance to be taught and put into practice. As discussed throughout the chapter, several large-scale, well-designed school-based intervention studies have shown that multicomponent changes in the school environment can improve the food and beverage selections by students, the nutritional quality of foods offered, and the duration and extent of students' physical activity while at school.

Schools should not only provide educational messages about nutrition, physical activity, and reducing sedentary behaviors, but should reinforce and support these concepts throughout the school environment. Changes that can make the school environment more supportive of healthful eating and physical activity behaviors begin with the development of nutritional standards for all food and beverage items sold in the schools and improvements in the federal school meal programs. Furthermore, opportunities for physical activity need to be expanded through ensuring daily PE, as well as increasing the options for both competitive and noncompetitive sports and activities, enhancement of after-school programs, and the opening of school facilities for use during other nonschool hours. It is also important to develop and implement curricula that will encourage students to move beyond an awareness of energy balance to the routine incorporation of good nutrition and physical activity into their daily lives.

There are numerous innovative programs and changes relevant to obesity prevention that are being implemented in schools throughout the country, and it is important to adequately evaluate these efforts to determine whether they should be continued, expanded, or refined. Furthermore, pre-schools and child-care centers should be included in these efforts.

The goal is for schools to implement evidence-based programs and approaches that promote healthful physical activity and nutrition behaviors for all components of school interventions, including health education, physical education, after-school programs, and walk-/bike-to-school programs. Adequate training and support for teachers, food-service personnel, and other leaders will be needed, along with adequate supplies and equipment. Federal and state agencies need to provide the resources for research and evaluation of school programs and interventions and work to disseminate those that are found to be effective in improving physical activity and nutrition behaviors.

Next steps for making progress on this issue will involve discussions of the relevant stakeholders in schools, communities, regions, and states so

that action plans can be tailored to best address the issues and high-risk populations in the area.

Recommendation 9: *Schools*

Schools should provide a consistent environment that is conducive to healthful eating behaviors and regular physical activity.

To implement this recommendation:

USDA, state, and local authorities, and schools should:

- Develop and implement nutritional standards for all competitive foods and beverages sold or served in schools
- Ensure that all school meals meet the Dietary Guidelines for Americans
- Develop, implement, and evaluate pilot programs to extend school meal funding in schools with a large percentage of children at high risk of obesity

State and local education authorities and schools should:

- Ensure that all children and youth participate in a minimum of 30 minutes of moderate to vigorous physical activity during the school day
- Expand opportunities for physical activity through physical education classes; intramural and interscholastic sports programs and other physical activity clubs, programs, and lessons; after-school use of school facilities; use of schools as community centers; and walking- and biking-to-school programs
- Enhance health curricula to devote adequate attention to nutrition, physical activity, reducing sedentary behaviors, and energy balance, and to include a behavioral skills focus
- Develop, implement, and enforce school policies to create schools that are advertising-free to the greatest possible extent
- Involve school health services in obesity prevention efforts
- Conduct annual assessments of each student's weight, height, and gender- and age-specific BMI percentile and make this information available to parents
- Perform periodic assessments of each school's policies and practices related to nutrition, physical activity, and obesity prevention

Federal and state departments of education and health and professional organizations should:

- Develop, implement, and evaluate pilot programs to explore innovative approaches to both staffing and teaching about wellness, healthful choices, nutrition, physical activity, and reducing sedentary behaviors. Innovative approaches to recruiting and training appropriate teachers are also needed

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Home

A child's health and well-being are fostered by a home environment with engaged and skillful parenting that models, values, and encourages sensible eating habits and a physically active lifestyle. By promoting certain values and attitudes, by rewarding or reinforcing specific behaviors, and by serving as role models, parents can have a profound influence on their children. It is not surprising, therefore, that sedentary behaviors, obesity, and other chronic disease risk factors tend to cluster within families. Although some of these risk factors may have a genetic component, most have strong behavioral aspects. The family is thus an appropriate and important target for interventions designed to prevent obesity in children through increasing physical activity levels and promoting healthful eating behaviors.

In the United States in the 21st century, there are a great many pressures on parents and children that can adversely affect daily family life. For example, with the frequent need for both parents to work long hours, it has become more difficult for many parents to play with or monitor their children and to prepare home-cooked meals for them. Of two-parent households, 62.4 percent have both parents in the labor force; in one-parent homes, 77.1 percent of the mothers and 88.7 percent of fathers are working (Fields, 2003). Because the school day is shorter than the work day, many children come home to an empty house, where they may be unsupervised for several hours (Smith, 2002). In a national survey, parents report being well aware of the need to spend more time with their children but believe they do not have such time available (Hewlett and West, 1998). Parents

from diverse socioeconomic categories actually cite a “parental time famine”—insufficient time to spend with their children. Economic and time constraints, as well as the stresses and challenges of daily living, may make healthful eating and increased physical activity a difficult reality on a day-to-day basis for many families (Devine et al., 2003).

The committee has adopted an ecological framework that considers children and youth as being influenced primarily by the family, particularly in the younger years, though other micro-environments—including the neighborhood, workplace, and school—also have important impacts on parenting and on individual and family functioning (see Chapter 3). In this ecological framework, parenting is influenced by the larger (macro) economic, political, social, and physical environments, as well as by socioeconomic status, parental goals, personal resources, and child characteristics (Parke and Buriel, 1998). Cultural norms are also an important factor. For example, parents may feel pressured to contribute cookies or soft drinks to the classroom or child-care setting if the other children are bringing in similar foods and beverages. On the other hand, if new values about what constitutes appropriate food choices for children become normative, this can produce positive changes in individual families and in their children’s daytime environments.

The ecological perspective leads to strategies that target parents directly, as well as to other strategies designed to influence contextual factors that might otherwise serve to undermine healthful family values and practices. Therefore, a number of the committee’s recommendations focus on promoting changes in nonhome settings (e.g., schools, communities, the built environment, the media) in order to support parents in their efforts to serve as positive models for children’s eating and physical activity and to allow them to provide children with appropriate environments for preventing obesity. This is particularly important for families from high-risk populations who live in conditions that are not supportive of healthful lifestyles.

From a practical standpoint, parents play a fundamental role as household policy makers. They make daily decisions on recreational opportunities, food availability at home, and children’s allowances; they determine the setting for foods eaten in the home; and they implement countless other rules and policies that influence the extent to which various members of the family engage in healthful eating and physical activity.

The committee acknowledges the broad and diverse nature of families in the United States. According to a recent U.S. Census Bureau report, in 2002 there were more than 72 million children (under 18 years of age) in the United States (Fields, 2003). Approximately 69 percent of them lived with two parents, 23 percent lived with only their mother, approximately 5 percent lived with their father, and 4 percent lived with other family members, usually grandparents, or in other situations (Fields, 2003). This report

uses the term “parents” in its broadest sense to incorporate all those who are primary caregivers to children in the home.

Although treatment of childhood obesity is beyond the scope of this report, treatment studies have demonstrated that intensive involvement of parents in interventions to change obese children’s dietary and physical activity behaviors has contributed to success in weight loss and long-term weight maintenance (Coates et al., 1982; Kirschenbaum et al., 1984; Epstein et al., 1990, 1994; Golan et al., 1998; Golan and Crow, 2004). It is plausible that family-based strategies that prevent weight re-gain in these studies are likely to be informative in the prevention of obesity. The fundamental influence of parents on the eating behavior of their children has also been demonstrated in the prevention of eating disorders (Graber and Brooks-Gunn, 1996). Finally, a 10-year longitudinal study conducted in Denmark has identified parental neglect as a powerful predictor of the subsequent development of obesity (as compared to putative biological predictors such as obesity in one or both parents) (Lissau and Sorensen, 1994).

While the home is an influential setting, it is also the least accessible for health promotion efforts. Mechanisms for parent education are varied and many provide only brief opportunities for health-care professionals, teachers, or others to interact with parents and share information and resources. As discussed throughout the report, there are resources in the school and the broader community that can support and inform parents and caregivers, children, and youth (see Chapters 6 and 7).

In the remainder of this chapter, the committee explores some of the ways in which parents and families can encourage healthful eating behaviors and increased physical activity. This report is not the place for an exhaustive discussion of diet and physical activity, nor is it meant to be the definitive source for parental advice; rather, the committee sought to present some actionable steps that can be taken by parents, families, children, and youth. It is important to note that many families are already quite physically active and put time and effort into providing healthful meals. It is important that parents and children extend these efforts and priorities to their schools, neighborhoods, and communities (Chapters 6 and 7) and become involved in ensuring that opportunities are made available and expanded for all families.

PROMOTING HEALTHFUL EATING BEHAVIORS

For decades, scientists have suggested that there are critical periods in the brain development of animals and humans that may profoundly affect food intake and body weight (in particular, body fat) beginning in utero—when many of the systems that regulate food intake and body weight initially develop. The factors that influence the quantity and quality of the

maternal diet at the time of conception and throughout pregnancy—some of which may be within the control of the mother, while others result from social and economic environments—are thus important to consider. A recent study of 8,494 low-income children found that maternal obesity in the first trimester of pregnancy more than doubled the risk of the child being obese at 2 to 4 years of age (Whitaker, 2004). Furthermore, there are concerns that the offspring of mothers with gestational diabetes mellitus may be at higher risk for obesity, but the results are inconsistent (Silverman et al., 1998; Whitaker et al., 1998; Gillman et al., 2003). Needless to say, women of child-bearing years should pursue a healthful lifestyle that emphasizes sound dietary and physical activity habits, and because of the importance of a healthy maternal body weight at conception and adequate weight gain during pregnancy, these goals should be embraced and nurtured by the entire family.

Infancy

Researchers are examining early determinants of obesity, including factors during infancy; however, much remains to be learned. Issues being explored include the combined effects of low birthweight followed by rapid weight gain during early infancy (Stettler et al., 2002, 2003).

The associations between various feeding methods during infancy and childhood obesity have been the most thoroughly explored. Epidemiological data suggest that breastfeeding, even as it is generally practiced in the United States—that is, as a nonexclusive source of nutrition, usually of short duration—confers a small but significant degree of protection from childhood obesity, although it is not certain why this is so or the extent to which other factors may confound this finding. A recent review of 11 epidemiologic studies with adequate sample size¹ found that eight of the studies showed breastfed children to be at a lower risk of overweight after controlling for potential confounders (Dewey, 2003). Studies published since that review have generally confirmed that finding but not in all subpopulations. For example, Bergmann and colleagues (2003) examined the weight status of a cohort of children at 6 years of age and found that those who were bottle fed as infants had a higher prevalence of obesity than those who were breastfed. Other risk factors for adiposity at 6 years of age

¹Criteria for studies in this review were (1) sample size of greater than 100 children per feeding group (in most cases breastfeeding versus formula feeding); (2) age at follow-up of over 3 years; and (3) measured outcomes includes percentage of children who were overweight (Dewey, 2003).

included overweight of the mother, maternal smoking during pregnancy, and low social status. In research on the weight status of 12,587 children in the United States at 4 years of age, Grummer-Strawn and Mei (2004) found that greater duration of breastfeeding showed a protective effect on the risk of overweight among non-Hispanic whites, but not among non-Hispanic blacks or Hispanics. The reasons for differences among ethnic groups are not clear; the study did not examine supplementation by formula or foods or varying dietary or physical activity patterns. A study by Bogen and colleagues (2004) also found no association between breastfeeding and obesity among 20,518 low-income black children (the study sample did not include Hispanics).

Breastfeeding is thought to promote the infant's ability to regulate energy intake, allowing him or her to eat in response to internal hunger and satiety cues—that is, to assume greater control in determining meal size (Fisher et al., 2000). In contrast, a caregiver who is formula feeding an infant may use visual information about how much remains in the bottle to “encourage” the infant to finish the bottle, potentially fostering overfeeding. Even if the caregiver makes no such effort, the uniform composition of formula, both during a single feeding and over the duration of infancy, may not provide the infant with the same metabolic/hormonal cues that are supplied with breast milk. Because the composition of breast milk changes during each feed and from one feeding to the next over the course of lactation, the full effects of this variation are not experienced when breastfeeding is nonexclusive or of short duration (Lederman et al., 2004).

Factors in breast milk may elicit metabolic programming effects that contribute to the protective association between breastfeeding and childhood obesity. There is the possibility that other parental lifestyle factors and behaviors, not yet identified, may undermine or overwhelm that protection (Dewey, 2003). Lifestyle and cultural factors may also explain the discrepant findings among different ethnic groups. It is worth emphasizing that a protective effect of breastfeeding was found in the majority of studies reviewed although not in all. But in none of the 11 studies reviewed by Dewey (2003) or those published since that review has breastfeeding been associated with increased risk for childhood obesity; breastfeeding was found to be either protective or neutral. None of the studies have found formula feeding to be protective against childhood obesity.

Research indicates that many flavors from the mother's diet are transmitted to her breast milk (Mennella and Beauchamp, 1991; Mennella, 1995). By the time complementary foods are introduced, therefore, the breastfed infant has already had experience with a variety of flavors from the adult diet, which may promote acceptance of foods during weaning (Sullivan and Birch, 1994; Mennella et al., 2001; Lederman et al., 2004). Experience with numerous flavors in breast milk (as opposed to the lack of

variety experienced by the formula-fed infant) may also have more general effects, promoting the infant's acceptance of a wide range of new foods as he or she matures; further research is needed in this area (Mennella and Beauchamp, 1998; Lederman et al., 2004).

Much remains to be learned about the extent of the association between breastfeeding and childhood obesity. Nonetheless, breastfeeding is likely to be at least weakly protective against obesity, and despite the fact that the protective effects may be overwhelmed by events and environmental factors that occur later in childhood, there are numerous ancillary benefits of breastfeeding (AAP, 2004). **Breastfeeding is recommended for all infants. Exclusive breastfeeding is recommended for the first 4 to 6 months of life and breastfeeding, along with the age-appropriate introduction of complementary foods, is encouraged for the first year of life.** This is in accordance with the American Academy of Pediatrics (2004) statement recommending breastfeeding and stating that in developed countries "complementary foods may be introduced between 4 and 6 months" and the World Health Organization (2003) recommendation that encourages exclusive breastfeeding for the first 6 months of life, to the extent that this is practical for the mother and family.

Another issue that is discussed regarding infant feeding is serving size—ensuring that infants receive the appropriate amounts of milk or foods. Research has shown that early in life, infants are responsive to the energy density of food and are capable of controlling the volume taken during a feeding. Thus, even by about 6 weeks of age, infants can adjust the volume of formula consumed based on the energy density of the formula, so that total energy intake remains relatively constant (Fomon et al., 1975). Nonetheless, there is the possibility that infants can be coaxed to eat beyond satiety and that has been postulated by several researchers as a potential contributor to childhood obesity (Bergmann et al., 2003; Dewey, 2003; Lederman et al., 2004). Concern has been expressed that precocious introduction of sweetened beverages and high-fat/sweet-tasting foods may be important contributors to childhood obesity by possibly developing early preferences for such foods and beverages (Fox et al., 2004; Lederman et al., 2004). Documentation that such concerns are well founded are the findings from the Feeding Infants and Toddlers Study (FITS) that soft drinks and French fries are being fed to infants as young as 7 months of age (Fox et al., 2004).

Toddlers and Young Children

Children tend to avoid new foods. But during the transition from the exclusive milk diet of infancy to consuming a varied, modified adult diet, virtually all foods are new to the child. Fortunately, it has been found that

if children have opportunities to try new foods without being coerced to eat them, many of these foods, even if initially rejected, will become part of their diet (Birch and Marlin, 1982; Loewen and Pliner, 1999). Such early experience with new options will be especially important in learning to accept fruits, vegetables, and other nutrient-rich foods later on in life (Birch, 1999; Skinner et al., 2002).

Food flavor preferences are powerful determinants of intake for children. Because infants are predisposed to prefer sweet and salty tastes, they tend to readily accept foods that are sweet or salty (Cowart, 1981; Beauchamp and Cowart, 1985; Mennella and Beauchamp, 1998). In contrast, preferences for foods that lack such tastes are learned, requiring repeated positive experiences.

Initial rejection of new foods is expected and normal. As many as five to ten exposures may be needed before certain new foods are accepted, and repeated experience is most critical during the first few years of life. Recent findings reveal that parent-led exposure can increase children's acceptance of vegetables (Wardle et al., 2003; Lederman et al., 2004), and that child-care and preschool settings are also effective locations for promoting children's acceptance of new foods (Nicklas et al., 2001). Research also shows that increasing the school-based availability and accessibility of fruits and vegetables in particular can promote children's intake, at school as well as at home (Baranowski et al., 2000; Weber Cullen et al., 2000).

Of course, children can be equally responsive to less healthful options when made available. Because their preferences for high-fat, energy-dense foods are, in part, learned, providing children with frequent exposure to such foods may reinforce their liking for them (Johnson SL et al., 1991). In the 2002 FITS, which examined the dietary intake of 3,022 infants and toddlers, parents reported that 23 percent of infants and 33 percent of toddlers had not consumed any fruit during the preceding 24 hours; similarly 18 percent and 33 percent of infants and toddlers, respectively, had not consumed any vegetables (Fox et al., 2004). This study also reported changes in intake from 4 to 8 months of age when deep yellow vegetables (e.g., carrots, sweet potatoes, squash) were the vegetables consumed most often, to the patterns at 15 to 18 months, when French fries or other fried potatoes were the predominant vegetables (Fox et al., 2004). **Parents should promote healthful food choices among toddlers and young children by making a variety of nutritious, low-energy-dense foods, such as fruits and vegetables, available to them. Encouraging toddlers and young children to try a variety of foods, including fruits and vegetables, often involves offering new foods multiple times.**

Beyond quality is the issue of quantity. Limited empirical evidence suggests that children, especially those in the toddler years, have a physiological sense of satiety that guides them to eat only until they are full.

McConahy and colleagues (2002) found that the food portion sizes consumed by children 1 to 2 years of age have been consistent over the past 20 years. However, as children develop, they become increasingly responsive to environmental cues such as portion size; by the age of 5 years, larger portions can lead to increased food intake (Rolls et al., 2000). This issue is discussed further below.

Older Children and Youth

As children develop, they play an expanding role in determining the foods that are available to them. They make their own choices at school and in other out-of-home settings, and they increasingly influence family food purchases. Furthermore, as they begin to be influenced by their peers and the broader culture, they may make certain food choices based on popular appeal. It is also important to note, however, that parents are important role models and their dietary intake influences that of their children (see section below on role models).

Food and Beverage Selection and Availability

Parents can promote wise food selections and a wholesome overall diet by making nutritious options available to children. Research has shown that children's consumption of fruit, 100 percent fruit juice, and vegetables are positively influenced by the availability and accessibility of these foods in the home (Nicklas et al., 2001; Cullen et al., 2003). Similarly, parents can limit the types and quantity of energy-dense high-calorie foods (e.g., cookies, chips) that are available in the home, particularly those that have low nutrient content. Improved consumer nutrition information in restaurants and on food labels (see Chapter 5) will provide parents and young people with enhanced information on which to base their dietary decisions.

Parents are responsive to children's attempts to influence food purchases (Galst and White, 1976). Interviews with 500 children and youth aged 8 to 17 years found that 78 percent of respondents noted that they influence family food purchases (Roper ASW, 2003). For their part, 84 percent of the parents stated that their children do indeed influence such purchases.

The Dietary Guidelines for Americans and the Food Guide Pyramid provide information on the types of foods that make up a balanced and nutritious diet (USDA and DHHS, 2000; USDA, 2004). Although it is not the purpose of this report to duplicate that information, **the committee wishes to emphasize the responsibilities of children (particularly older children), youth, and parents in choosing and providing a balanced diet. Parents should promote healthful food choices by school-age children and**

youth by making a variety of nutritious, low-energy-dense foods, such as fruits and vegetables, available in the home. Because nutrient quality should be a major consideration in selecting the family's foods and beverages, parents should limit their purchases of items characterized by high caloric content and low nutrient density.

The mealtime setting has been shown to affect diet quality in children and youth. Several studies have shown that increased frequency of family dinners is positively associated with older children's and adolescents' consumption of fruits and vegetables, grains, and calcium-rich foods, and negatively associated with their consumption of fried food and soft drinks (Gillman et al., 2000; Neumark-Sztainer et al., 2003a). The influence of watching television during mealtime is another area for further research. Coon and colleagues (2001) found that watching television during mealtime was associated with consumption of fewer fruits and vegetables and increased consumption of soft drinks, salty snacks, pizza, and red meat.

One of the issues that has been raised regarding childhood obesity is the potential role of sweetened beverages, such as soft drinks and "flavored drinks" (not 100 percent juices). These beverages do not provide nutrients that are needed by growing children, but do increase the caloric intake. Nevertheless, soft drink consumption more than tripled among adolescent boys between 1977-1978 and 1994, rising from 7 to 22 ounces per day (Guthrie and Morton, 2000; French et al., 2003). By the time they are 14 years of age, 32 percent of adolescent girls and 52 percent of boys are consuming three or more eight-ounce servings of soft drinks daily (Gleason and Sutor, 2001). FITS reported that infants as young as 7 months of age are consuming soft drinks as well (Fox et al., 2004). There are concerns about the effect of increased soft drink consumption on reducing micronutrient intakes and increasing energy intake (IOM, 2002) and on displacing the intake of more nutrient-rich options such as milk (ADA, 2004). Milk consumption by adolescents declined 36 percent from 1965 to 1996 (Cavadini et al., 2000). An analysis of data from the 1994-1996, 1998 Continuing Survey of Food Intakes by Individuals (CSFII) found that children and adolescents (>12 years of age) drank more soft drinks than milk, 100 percent juices, or fruit drinks (Rampersaud et al., 2003).

The link between beverage consumption and body mass index (BMI) is not definitive. In an analysis of CSFII data, Forshee and Storey (2003) reported that BMI calculated from self-reported height and weight had little or no cross-sectional association with beverage consumption. In contrast, in a prospective study of middle schoolers in which height and weight were measured directly, Ludwig and colleagues (2001) reported significant positive associations between sweetened beverage consumption and increases in BMI and obesity incidence. In a recent randomized controlled trial of a 1-year classroom-based intervention focused on carbonated beverages, dental

health, and dietary intake, James and colleagues (2004) reported a significant decrease in the prevalence of overweight and obesity in the group of children receiving the intervention compared to controls. However, methodological limitations prevent conclusions regarding whether reducing soft drink consumption led to the observed changes in obesity prevalence (French et al., 2004). Further, experimental studies of the effects of reducing sweetened beverage intakes are needed to examine the potential efficacy of this approach for reducing weight gain, as well as the hypothesized causal link between sweetened beverage consumption and obesity.

Much remains to be learned about whether a unique association exists between intake of sweetened beverages and changes in BMI. Because of concerns about excessive consumption of sweetened options and the displacement of more nutrient-rich or lower calorie alternatives, children should be encouraged to avoid high-calorie, nutrient-poor beverages.

Portion Control and Eating in the Absence of Hunger

In addition to ensuring the quality of children's diets, it is important for parents to consider the quantity of food being consumed. Researchers examining the recent increases in portion sizes have found that Americans consumed larger portion sizes of nearly one-third of 107 widely consumed foods when comparing 1989-1991 with 1994-1996 data (Nestle, 2003; Smiciklas-Wright et al., 2003).

Although long-term studies investigating the effects of portion size on weight gain are lacking, short-term studies confirm that larger portions do increase intake, especially among adults and children aged 5 years and older. In research involving a range of foods that included sandwiches, macaroni and cheese, popcorn, and cookies, the larger the portion size offered, the larger the amount consumed (reviewed by Rolls, 2003; Diliberti et al., 2004).

While evidence shows that infants and toddlers can self-regulate their energy intake (discussed earlier), a series of studies found that by the age of 5 many children eat what they are served; physiological satiety cues, if they are present, are overridden by environmental cues (such as larger portion sizes) that stimulate them to eat more, even if they are not hungry (Rolls et al., 2000). In this research, 3- to 5-year-olds were fed a standard lunch on two different days in their usual preschool setting. Lunches differed only in the portion size of the entrée. Older preschoolers responded in much the same way that adults do; when given a larger portion, they ate more. But younger children were relatively unresponsive to portion size, providing more indirect support that they are still eating primarily in response to internal signals of hunger and satiety (Rolls et al., 2000; see Rolls, 2003 for a review of the adult literature).

In subsequent research, Orlet-Fisher and colleagues (2003) explored

the effects of children's chronic exposure to large portions. Results indicated that when served larger portions, children ate substantially more food—but giving them the opportunity to serve themselves mitigated these effects because they tended to self-select smaller portions. In one study, they consumed 25 percent less of the lunch entrée when they served themselves, as compared to other occasions when a larger portion was served to them (Orlet-Fisher et al., 2003). The portion sizes that the children self-selected and consumed were more similar to standard, recommended serving sizes than to the large portions they had been offered, suggesting that giving children control over portion size may prevent overeating or eating in the absence of hunger.

The goal for parents is to promote the normal and effective development of internal satiety cues so that children learn to rely on their own sense of fullness. However, research suggests that restricting palatable foods can lead to increased preference for these foods and that pressuring children to “clean the plate” can encourage overeating. Such practices can prompt children to attend to external cues, such as the availability of food or the amount remaining on the plate, and divert them from internal cues of hunger and satiety (Birch et al., 1987; Fisher and Birch, 1999; Orlet-Fisher et al., 2003). Golan and Crow (2004) point out the impact of parenting styles on children's eating behaviors: “authoritative parenting (in which parents are both firm and supportive and assume a leadership role in the environmental change with appropriate granting of child's autonomy) rather than authoritarian style (which controls child-feeding practices) was found to be the effective parental child-feeding modality” (p. 358).

Child characteristics influence the choice of these feeding practices; overweight children tend to elicit higher levels of parental restriction, and thinner children are more likely to be pressured to eat. Pressure and restriction tend to be used with different foods (pressure with perceived “healthful foods” that parents want to encourage; restriction with some snack foods that parents want to limit), but a parent who uses one tactic is likely to use the other as well (Fisher et al., 2002). However, one of the limitations of this research to date is that it has been conducted with middle-class white families and sometimes only with one gender, severely limiting the ability to generalize.

Research has also shown that using foods as rewards or in other positive contexts can result in greater preference for and intake of those foods (Birch et al., 1980; Birch, 1981). Furthermore, this practice dissociates eating from hunger. Parents should avoid using food as a reward.

More research is also needed to understand developmental progression—the neural and physiological underpinnings of hunger and satiety—and the regulation of food intake and energy balance. It is also important to learn more about how the timing of snacks and meals influence eating and weight status.

Meanwhile, research results that have been obtained thus far should prompt parents to consider making constructive family policies that move away from pressures and restrictions and more toward positive practices regarding what, where, and when foods and beverages can be consumed. Such practices, by which parents can help children learn to regulate their own energy intake, include the following:

- Allow children to determine their own portions at meals.
- Encourage children to pay attention to their own internal signals of fullness and permit them to decide when they have finished eating a meal. Do not insist on their “cleaning the plate.”
- Avoid using food as a reward. This practice dissociates eating from hunger and clearly establishes preferences for foods used as rewards.
- Make fruits and vegetables readily available in the home to encourage selection of these foods as snacks and desserts.
- Offer smaller portions of foods (e.g., smaller cookies or slices of pizza).
- Carefully consider the quality of and the possible need to limit the types of snack foods and beverages that are available and accessible to children in the home.

Parents should educate their children, from a young age, about making decisions regarding dietary intake, so that as they get older, the children can take on increasing responsibility for decisions regarding the types and amounts of foods and beverages they consume. While permitting children to determine portion sizes for themselves, parents should encourage smaller portions with an option for seconds. For children too young to serve themselves, parents should offer age-appropriate portion sizes.

PROMOTING PHYSICAL ACTIVITY

There is still much to be learned about the determinants of physical activity and fitness in children and adolescents and how to influence their level of activity throughout the developmental stages. As discussed throughout the report, physical activity can influence the body-fat level of children (Gutin et al., 2004).

Correlates of Physical Activity

Developmental, Biological, and Psychosocial Correlates

Children’s gender and age are both important factors to consider in examining physical activity levels. Boys are generally more involved in

moderate to vigorous physical activity than are girls (DHHS, 1996; Sallis et al., 2000). Explanations may include differential development of motor skills, body composition differences during growth, variations in socialization regarding sports and physical activity, and other social and environmental factors (Sallis et al., 1992; Kohl and Hobbs, 1998). From a developmental perspective, unstructured gross motor play is important in young children for optimal brain development and is important for social, emotional, and cognitive development (Butcher and Eaton, 1989; Pica, 1997). As children get older they are generally less physically active, although this may be more true for girls than for boys (Goran et al., 1999). The social, psychological, and behavioral effects of puberty may play an important role in physical activity levels (Lindquist et al., 1999), although more research is needed, particularly research that focuses on measured physical activity (e.g., using accelerometry) rather than self-report or other indirect methods of documenting physical activity.

The personal psychosocial factors that influence physical activity differ somewhat between children and adolescents. Intention to be physically active, preference for physical activity, positive beliefs about physical activity, enjoyment of physical activity, and enjoyment of physical education classes have been shown to be positively associated with physical activity in children (Stucky-Ropp and DiLorenzo, 1993; Pate et al., 1997; Trost et al., 1997, 1999; DiLorenzo et al., 1998; Sallis et al., 2000). Perceived barriers to physical activity (including not enough time or the activity is too hard) have been found to be negatively associated with physical activity behavior in children (Sallis et al., 2000).

In adolescents, correlates of physical activity include perceived activity competence, intention to be active, sensation seeking, perception of academic rank and academic expectations, and depression (an inverse correlate) (Sallis et al., 2000; Motl et al., 2002; Schmitz et al., 2002). Perceived self-worth, perceived time constraints, and value placed on health and appearance may influence prevalence of physical activity or change in physical activity levels in adolescent girls (Schmitz et al., 2002; Neumark-Sztainer et al., 2003b).

Physical activity self-efficacy (confidence in one's ability to participate in exercise) has been widely studied as a potential psychosocial correlate of increased levels of physical activity, but the association is not clear in children and adolescents (CDC, 1997).

Social Environment Correlates

The social environment in which children live strongly influences their health behaviors in general and levels of physical activity in particular, and the primary social influences on young people are their family and peers. But although it is intuitively attractive to hypothesize that parents' physical

activity behavior correlates with that of their children, research does not definitively support that hypothesis. Sallis and colleagues (2000), in a review of correlational studies, reported that parents' physical activity had an indeterminate relationship to children's physical activity. Kohl and Hobbs (1998), however, reported that children whose parents are physically active are much more likely than other children to be physically active.

In any case, parents' *support* for a child or adolescent's physical activity, and the perceptions of their parents' physical activity behavior, do appear to be important correlates of physical activity in children and youth. Parental support can include a wide range of actions, from encouraging the child or adolescent to try or to continue a new activity, to providing transportation to an activity class, to purchasing sports equipment.

Researchers have identified several family variables, including support for physical activity, mother's perception of barriers to physical activity, and parental modeling of physical activity, to be associated with physical activity levels in fifth- and sixth-grade boys and girls (Stucky-Ropp and DiLorenzo, 1993; DiLorenzo et al., 1998). Trost and colleagues (1997, 1999) found that perception of mother's physical activity level was a correlate of vigorous physical activity in fifth-grade girls and that active sixth-grade boys were more likely than nonactive boys to report that their mothers were physically active. Other studies have also identified family support for physical activity as a correlate of children's physical activity (Sallis et al., 2000; Zakarian et al., 1994).

Although the focus of influence in adolescence shifts from family to peers, parents and other family members continue to influence teenagers' physical activity. In the studies reviewed by Sallis and colleagues (2000), parental support, direct help from parents in being physically active, and siblings' physical activity were consistently correlated with adolescents' physical activity. McGuire and colleagues (2002) found a significant, though modest, relationship between parents' reported encouragement and physical activity levels in female adolescents of all racial and ethnic groups and in African-American and white boys. In a population of inactive adolescent girls, social support from parents, peers, and teachers was consistently and positively associated with change in physical activity over time (Neumark-Sztainer et al., 2003b). Researchers did not find a clear positive correlation between parents' reported physical activity behaviors and those of their teenage children (McGuire et al., 2002).

Although Schmitz and colleagues (2002) found that young adolescents who received free or reduced-price lunches reported higher levels of physical activity, most studies report a positive correlation between parents' education and socioeconomic status (SES) and children's physical activity (Pate et al., 1996; Gordon-Larsen et al., 2000). Parents who have the time and resources to participate in physical activity themselves may be better

able to encourage their children to do likewise, and they are more apt to have the resources to enroll their children in sporting activities and provide sports equipment and the associated transport (Koivisto et al., 1994; Sallis et al., 1999). Researchers have identified other barriers faced by low-income families with regard to healthful physical activity behaviors, including a lack of safe places for physical activity (AAP, 2003).

Physical Environment Correlates

As discussed in Chapters 6 and 7 on communities and schools, there are many factors—including safety and access to physical activity opportunities—that play important roles in determining when, where, and how children engage in physical activity. One of the strongest correlates of physical activity in children is the amount of time spent outside (Klesges et al., 1990; Baranowski et al., 1993; Sallis et al., 1993). In most homes, after all, there are limited options for physical activity inside the home, and it is outdoors where children are generally more physically active and where more energy is expended.

Family-Based Interventions

A recent comprehensive review of physical activity interventions identified 11 studies that were family-based and met the methodological criteria of the Task Force on Community Preventive Services (Kahn et al., 2002). Most of these interventions were implemented as parts of multicomponent school-based studies such as the Child and Adolescent Trial for Cardiovascular Health (described in Chapter 7) and generally involved parent-child activities that were completed at home (Johnson CC et al., 1991; Hopper et al., 1992, 1996; Davis et al., 1995; Edmundson et al., 1996; Sallis et al., 1997; Manios et al., 1999). Four other family-based studies (Nader et al., 1983, 1989; Bishop and Donnelly, 1987; Baranowski et al., 1990) examined interventions to educate families on nutrition and physical activity through sessions at community centers or schools. The interventions that were part of a school-based program were marginally more effective in increasing physical activity or improving indicators of cardiovascular fitness, but it was not possible to differentiate the effects of the family intervention from those of the other study components. In another study, Taggart and colleagues (1986) demonstrated that a program that used parent training and family contracting increased physical activity in children with low fitness levels.

More remains to be learned about developmentally appropriate interventions to encourage physical activity, as well as about the changes in the nature and duration of physical activity throughout childhood and adoles-

cence. The development of better tools for measuring physical activity will help to eliminate some of the inconsistencies found in the data and is an important research need. It is also important to learn more about the factors during childhood and adolescence that foster lifelong habits of daily physical activity.

Promoting Physical Activity

Parents should promote physical activity by supporting and encouraging children and youth to be active and play outdoors and participate in opportunities for physical activity. This may increase the time that parents spend outdoors interacting with their children or ensuring their safety or going with their children to the park, playground, gymnasium, or other appropriate location for physical activity. The ancillary benefits of physical activity and outdoor play and interaction are numerous. For children, youth, and parents, the time spent interacting outdoors increases opportunities for social contact, nurturing, bonding, and maturational guidance. In some residential areas, where safety is such a concern that parents cannot let their children play outside the home, there is a particular need for the community to develop and foster opportunities for outside play—including parks, playgrounds, and recreational facilities (see Chapter 6).

There are numerous ways in which parents can help to increase their child's or adolescent's physical activity levels by supporting and engaging in a range of recreational or utilitarian (e.g., walking to the grocery store) activities that may promote lifelong habits of regular physical activity (Shape Up America, 2004). Examples include:

- Walking or bicycling (with proper safety measures including helmets) to run errands or as a regular means of transport
- Encouraging and monitoring outdoor play
- Assessing the community for opportunities for physical activity and supporting participation by the child and family (e.g., parks, baseball fields, soccer fields, lakes, pools, gyms, community and youth programs, recreational leagues, and camps)
- Engaging in family outings and vacations that are centered around physical activity
- Giving gifts (e.g., jump ropes, balls, sports equipment) that encourage activity.

Not every parent has the skills to coach a child in a particular physical activity, but parents can still function as “cheerleaders” for their child and adolescent. This type of emotional support is not only meaningful and rewarding to the child but also may encourage still more physical activity.

Furthermore, parents can be effective advocates in their schools and communities for increased recess, physical education, recreational facilities, playgrounds, parks, and sidewalks.

It is also important for parents, children, and youth to take advantage of the opportunities for physical activity that come along throughout the day and to realize that not all physical activity has to be a planned event. Examples include walking to do errands or having children walk at the grocery store or mall rather than ride in shopping carts or strollers.

DECREASING INACTIVITY

A complementary strategy for promoting physical activity among children and youth is to decrease their *inactivity*. Of the sedentary behaviors that may be linked to the upsurge in childhood obesity, television watching has been most widely studied. Other types of screen time (such as computer use and video game playing) have not been researched as extensively with regard to obesity, though they share many similarities in principle; various combinations, in fact, are often examined along with television in studies of media use and obesity. One study found that the time spent watching television, taped television shows, or commercial videos averaged per day: 2.5 hours for children between the ages of 2 and 7, 4.5 hours for 8- to 13-year-olds, and 3.3 hours for 14- to 18-year-olds (Roberts et al., 1999). The 2003 Youth Risk Behavior Surveillance nationwide survey found that 38.2 percent of high school students reported watching television three hours or longer on an average school day; 67.2 percent of African-American students, 45.9 percent of Hispanic students, and 29.3 percent of white students reported three or more hours of television viewing (CDC, 2004c).

Television viewing may have a negative effect on both sides of the energy balance equation. It may displace active play and physical activity time, and it is associated with increased food and calorie intake—as an accompaniment of television viewing, as a result of food advertising, or both (Robinson, 2001a). Many epidemiological studies have found positive associations between increased prevalence of obesity or overweight and greater lengths of television viewing time, although comparing the results is difficult due to differences in methods and reporting (reviewed by Robinson, 2001b). Gortmaker and colleagues (1996) found a strong positive association between parent or child reports of children's television watching time and prevalence of obesity. This study of 746 children and youths (ages 10 to 15 years) found that those who watched more than five hours of television per day were 4.6 times as likely to be obese as those watching zero to two hours. This observation held when adjusted for maternal overweight, SES, and other factors.

Similarly, Crespo and colleagues (2001) found that in a sample of

4,069 children and adolescents aged 8 to 16 years, the prevalence of obesity was highest for those watching four or more hours of television a day and lowest among those watching one hour or less. Other studies have reported associations that were not statistically significant, but all have generally found associations of similar magnitude (reviewed by Robinson, 2001b). Dennison and colleagues (2002) found in a cross-sectional survey that children with televisions in their bedrooms spent an additional 4.6 hours per week watching television or videos. Furthermore, the investigators observed that the prevalence of BMIs greater than the 85th percentile was higher in children with a television in their bedroom than in those without one.

In attempting to determine how television viewing may promote childhood obesity, studies have examined the advertising of foods (particularly high-calorie, high-fat, or high-sugar foods and beverages), eating while watching television, decreased physical activity levels while viewing television, and the potential for physical activity that is lost due to time spent watching. An analysis of commercial advertising during children's programming time (Saturday morning television, in this study) found that more than half of the commercials (56.5 percent) were for food (Kotz and Story, 1994). A recent review of the literature on food advertising to children found that the four primary categories of food items advertised are breakfast cereals, snacks, candy, and soft drinks (Hastings et al., 2003). Additionally, the authors found a recent trend towards increased advertising by fast food restaurants. Research has shown that television advertising influences children's food knowledge, choices, and consumption of particular food products, as well as influencing purchase-related behavior and purchasing decisions (Gorn and Goldberg, 1982; Hastings et al., 2003).

Also, as noted earlier in this chapter, watching television during mealtime is associated with decreased intake of fruits and vegetables and increased consumption of soft drinks, salty snacks, pizza, and red meat (Coon et al., 2001). Children report consuming a large proportion of their daily calories while watching television, although there has not been evidence to date that the types or energy densities of foods that children eat while watching television differ significantly from those eaten when not watching (Matheson et al., 2004).

Studies of the nature and extent of associations between increased television viewing and decreased physical activity have produced inconsistent findings—possibly due, in part, to the known limitations of self- and parent-reporting on how children spend their time (Robinson, 2001b). A review by Sallis and colleagues (2000) noted that studies of children ages 4 to 12 had mixed results regarding the associations of sedentary behaviors (specifically, watching television and playing video games) with extent of physical activity, while in teenagers ages 13 to 18, there appeared to be no association. In one study of 191 3- to 4-year-olds that used direct observa-

tions of physical activity and television watching, physical activity levels were lowest during the longest periods of television watching (DuRant et al., 1994). In a study of sixth- and seventh-grade-girls, more hours of television watching was significantly but weakly associated with less reported physical activity (Robinson et al., 1993). Additionally, one experimental study of 13 8- to 12-year-old nonobese children did not find significant changes in short-term physical activity or energy expenditure when sedentary behavior (including television viewing) was decreased by 50 percent from baseline (Epstein et al., 2002). Natural experiments have found some evidence that introduction of television into communities where it did not exist previously does displace other more physical activities (Brown et al., 1974; Williams and Hanford, 1986). Thus, although a link between more screen time and less physical activity has face validity, clarification of this relationship must await the results of additional experimental studies with more objective measures.

Other factors that have been considered in the association of sedentary behaviors and obesity include computer use and video game play, parental patterns of sedentary behavior, parental monitoring of television viewing hours, and neighborhood characteristics such as safety of the area for outside play (Davison and Birch, 2001). Research has also been conducted to examine the possibility that television watching is associated with a decrease in children's metabolic rates, but results from those studies have been mixed (Klesges et al., 1993; Dietz et al., 1994; Buchowski and Sun, 1996).

A few family-based interventions have focused on reducing sedentary behaviors, particularly television watching, to influence eating and activity patterns, and ultimately to produce weight loss. Early results from these studies have shown promise, but are still too preliminary for making conclusions about their efficacy (Robinson et al., 2003). Indirect evidence supporting this approach, however, has come from two studies by Epstein and colleagues (1995, 2000) that tested the effect of reducing sedentary behaviors as part of an intensive, family-based weight-loss program for children who were already overweight. The program showed effects on weight loss that were at least comparable to efforts that targeted increasing physical activity directly or targeted the combination of decreasing sedentary behavior and increasing physical activity. This study demonstrates the validity of targeting decreased inactivity as a potentially effective strategy that is distinct from strategies seeking to increase physical activity.

Of most direct relevance to recommendations for preventing obesity are experimental studies showing that reducing the amount of television viewing and other sedentary behaviors reduces weight gain and prevalence of obesity both among population-based samples of children and adolescents (Gortmaker et al., 1999; Robinson, 1999) and groups of overweight children (Epstein et al., 1995). From a primary prevention perspective, two

school-based interventions with population-based samples of children and adolescents demonstrated that reductions in screen time, whether alone (Robinson, 1999) or as part of a more comprehensive obesity prevention program (Gortmaker et al., 1999), resulted in decreased gain in BMI and body fatness and reduced prevalence of obesity.

Although the specific mechanism(s) of how reducing television viewing influences weight gain is, as yet, undetermined, these demonstrated effects on reduced weight gain and obesity provide sufficient rationale for the recommendation to reduce children's screen time. The committee concludes that reducing children's and youth's screen time is an important population-based strategy for preventing obesity in children and youth, and that a time-limit recommendation would be most useful to parents, policy makers, and child health and education advocates and professionals. The committee notes that there are many ancillary reasons for recommending limits on children's television viewing time (despite the demonstrated benefits of some media content). The American Academy of Pediatrics has recommended that televisions not be placed in children's bedrooms, and it urges parents to limit their children's television viewing time to no more than one to two hours of quality programming per day; it also recommends that television viewing among children younger than 2 years be discouraged altogether (AAP, 2001). Many other child and health advocacy organizations and agencies have made comparable recommendations for reductions in television and other screen viewing time for a variety of reasons including violent media content (APA and AAP, 1995; AMA, 1996; NEA, 1999; DHHS, 2000; AACAP, 2001; National PTA, 2001).

The committee recommends that parents should limit their children's television viewing and recreational screen time to less than two hours per day. This specific time limit is derived from the evidence provided by the two school-based primary prevention intervention studies that demonstrated reductions in body weight, body fat, and prevalence of obesity. The interventions in those trials set goals to limit television, videotape, and video game use to no more than seven hours per week (Robinson, 1999) and to limit television viewing to less than two hours in any one day (Gortmaker et al., 1999). (It should be noted that a key word here is "recreational." The committee's recommendation does not preclude the use of computers and other media for educational purposes.)

An important part of parenting involves monitoring children's behaviors and setting and enforcing limits on those behaviors. Such family policies should be set for a variety of reasons, including the protection of young children (e.g., keeping them from playing in the street) and assurance of their healthy development. Naturally, there is great variation in the nature and extent to which parents set limits and how those limits change as the child matures. One challenge for parents of older children is knowing how

to involve them in decision-making so that they learn to apply limits for themselves; they should come to realize, for example, that they are responsible for their own health and need to practice health-promoting behaviors. But in the current food and activity environment—where palatable, energy-dense, and inexpensive foods are readily available and opportunities for sedentary behaviors are abundant—a degree of parental monitoring and limit setting is still needed to support eating and physical activity patterns that can maintain children's energy balance at a healthy weight.

PARENTS AS ROLE MODELS

Parents' eating behaviors can serve as models for children's behavior (Fisher and Birch, 1995; Cutting et al., 1999). Such models, however, can be either positive or negative. The current epidemic of adult obesity and the epidemiological data on adults' dietary and physical activity patterns suggest cause for concern (CDC, 2004a,b). But the public's growing awareness of the obesity epidemic and of the health consequences of obesity, in children and adults alike, may change these patterns. When parents adopt a healthier lifestyle, they may foster the development of healthful behaviors and patterns in their children, in addition to positively affecting their own well-being. Researchers have provided evidence that modeling and enhanced familiarity have independent significant effects on food intake (Cullen et al., 2000, 2003). With respect to physical activity, the provision of instrumental support for children's sports participation is associated with greater levels of physical activity among children (Davison et al., 2003).

Parents who consume fruits and vegetables, for example, have children who do the same (Cullen et al., 2001; Nicklas et al., 2001; Fisher et al., 2002). Comparable patterns are seen with milk intake, at least for mothers and daughters (Fisher et al., 2001). Similarly, parents who display their mastery of portion control can provide positive influences. Hill and colleagues have reported that mothers who diet or are restrained eaters tend to have daughters who show the same kinds of patterns (Hill et al., 1990; Pike and Rodin, 1991). Abramovitz and Birch (2000) found that mothers' dieting is the best predictor of their 5-year-old daughters' knowledge of dieting. Cutting and colleagues (1999) showed that familial similarities in mothers' and daughters' overweight status are mediated by similarities in "disinhibited overeating" (overeating in the absence of hunger).

As discussed earlier in this chapter, parents who are supportive of physical activity have children who are more physically active (Sallis et al., 1988; Davison et al., 2003). However, evidence for a direct effect of parent modeling on youth physical activity is inconsistent at best. This is in contrast to the stronger evidence for modeling regarding eating patterns. The discrepant findings may be explained by different mediators. If parents are

eating fruits and vegetables and drinking milk, it means those foods are readily available to the child. However, parents often engage in different types of physical activities than children or in different settings, so the parent going to a health club or on a run may not facilitate the child's physical activity and could serve as a barrier.

Researchers have compared the effects of different families' eating and activity patterns on their children. Families can be categorized as either "obesogenic," where physical activity is relatively low and energy and fat intakes are high, or nonobesogenic, where parents show higher levels of activity and lower energy intakes. For example, in one study, girls living in obesogenic families gained more weight from age 5 to 7 than girls from nonobesogenic families, and the former were more likely to be overweight at age 7 (Davison and Birch, 2002). These effects were mediated by similarities in mother-daughter eating patterns and father-daughter physical activity patterns, suggesting that while mothers were effective models for daughters' eating habits, fathers' levels of physical activity influenced their daughters in that area.

It is not known to what extent the observed effects of modeling reflect modeling per se or result simply from the fact that parents either do or do not establish routine access to healthful options so that these options are familiar to their children. That is, parents who eat a healthful diet and are active typically provide access to healthful food and opportunities for physical activity for their children as well. As discussed in Chapter 3, guidance regarding a balanced diet and regular physical activity is available through the Dietary Guidelines for Americans.

Parents should provide positive role models of eating and physical activity behaviors for their children. The committee urges parents to be positive role models for their children by decreasing the amount of time they engage in sedentary activities such as watching TV, increasing the amount of time they engage in physical activity each day, and modeling eating habits that include balance and variety in their food choices and portion control.

RAISING AWARENESS OF WEIGHT AS A HEALTH ISSUE

It is critically important that parents view childhood obesity as a health issue and realize that obesity can have a deleterious impact on physical as well as mental health, both during childhood and later in life. Yet parents of overweight or obese children do not always recognize their child's weight status and many are not fully aware of its adverse consequences (Young-Hyman et al., 2000; Etelson et al., 2003; Maynard et al., 2003).

Because children often exhibit idiosyncratic growth patterns, it is important to evaluate a child within the context of his or her own particular

growth history as well as relative to a healthy and appropriate reference population. For individuals under 20 years of age, BMI is a complex concept; not only do weight and height change as the body grows, but body-fat content and muscular development are also changing, and there are significant gender differences in the pattern of change. Thus it is important to use gender- and age-specific BMI percentiles to determine whether a particular child has excess weight.

During infancy, parents tend to be well aware of their child's weight and height, and it is not unusual for them to know where his or her measurements fall on the health-care provider's growth curves, which are derived from reference populations of healthy children of the same age and sex. However, as children grow, and particularly in the late elementary and middle- and high school years, this information often is *not* familiar to parents—unless they think their child is failing to grow, which may sensitize them to the need for careful monitoring and tracking. Parents may also notice particular periods of height change, as when the child rapidly outgrows his or her clothes. Because of the variable timing of growth spurts, and the sometimes dramatic changes in body composition with age, continued monitoring of growth on an annual basis is warranted; if concerns arise about the child's growth trajectory, parents should then discuss these issues with a qualified health-care professional.

Routine determination of children's BMI percentile, and regular communication between parents and health-care providers regarding their child's BMI-percentile history and current status, are crucial to increasing the knowledge base of parents regarding their child's growth pattern and weight status. Parents also need to be aware of the strong connection between good nutrition and physical activity to the child's weight—and to his or her health. If excessive weight gain is observed, it is important for parents to discuss follow-up steps and behavior changes with their child's health-care provider (see Chapter 6). These discussions should be sensitive to parental concerns about the stigma of obesity and its potential impact on the child's self-esteem and should take care to allay concerns about eating disorders (Borra et al., 2003).

Just as vaccination schedules require parental intervention during childhood, parents should be discussing the prevention of obesity with their health-care providers to make sure that the child is on a healthy growth track. **Parents should consider the weight of their children to be a critically important indicator of health. They should ensure that a trained professional routinely (at least once a year) measures their child's height and weight in order to track his or her age- and gender-specific BMI percentile.**

But given that many families do not have the health insurance to cover preventive services, and these types of health-care visits may therefore impose a financial burden, the committee also recommends (in Chapter 7)

that schools conduct periodic assessments of students' weight status and provide the resulting information to parents—and to the children themselves, as age-appropriate.

RECOMMENDATION

Home environments that support healthful eating and physical activity are important in helping children maintain energy balance at a healthy weight. Preventing childhood obesity starts with a healthful diet and lifestyle at conception and throughout pregnancy and is promoted by exclusive breastfeeding during infancy. As discussed throughout this chapter, parents can ensure that healthful foods are available in the home and that healthful eating behaviors (e.g., family meals, limited snacking, and portion control) are promoted. Older children and youth must be aware of their own eating habits and activity patterns and engage in health-promoting behaviors. By being supportive of their children's athletic and other interests in physical activity and by encouraging children to play outside, parents can enhance opportunities for moderate to vigorous physical activity and promote physical fitness. Furthermore, parents can set a good example for their children by modeling healthful eating behaviors and being physically active. Parents can also be effective advocates by becoming involved in efforts in their neighborhoods, schools, and community to improve neighborhood safety and to expand the access and availability of opportunities such as recreational facilities, playgrounds, sidewalks, bike paths, and farmers' markets (Chapters 6 and 7).

Recommendation 10: *Home*

Parents should promote healthful eating behaviors and regular physical activity for their children.

To implement this recommendation parents can:

- Choose exclusive breastfeeding as the method for feeding infants for the first four to six months of life
- Provide healthful food and beverage choices for children by carefully considering nutrient quality and energy density
- Assist and educate children in making healthful decisions regarding types of foods and beverages to consume, how often, and in what portion size
- Encourage and support regular physical activity
- Limit children's television viewing and other recreational screen time to less than two hours per day

- Discuss weight status with their child's health-care provider and monitor age- and gender-specific BMI percentile
- Serve as positive role models for their children regarding eating and physical activity behaviors

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Confronting the Childhood Obesity Epidemic



Obesity in U.S. children and youth is an epidemic characterized by an unexpected and excess number of cases on a steady increase in recent decades. The epidemic is relatively new but widespread, and one that is disproportionately affecting those with the fewest resources to prevent it. Although it does not have the exotic nature or immediate mortality of severe acute respiratory syndrome, anthrax, or Ebola virus, it is harming a much broader cross section of our young people and may significantly undermine their health and well-being throughout their lives. Obesity can affect a child's health immediately through physical or psychological conditions such as type 2 diabetes, hypertension, steatohepatitis, depression, and stigma. Obesity can also affect a child's health in the longer term with additional illnesses that include arthritis, cancer, and cardiovascular disease.

Infectious disease epidemics require and usually receive immediate high-level attention, with resources invested to control the problem and prevent its recurrence. Childhood obesity must be treated with comparable urgency. As with other emerging health problems, our degree of knowledge and arsenal of effective interventions are quite limited. But we do not have the luxury of waiting to accumulate large bodies of evidence. Therefore, it behooves us to chart our course of action wisely based on what evidence we have—drawing from our dealings with analogous problems and the outcomes of natural experiments—and learn as we proceed. Complicating the process will be the multiple causes and correlates of childhood obesity and the need for many concurrent actions and interventions. Nevertheless, as

we carefully evaluate our programs and policies in terms of efficacy, effectiveness, and cost utility, we can devise new and innovative approaches based on our experience, discard those that are less useful, promote those that work, and follow through accordingly.

Childhood obesity is complex because it has biological, behavioral, social, economic, environmental, and cultural causes, which collectively have created over decades an adverse environment for maintaining a healthy weight. This environment is characterized by:

- Urban and suburban designs that discourage walking and other physical activities
- Pressures on families to minimize food costs and acquisition and preparation time, resulting in frequent consumption of energy-dense convenience foods that are high in calories and fat
- Reduced access and affordability in some communities to fruits, vegetables, and other nutritious foods
- Decreased opportunities for physical activity at school and after school, and reduced walking or biking to and from school
- Competition for leisure time that was once spent playing outdoors with sedentary screen time—including watching television or playing computer and video games.

The result is that obesity from unhealthful eating and inactivity has rapidly become the social norm in many communities across America. In that respect, the nation is moving away from—instead of toward—the “healthy people in healthy communities” vision of *Healthy People 2010*. Although assigning blame for this situation may be easy, it is unlikely to be accurate or productive. In general, the average person does not make the conscious choice to become obese, despite the adverse health and social consequences. No industry aims to promote weight gain among its customers. Nonetheless, excess weight is gained slowly over time as companies develop and market foods and beverages to maximize revenues; community zoning and street-design decisions are influenced by numerous social and financial pressures; schools face scheduling constraints in fitting everything into the school day while facing the reality of budgetary limits; and individuals make small but cumulative behavioral decisions daily about eating and physical activity in the obesogenic environment that surrounds them.

Now that the nation has begun to realize the significant health, psychological, and societal costs of an unhealthy weight, it is time to re-examine its way of thinking and revise the social norms that are now accepted. This process should span virtually the entire spectrum of society, from corporate board rooms to federal agencies, from elected officials to health insurers and employee unions, from health and medical professionals to teachers

and school administrators, from foundations and public service organizations to medical and public health researchers, and of course, it must involve entire communities and families, including parents, relatives, friends, and the children themselves. Although this challenge may appear to be overwhelming, there have been many examples over the past century—relating to smoking, seatbelts, and children’s car seats, for example—of substantial shifts in the American culture, society’s outlook, and, most important, in people’s behavior and their health outcomes. Culture is not a static set of values and practices. It is continuously recreated as people adapt and redefine their values and behaviors to changing realities. These changes have occurred once there has been a collective understanding of the severity of the problem, its impact on health, and mobilization around the potential for improvement. Similar conditions now apply to childhood obesity, and the need for change should be particularly compelling in that the health of America’s children is at stake.

As institutions, organizations, and individuals across the nation begin to make changes, social norms are also likely to change, so that obesity in children and youth will be acknowledged as an important and preventable health outcome and healthful eating and regular physical activity will be the accepted and encouraged standard.

Changing the social norms toward healthful lifestyles will have amplified benefits. Individual-level changes toward nutritious diets and increases in physical activity levels have short- and long-term potential for improved health and well-being. Likewise, the enhancements and improvements made to the built and social environments in our communities to improve access to healthful foods and opportunities for physical activity may also improve the safety of neighborhoods and street crossings and strengthen community cohesion.

Preventing childhood obesity should become engrained as a collective responsibility requiring individual, family, community, corporate, and governmental commitments. The key will be to bring changes to bear on this issue from many directions, at multiple levels, and through collaboration within and between many sectors. For example, shared responsibilities on issues such as increasing outdoor play opportunities and walking- or biking-to-school programs will require attention from zoning and planning commissions, public works departments, public safety and police agencies, school boards, parks commissions, community members, and parents.

This is a major societal health problem that will be minimally affected by isolated measures or selectively assigned responsibilities. It will also require a long-term commitment spanning many years and possibly decades because the epidemic has taken years to develop and will require persistent efforts and the investment of sustained resources to effectively ameliorate.

As with many health issues, there are high-risk populations, including low-income and ethnic minority communities, for which obesity prevention initiatives will need to be particularly focused. Resources will need to address a range of issues such as safety, language barriers, limited access to food and health services, income differentials, and the influence of culture on food selection and preferences for available physical activities.

Tough choices will have to be made at all levels of society. There will be trade-offs in convenience, in cost, in what's "easy," in pushing one's self and one's organization, in choosing between priorities, in devising new laws and regulations, and in setting limits on individuals and on industries.

Science can best help by integrating a traditional biomedical approach to such health concerns with behavioral and social science research. Effective solutions lie not in a magical "eat all you want" pill but rather in intensive, often laborious, and long-term improvements in the environments that surround children in their homes, schools, communities, commercial markets, and modes of entertainment. While biology may often encourage us to eat more than we need to, biological solutions are not the answer from an ethical or practical perspective. Nor is genetics the primary problem or the sole determinant. Rather, it is the complex interplay among an individual's knowledge, attitudes, values, behaviors, and environments that play the most influential roles in promoting obesity.

In reviewing the available evidence to inform this report, there was an abundance of scientific studies on the causes and correlates of obesity but few studies testing potential solutions within diverse and complex social and environmental contexts, and no proven effective population-based solutions. Moreover, a concern of the committee is that even if many of the recommended actions are implemented, research should contain a better balance between studies that continue to address the underlying causes of the obesity epidemic and studies that test potential *solutions*—that is, identifying appropriate methodologies for effectively promoting healthful eating and physical activity and reducing sedentary behaviors that will support obesity prevention in children and youth.

NEXT STEPS FOR ACTION AND RESEARCH

Recognizing the multifactorial nature of the problem, the committee deliberated on how best to prioritize the next steps for the nation in preventing obesity in children and youth. The traditional method of prioritizing recommendations of this nature would be to base these decisions on the strength of the scientific evidence demonstrating that specific interventions have a direct impact on reducing obesity prevalence and to order the evidence-based approaches based on the balance between potential benefits and associated costs including potential risks. However, a robust evidence

base is not yet available. Instead, we are in the midst of compiling that much needed evidence at the same time that there is an urgent need to respond to this epidemic of childhood obesity. Therefore, the committee used the best scientific evidence available—including studies with obesity as the outcome measure and studies on improving dietary behaviors, increasing physical activity levels, and reducing sedentary behaviors as well as years of experience and study on what has worked in addressing similar public health challenges—to develop the recommendations presented in this report. These recommendations constitute the committee's priorities and the recommended steps to achieve them.

As evidence was limited, yet the health concerns are immediate and warrant preventive action, it is an explicit part of the committee's recommendations that obesity prevention actions and initiatives should include evaluation efforts to help build the evidence base that continues to be needed to more effectively fight this epidemic.

From the report's ten recommendations, the committee has identified a set of immediate steps based on the short-term feasibility of the actions and the need to begin a well-rounded set of changes that recognize the diverse roles of multiple stakeholders (Table 9-1). In discussions and interactions that have already begun and will follow with this report, each community and stakeholder group will determine their own set of priorities and next steps. Furthermore, action is urged for all areas of the 10 recommendations, as the list in Table 9-1 is only meant as a starting point.

The committee was also asked to set forth research priorities. There is still much to be learned about the causes, correlates, prevention, and treatment of obesity in children and youth. Because the focus of this study is on prevention, the committee concentrated its efforts throughout the report on identifying areas of research that are priorities for progress toward preventing childhood obesity. The three research priorities discussed throughout the report are:

- Evaluation of obesity prevention interventions—The committee encourages the evaluation of interventions that focus on preventing obesity, improving dietary behaviors, increasing physical activity levels, and reducing sedentary behaviors. Specific policy, environmental, social, clinical, and behavioral intervention approaches should be examined for their feasibility, efficacy, effectiveness, and sustainability. Evaluations may be in the form of randomized controlled trials and quasi-experimental trials. Cost effectiveness research should be an important component of evaluation efforts.
- Behavioral research—The committee encourages experimental research examining the fundamental factors involved in changing dietary behaviors, physical activity levels, and sedentary behaviors. This research

TABLE 9-1 Immediate Steps

Federal government	<ul style="list-style-type: none"> • Establish an interdepartmental task force and coordinate federal actions • Develop nutrition standards for foods and beverages sold in schools • Fund state-based nutrition and physical activity grants with strong evaluation components • Develop guidelines regarding advertising and marketing to children and youth by convening a national conference • Expand funding for prevention intervention research, experimental behavioral research, and community-based population research; strengthen support for surveillance, monitoring, and evaluation efforts
Industry and media	<ul style="list-style-type: none"> • Develop healthier food and beverage product and packaging innovations • Expand consumer nutrition information • Provide clear and consistent media messages
State and local governments	<ul style="list-style-type: none"> • Expand and promote opportunities for physical activity in the community through changes to ordinances, capital improvement programs, and other planning practices • Work with communities to support partnerships and networks that expand the availability of and access to healthful foods
Health-care professionals	<ul style="list-style-type: none"> • Routinely track body mass index in children and youth and offer appropriate counseling and guidance to children and their families
Community and nonprofit organizations	<ul style="list-style-type: none"> • Provide opportunities for healthful eating and physical activity in existing and new community programs, particularly for high-risk populations
State and local education authorities and schools	<ul style="list-style-type: none"> • Improve the nutritional quality of foods and beverages served and sold in schools and as part of school-related activities • Increase opportunities for frequent, more intensive and engaging physical activity during and after school • Implement school-based interventions to reduce children's screen time • Develop, implement, and evaluate innovative pilot programs for both staffing and teaching about wellness, healthful eating, and physical activity
Parents and families	<ul style="list-style-type: none"> • Engage in and promote more healthful dietary intakes and active lifestyles (e.g., increased physical activity, reduced television and other screen time, more healthful dietary behaviors)

should inform new intervention strategies that are implemented and tested at individual, family, school, community, and population levels. This would include studies that focus on factors promoting motivation to change behavior, strategies to reinforce and sustain improved behavior, identification and removal of barriers to change, and specific ethnic and cultural influences on behavioral change.

- Community-based population-level research—The committee encourages experimental and observational research examining the most important established and novel factors that drive changes in population health, how they are embedded in the socioeconomic and built environments, how they impact obesity prevention, and how they affect society at large with regard to improving nutritional health, increasing physical activity, decreasing sedentary behaviors, and reducing obesity prevalence.

The recommendations that constitute this report's action plan to prevent childhood obesity commence what is anticipated to be an energetic and sustained effort. Some of the recommendations can be implemented immediately and will cost little, while others will take a large economic investment and require a longer time to implement and to see the benefits of the investment. Some will prove useful, either quickly or over the longer term, while others will prove unsuccessful. Knowing that it is impossible to produce an optimal solution a priori, we more appropriately adopt surveillance, trial, measurement, error, success, alteration, and dissemination as our course, to be embarked on immediately. Given that the health of today's children and future generations is at stake, we must proceed with all due urgency and vigor.

A



Acronyms

AAFP	American Academy of Family Physicians
AAP	American Academy of Pediatrics
ADA	American Dietetic Association; also American Diabetes Association
ALSPAC	Avon Longitudinal Study of Pregnancy and Childhood
AMA	American Medical Association
APA	American Psychological Association
ARS	Agricultural Research Service
ASSIST	American Stop Smoking Intervention Study
BLS	U.S. Bureau of Labor Statistics
BMI	Body mass index
BRFSS	Behavioral Risk Factor Surveillance System
CACFP	Child and Adult Care Food Program
Caltrans	California Department of Transportation
CARU	Children's Advertising Review Unit
CATCH	Child and Adolescent Trial for Cardiovascular Health program
CDC	Centers for Disease Control and Prevention
CFSC	Community Food Security Coalition
CHD	coronary heart disease
CHSI	Community Health Status Indicators project
CMS	Centers for Medicare & Medicaid Services

CNU	Congress for the New Urbanism
CSF	Curriculum and Standards Framework
CSFII	Continuing Survey of Food Intakes by Individuals
CSPI	Center for Science in the Public Interest
CVD	Cardiovascular disease
DALYs	Disability-adjusted life years
DHHS	U.S. Department of Health and Human Services
DRI	Dietary Reference Intake
DV	Daily Value (as in % DV)
DVD	Digital video disc
DXA	Dual energy X-ray absorptiometry
EER	Estimated Energy Requirement
EFNEP	Expanded Food and Nutrition Education Program
EPA	U.S. Environmental Protection Agency
FAO	Food and Agricultural Organization
FCC	U.S. Federal Communications Commission
FDA	U.S. Food and Drug Administration
FGP	Food Guide Pyramid
FITS	Feeding Infants and Toddlers Study
FMI	Food Marketing Institute
FMNV	Foods of minimal nutritional value
FNB	Food and Nutrition Board
FSP	Food Stamp Program
FTC	Federal Trade Commission
GAO	U.S. Government Accountability Office (previously U.S. General Accounting Office)
GEMS	Girls Health Enrichment Multi-site Study
HDL	High-density lipoprotein
HEI	Healthy Eating Index
HPDP	Health Promotion and Disease Prevention Board
IFIC	International Food Information Council
IMPACT	Improved Nutrition and Physical Activity Act
IOM	Institute of Medicine
ITE	Institute of Transportation Engineers
KEDS	Kids' Eating Disorders Survey

LDL	Low-density lipoprotein
LEAP	Lifestyle Education for Activity Program
LSRO	Life Sciences Research Organization
MEPS	Medical Expenditure Panel Survey
MHHP	Minnesota Heart Health Program
MOVE	Measurement of the Value of Exercise Project
M-SPAN	Middle-School Physical Activity and Nutrition
NACCHO	National Association of County and City Health Officials
NASPE	National Association for Sport and Physical Education
NCHS	National Center for Health Statistics
NCI	National Cancer Institute
NCQA	National Committee for Quality Assurance
NEA	National Education Association
NHANES	National Health and Nutrition Examination Survey
NHES	National Health Examination Survey
NHIS	National Health Interview Survey
NHLBI	National Heart, Lung, and Blood Institute
NHS	National Health Service (United Kingdom)
NHTS	National Household Travel Survey
NICHD	National Institute of Child Health and Human Development
NIDDK	National Institute of Diabetes and Digestive and Kidney Diseases
NIH	National Institutes of Health
NLEA	Nutrition Labeling and Education Act
NLSAH	National Longitudinal Study of Adolescent Health
NLSY	National Longitudinal Survey of Youth
NPTS	National Personal Transportation Survey
NRC	National Research Council
NSLP	National School Lunch Program
OECD	Organization for Economic Cooperation and Development
PE	Physical education
PPHEAL	Partnership to Promote Healthy Eating and Active Living
RCT	Randomized controlled trial
RDA	Recommended Dietary Allowance
RWJF	The Robert Wood Johnson Foundation
SARS	Severe acute respiratory syndrome
SBP	School Breakfast Program

SCT	Social cognitive theory
SES	Socioeconomic status
SHPPS	School Health Policies and Programs Study
SMART	Student Media Awareness to Reduce Television curriculum
SNDAS	School Nutrition Dietary Assessment Study
SPARK	Sports, Play, and Active Recreation for Kids program
USDA	U.S. Department of Agriculture
USPSTF	U.S. Preventive Services Task Force
VCR	video cassette recorder
WHO	World Health Organization
WIC	Special Supplemental Nutrition Program for Women, Infants, and Children
YMCLS	Youth Media Campaign Longitudinal Survey
YRBS	Youth Risk Behavior Survey
YRBSS	Youth Risk Behavior Surveillance System

B



Glossary

Active living A way of life that integrates physical activity into daily routines. The two types of activities that comprise active living are recreational or leisure, such as jogging, skateboarding, and playing basketball; and utilitarian or occupational such as walking or biking to school, shopping, or running errands.

Away-from-home foods Foods categorized according to where they are obtained such as restaurants and other places with wait service; fast food establishments and self-service or carry-out eateries; schools, including day care, after-school programs, and summer camp; and other outlets, including vending machines, community feeding programs, and eating at someone else's home.

Balanced diet The overall dietary pattern of foods consumed that provide all the essential nutrients in the appropriate amounts to support life processes, such as growth in children without promoting excess weight gain.

Basal metabolism The amount of energy needed for maintenance of life when a person is at digestive, physical, and emotional rest.

Body mass index BMI is an indirect measure of body fat calculated as the ratio of a person's body weight in kilograms to the square of a person's height in meters.

$$\text{BMI (kg/m}^2\text{)} = \text{weight (kilograms)} \div \text{height (meters)}^2$$

$$\text{BMI (lb/in}^2\text{)} = \text{weight (pounds)} \div \text{height (inches)}^2 \times 703$$

In children and youth, BMI is based on growth charts for age and gender and is referred to as BMI-for-age which is used to assess underweight, overweight, and risk for overweight. According to the Centers for Disease Control and Prevention (CDC), a child with a BMI-for-age that is equal to or greater than the 95th percentile is considered to be overweight. A child with a BMI-for-age that is equal to or between the 85th and 95th percentile is considered to be at risk of being overweight. In this report, the definition of obesity is equivalent to the CDC definition of overweight.

Built environment The man-made elements of the physical environment; buildings, infrastructure, and other physical elements created or modified by people and the functional use, arrangement in space, and aesthetic qualities of these elements.

Calorie A kilocalorie is defined as the amount of heat required to change the temperature of one gram of water from 14.5 degrees Celsius to 15.5 degrees Celsius. In this report, calorie is used synonymously with kilocalorie as a unit of measure for energy obtained from food and beverages.

Community A social entity that can be spatially based on where people live in local neighborhoods, residential districts, or municipalities, or relational such as people who have common ethnic or cultural characteristics or share similar interests.

Co-morbidity In relation to obesity, an associated condition such as hypertension, type 2 diabetes, or asthma that worsens with weight gain and improves with weight loss.

Competitive foods Foods and beverages offered at schools other than meals and snacks served through the federally reimbursed school lunch, breakfast and after-school snack programs. Competitive foods includes food and beverages items sold through à la carte lines, snack bars, student stores, vending machines, and school fundraisers.

Dietary Guidelines for Americans A federal summary of the latest dietary guidance for the public based on current scientific evidence and medical knowledge, issued by the U.S. Department of Health and Human Services and U.S. Department of Agriculture, and is revised every 5 years.

Dietary Reference Intakes A set of four, distinct nutrient-based reference values that replace the former Recommended Dietary Allowances in the United States. They include Estimated Average Requirements, Recommended Dietary Allowances, Adequate Intakes, and Tolerable Upper Level Intakes.

Disability A physical, intellectual, emotional, or functional impairment that limits a major activity, and may be a complete or partial impairment.

Disease An impairment, interruption, disorder, or cessation of the normal state of the living animal or plant body or of any of its components that interrupts or modifies the performance of the vital functions, being a response to environmental factors (e.g., malnutrition, industrial hazards, climate), to specific infective agents (e.g., worms, bacteria, or viruses), to inherent defects of the organism (e.g., various genetic anomalies), or to combinations of these factors; conceptually, a disease (which is usually tangible or measurable but may be symptom-free) is distinct from illness (i.e., the associated pain, suffering, or distress, which is highly individual and personal).

Energy balance A state where energy intake is equivalent to energy expenditure, resulting in no net weight gain or weight loss. In this report, energy balance in children is used to indicate equality between energy intake and energy expenditure that supports normal growth without promoting excess weight gain.

The relation between intake of food and output of work that is positive when the body stores extra food as fat and negative when the body draws on stored fat to provide energy for work.

Energy density The amount of energy stored in a given food per unit volume or mass. Fat stores 9 kilocalories/gram (gm), alcohol stores 7 kilocalories/gm, carbohydrate and protein each store 4 kilocalories/gm, fiber stores 1.5 to 2.5 kilocalories/gm, and water has no calories. Foods that are almost entirely composed of fat with minimal water (e.g., butter) are more energy dense than foods that consist largely of water, fiber, and carbohydrates (e.g., fruits and vegetables).

Energy expenditure Calories used to support the body's basal metabolic needs plus those used for thermogenesis, growth, and physical activity.

Energy intake Calories ingested as food and beverages.

Environment The external influences on the life of an individual or community.

Epidemic A condition that is occurring more frequently and extensively among individuals in a community or population than is expected.

Exercise Planned, structured, and repetitive body movements done to improve or maintain one or more components of physical fitness, such as maintaining or increasing muscle tone and strength.

Fast food Foods designed for ready availability, use, or consumption and sold at eating establishments for quick availability or take-out.

Fat The chemical storage form of fatty acids as glycerol esters, also known as triglycerides. Fat is stored primarily in adipose tissue located throughout the body, but mainly under the skin (subcutaneously) and around the internal organs (viscerally). Fat mass is the sum total of the fat in the body while, correspondingly, the remaining, nonfat components of the body constitute the fat-free mass. Lean tissues such as muscle, bone, skin, blood, and the internal organs are the principal locations of the body's fat-free mass. In common practice, however, the terms "fat" and "adipose tissue" are often used interchangeably. Furthermore, "fat" is commonly used as a subjective or descriptive term that may have a pejorative meaning.

Fitness A set of attributes, primarily respiratory and cardiovascular, relating to ability to perform tasks requiring physical activity.

Food Guide Pyramid An educational tool designed for the public that translates and graphically illustrates recommendations from the Dietary Guidelines for Americans and nutrient standards such as the Dietary Reference Intakes into food-group-based advice that promotes a healthful diet.

Food security Access by all people, at all times to sufficient food for an active and healthful life, including, at a minimum, the ready availability of nutritionally adequate and safe foods and an assured ability to acquire foods in socially acceptable ways.

Food system The interrelated functions that encompass food production, processing, and distribution; food access and utilization by individuals, households, communities, and populations; and food recycling, composting, and disposal.

Foods of minimal nutritional value Foods prohibited by federal regulation for sale in school food service areas during meal periods. For artificially sweetened foods, FMNV are defined as providing less than 5 percent of the Reference Daily Intake (RDI) for each of eight specified nutrients (protein, vitamin A, vitamin C, niacin, riboflavin, thiamine, calcium, iron) per serving; for all other foods, defined as providing less than 5 percent of the RDI for each of eight specified nutrients per 100 calories and less than 5 percent of the RDI for each of eight specified nutrients per serving. The four categories of foods specified in the regulation are: soda water, water ices, chewing gum, and certain candies (i.e., hard candy, jellies and gums, marshmallow candies, fondant, licorice, and spun candy).

Health A state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.

Health promotion The process of enabling people to increase control over and to improve their health. To reach a state of complete physical, mental, and social well-being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment. Health is a resource for everyday life, not the objective of living, and is a positive concept emphasizing social and personal resources, as well as physical capacities.

Healthy weight In children and youth, a level of body fat where comorbidities are not observed. In adults, a BMI between 18.5 and 24.9 kg/m².

Nutrient density The amount of nutrients that a food contains per unit volume or mass. Nutrient density is independent of energy density although, in practice, the nutrient density of a food is often described in relationship to the food's energy density. Fruits and vegetables are nutrient dense but not energy dense. Compared to foods of high-fat content, soda or soft drinks are not particularly energy dense because these are made up primarily of water and carbohydrate, but because they are otherwise low in nutrients, their energy density is high for the nutrient content.

Nutrition Facts panel Standardized detailed nutritional information on the contents and serving sizes of nearly all packaged foods sold in the marketplace. The panel was designed to provide nutrition information to consumers and was mandated by the Nutrition Labeling and Education Act of 1994.

Obesity An excess amount of subcutaneous body fat in proportion to lean body mass. In adults, a BMI of 30 or greater is considered obese. In this report, obesity in children and youth refers to the age- and gender-specific BMI that are equal to or greater than the 95th percentile of the CDC BMI charts. In most children, these values are known to indicate elevated body fat and to reflect the co-morbidities associated with excessive body fatness.

Obesogenic Environmental factors that may promote obesity and encourage the expression of a genetic predisposition to gain weight.

Overweight In children and youth, BMI is used to assess underweight, overweight, and risk for overweight. Children's body fatness changes over the years as they grow. Girls and boys differ in their body fatness as they mature, thus, BMI for children, also referred to as BMI-for-age, is gender and age specific. BMI-for-age is plotted on age- and gender-specific BMI charts for children and teens 2 to 20 years. According to CDC, at risk of overweight is defined as BMI-for-age 85th percentile to < 95th percentile. Overweight is defined as BMI-for-age \geq 95th percentile.

Physical activity Body movement produced by the contraction of skeletal muscles that result in energy expenditure above the basal level. Physical activity consists of athletic, recreational, housework, transport, or occupational activities that require physical skills and utilize strength, power, endurance, speed, flexibility, range of motion, or agility.

Physical education Refers to a planned, sequential program of curricula and instruction that helps students develop the knowledge, attitudes, motor skills, self-management skills, and confidence needed to adopt and maintain physically active lifestyles.

Physical fitness A set of attributes that people have or achieve that relates to the ability to perform physical activity. The ability to carry out daily tasks with vigor and alertness, without undue fatigue, and with ample energy to enjoy leisure-time pursuits and meet unforeseen emergencies.

Physical inactivity Not meeting the type, duration, and frequency of recommended leisure-time and occupational physical activities.

Population health The state of health of an entire community or population as opposed to that of an individual. It is concerned with the interrelated factors that affect the health of populations over the life course, and the distribution of the patterns of health outcomes.

Prevention With regard to obesity, *primary* prevention represents avoiding the occurrence of obesity in a population; *secondary* prevention represents early detection of disease through screening with the purpose of limiting its occurrence; and *tertiary* prevention involves preventing the sequelae of obesity in childhood and adulthood.

Risk The possibility or probability of loss, injury, disadvantage, or destruction.

Risk analysis Risk analysis is broadly defined to include risk assessment, risk characterization, risk communication, risk management, and policy relating to risk, in the context of risks of concern to individuals, to public- and private-sector organizations, and to society at a local, regional, national, or global level.

Safety The condition of being protected from or unlikely to cause danger, risk or injury that either may be perceived or objectively defined.

School meals Comprises the food service activities that take place within the school setting. The federal child nutrition programs include the National School Lunch Program, School Breakfast Program, Child and Adult Care Food Program, Summer Food Service Program, and Special Milk Program.

Sedentary A way of living or lifestyle that requires minimal physical activity and that encourages inactivity through limited choices, disincentives, and/or structural or financial barriers.

Well-being A view of health that takes into account a child's physical, social, and emotional health.

C



Literature Review

The committee reviewed and considered a broad array of information in its work on issues potentially involved in the prevention of obesity and overweight in children and youth. Information sources included the primary research literature in public health, medicine, allied health, psychology, sociology, education, and transportation; reports, position statements, and other resources (e.g., websites) from the federal government, state governments, professional organizations, health advocacy groups, trade organizations, and international health agencies; textbooks and other scientific reviews; federal and state legislation; and news articles.

LITERATURE REVIEW

In order to conduct a thorough review of the medical and scientific literature, the committee, Institute of Medicine (IOM) staff, and outside consultants conducted online bibliographic searches of relevant databases (Box C-1) that included Medline, AGRICOLA, CINAHL, Cochrane Database, EconLit, ERIC, PsycINFO, Sociological Abstracts, EMBASE, TRIS, and LexisNexis. To begin the process of identifying the primary literature in this field, the IOM staff at the beginning of the study conducted general bibliographic searches on topics related to prevention interventions of obesity in children and youth. These references (approximately 1,000 citations) were categorized and annotated by the staff and reference lists of key citations were provided to the committee. After examining the initial search and identifying key indexing terms in each of the databases, a comprehen-

BOX C-1 Online Databases

AGRICOLA is a bibliographic database of citations to the agricultural literature. Production of these records in electronic form began in 1970, but the database covers materials in all formats, including printed works from the 15th century. The records describe publications and resources encompassing aspects of agriculture and allied disciplines such as agricultural economics, animal and veterinary sciences, earth and environmental sciences, entomology, extension and education, farming and farming systems, fisheries and aquaculture, food and human nutrition, forestry, and plant sciences. AGRICOLA indexes more than 2,000 serials as well as books, pamphlets, conference proceedings, and other resources. This database is updated and maintained by the National Agricultural Library.

CINAHL (Cumulative Index to Nursing and Allied Health Literature) is a bibliographic database of citations of the literature related to nursing and allied health professions from 1982 to the present. Over 1,200 English language journals are indexed with online abstracts available for more than 800 of these titles. Some full-text articles are available. The database also indexes health-care books, dissertations in nursing, conference proceedings, standards of professional practice, educational software, and audiovisual media.

Cochrane Database (Cochrane Database of Systematic Reviews) is a database containing the full text of over 1,600 systematic reviews of the effects of health care. The reviews are highly structured and systematic, with evidence included or excluded on the basis of explicit quality criteria, to minimize bias. Data are often combined statistically (with meta-analysis) to increase the power of the findings of numerous studies, each too small to produce reliable results individually. It is prepared by the Cochrane Collaboration and is now published by John Wiley & Sons, Ltd. (Chichester, UK). These reviews are regularly updated.

EconLit is the American Economic Association's bibliographic database of economics literature published in the United States and other countries from 1969 to the present. EconLit contains citations and abstracts from more than 500 economics journals. Some full-text articles are available. The database also indexes books, book chapters, book reviews, dissertations, essays, and working papers. The database covers subjects including accounting, consumer economics, monetary policy, labor, marketing, demographics, modeling, economic theory, and planning. EconLit contains over 350,000 records and is updated monthly.

EMBASE (Excerpta Medica) database is a major biomedical and pharmaceutical containing more than 9 million records from 1974 to the present from over 4,000 journals; approximately 450,000 records are added annually. Over 80 percent of recent records contain full author abstracts. This bibliographic database indexes international journals in the following fields: drug research, pharmacology, pharmaceuticals, toxicology, clinical and experimental human medicine, health policy and management, public health, occupational health, environmental health, drug dependence and abuse, psychiatry, forensic medicine, and biomedical engineering/instrumentation. EMBASE is produced by Elsevier Science.

ERIC (Educational Resources Information Center) is a national education database containing nearly 100,000 citations and abstracts published from 1993 to the

present. ERIC contains over one million citations of research documents, journal articles, technical reports, program descriptions and evaluations, and curricular materials in the field of education. ERIC is sponsored by the U.S. Department of Education, Office of Educational Research and Improvement.

LexisNexis provides access to full-text information from over 5,600 sources, including national and regional newspapers, wire services, broadcast transcripts, international news, and non-English language sources; U.S. federal and state case law, codes, regulations, legal news, law reviews, and international legal information; and business news journals, company financial information, Securities and Exchange Commission filings and reports, and industry and market news. It is produced by Reed Elsevier, Inc.

MEDLINE is the U.S. National Library of Medicine's premier bibliographic database containing citations from the mid-1960s to the present, and covering the fields of medicine, nursing, dentistry, veterinary medicine, the health-care system, and the preclinical sciences. PubMed provides online access to over 12 million MEDLINE citations. MEDLINE contains bibliographic citations and author abstracts from more than 4,600 biomedical journals published in the United States and 70 other countries. PubMed includes links to many sites providing full-text articles and other related resources. This database can be accessed at <http://www.ncbi.nlm.nih.gov/PubMed>.

PsycINFO is a bibliographic database of psychological literature with journal coverage from the 1800s to the present and book coverage from 1987 to the present. It contains more than 1,900,000 records including citations and summaries of journal articles, book chapters, books, and technical reports, as well as citations to dissertations, all in the field of psychology and psychological aspects of related disciplines. Journal coverage includes full-text article links to 42 American Psychological Association journals including peer-reviewed international journals. PsycINFO is produced by the American Psychological Association.

Sociological Abstracts indexes the international literature in sociology and related disciplines in the social and behavioral sciences from 1963 to the present. This bibliographic database contains citations (from 1963) and abstracts (only after 1974) of journal articles, dissertations, conference reports, books, book chapters, and reviews of books, films, and software. Approximately 1,700 journals and 900 other serials published in the United States and other countries in over 30 languages are screened yearly and added to the database bi-monthly. The Sociological Abstracts database contained approximately 600,000 records in 2003. A limited number of full-text references are available. Sociological Abstracts is prepared by Cambridge Scientific Abstracts.

TRIS (Transportation Research Information Services) is a bibliographic database on transportation information published from 1970 to the present. The database contains more than 535,000 records and includes journal articles, government reports, technical reports, books, conference proceedings and ongoing research. Major subjects include aviation, highways, maritime, railroads, and transit; design and construction; environmental issues; finance; human factors; materials; operations; planning; transportation and law enforcement; and safety. TRIS is produced and maintained by the Transportation Research Board at the National Academies.

sive search strategy was designed in consultation with librarians at the George E. Brown Jr. Library of the National Academies. Search terms incorporated relevant MeSH (Medical Subject Headings) terms as well as terms from the EMBASE thesaurus. To maximize retrieval, the search strategy incorporated synonymous terms on the topics of obesity, overweight, or body weight; dietary patterns (including breastfeeding); and physical activity (including exercise, recreation, physical fitness, or physical education and training). The searches were limited to English language and targeted to retrieve citations related to infants, children, or youth (less than 18 years of age). The searches were not limited by date of publication. This broad search resulted in over 40,000 citations. Subsequent analysis of the resulting database focused on resources published since 1994 (approximately 19,000 citations).

As the study progressed, additional focused searches were conducted. Topics of these searches included prevention of obesity in adults (primarily meta-analyses and reviews); prevention interventions focused on co-morbidities of obesity in children (i.e., diabetes, hypertension); behaviorally focused interventions; and statistical information on trends in obesity and physical activity. Additional references were identified by reviewing the reference lists found in major review articles, key reports, prominent websites, and relevant textbooks. Committee members, workshop presenters, consultants, and IOM staff also supplied references.

The committee maintained the reference list in a searchable database that was indexed to allow searches by keywords, staff annotations, type of literature (e.g., literature review), or other criteria. Additionally, an Internet-based site was developed to facilitate the committee's access to subject bibliographies that were developed from the search as well as to full text of some of the key resources. After indexing the citations, subject bibliographies were developed for the committee on topics including definition and measurement of childhood obesity and overweight; correlates and determinants (breastfeeding, dietary patterns, physical activity, television viewing, etc.); economic issues; etiology/epidemiology; ethnology and disparities; prevention interventions (family-based, school-based, community-based, etc.); and prevalence. Bibliographies were updated throughout the study and committee members requested the full text of journal articles and other resources as needed for their information and analysis.

D
*Lessons Learned from
Public Health Efforts
and Their Relevance
to Preventing
Childhood Obesity*



Michael Eriksen, Sc.D.¹

INTRODUCTION

As a nation, we are experiencing an epidemic of obesity that is unprecedented in its magnitude or rapidity. Overweight and obesity not only plague the majority of adults, but children are becoming increasingly overweight, with corresponding decrements in health status and quality of life.

While the problem clearly exists, the causes are less clear. There is little clarity about the relative importance of possible causative factors such as changes in dietary patterns, increases in fast food and soft drink consumption, increases in portion size, decreases in physical activity, increases in television viewing, or most likely, a mix of all these factors. Clearly, a thorough understanding of the precise causes of childhood obesity, and how these factors interact, would increase the probability of developing effective prevention and control strategies. In the absence of a precise understanding of the etiology of the problem, it may be useful to look at the lessons learned from other public health campaigns and to try to determine if these lessons have any relevance for the prevention of childhood obesity.

One way to better understand how to deal with a particular public health problem is to look at the experience in dealing with other public health issues, especially those where there has been a modicum of success.

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For the purposes of this appendix, the experience with public health programs, such as tobacco control, injury prevention, underage alcohol use, gun control, and others are qualitatively examined with particular attention to their possible relevance for the prevention of childhood obesity.

PUBLIC HEALTH LESSONS LEARNED

The purpose of this paper is not to suggest specific intervention strategies to prevent childhood obesity, but rather to learn from other public health experiences and to glean lessons that might help inform efforts to prevent childhood obesity. There is certainly no shortage of theories, models, and approaches to help guide public health program planning. There are multiple health behavior theories that are commonly used to guide public health efforts (Glanz et al., 2002), and popular planning models have been designed to help diagnose health problems (Green and Kreuter, 2000), identify the factors that contribute to these problems, and devise appropriate interventions. In general, these theories and models recommend taking a broad view of changing health behaviors and conditions, suggesting multifactorial, comprehensive interventions that address multiple aspects of the problem. Recently, the Institute of Medicine (2002) endorsed this broad approach to public health interventions, recommending the adoption of an "ecological model" for viewing public health problems and interventions, where the individual is viewed within a larger context of family, community, and society. Overall, there is increasing interest in public health interventions being comprehensive, addressing the multiple factors that influence the health problem, and striving to strike a balance between efforts directed at the individual and the social-environmental context in which people live. It is likely that this approach will be as relevant for the prevention of childhood obesity as it is for other contemporary public health challenges. However, as previously stated, the purpose here is not to propose a comprehensive intervention program for childhood obesity, but rather to identify the factors associated with success in other public health areas, both as a result of planned interventions and also corresponding to social, cultural, or temporal factors.

Despite the notable successes in public health over the past century, there are no generally agreed on approaches or interventions that can be applied to multiple public health problems, with the same intervention effect seen with different problems. There are general guidelines and recommendations, core functions for public health, but no generic model program, best practices, or common lessons learned that could be applied to most or all public health problems.

There are "best practices" for specific public health problems, but little research or insight of the extent to which these categorical approaches are

generalizable to other public health challenges. For example, the Centers for Disease Control and Prevention's (CDC's) *Best Practices for Comprehensive Tobacco Control Programs* (CDC, 1999a) describes nine programmatic areas (i.e., community programs, school programs, statewide programs, etc.) that have been shown to be effective in reducing tobacco use.² In practice, these programs are typically delivered "comprehensively," and it is difficult, if not impossible, to tease out the relative impact of specific program components within these comprehensive, real-life campaigns. For this reason, program evaluations of large-scale public health campaigns tend to assess the collective effort, rather than the impact of individual program components. Because of the difficulty in teasing out the effect of one component of a comprehensive program, evaluations have tended to focus on the overall program impact and on the relationship between financial investment in program activities and changes in health behaviors. Data on the impact of comprehensive programs is strong, both in terms of changes in health behavior, as well as in terms of health outcomes (CDC, 2000). Recent analysis has confirmed that the greater the investment in comprehensive programs, composed of evidence-based programs, the larger the public health benefit (Farrelly et al., 2003).

In addition to tobacco control, recent review articles have analyzed the evidence for the effectiveness of public health interventions for a variety of public health problems, including dietary behavior, underage drinking, and motor vehicle injuries, to name just a few. For example, a recent review by Bowen and Beresford (2002) concluded that although much has been learned about trying to change dietary practices clinically, it is particularly important to learn how to transform the successes obtained from interventions aimed at the individual to community and public health settings. Gielen and Sleet (2003) reviewed the injury prevention literature and concluded that a simplistic belief that imparting information would result in behavior change and injury risk reduction resulted in an overreliance on engineering solutions alone as the basis for injury prevention programs. These authors reinforce the need for interdisciplinary approaches to injury prevention, using behavioral science theory, coupled with engineering solutions.

These observations from other public health problems (e.g., determining how to expand clinical success to communities, combining behavioral

²For example, in 1999, the CDC's *Best Practices for Comprehensive Tobacco Control Programs* was developed to guide state health departments in planning and allocating funds from the Master Settlement Agreement. The *Best Practices* document does not explicitly recommend policy or regulatory actions, such as an increase in the excise tax on tobacco products, or clean indoor air laws, because they did not require budget expenditures.

and environmental approaches) are informative and relevant for the development of programs to prevent childhood obesity.

Ten Greatest Public Health Achievements in the 20th Century

To begin to understand the potential generalizability of “best practices” for specific health problems, it is useful to look at the evidence for the specific success stories and determine if there are any common elements, or lessons learned, that tend to span multiple problems.

In 1999, acknowledging public health successes, CDC published a list of the ten greatest public health achievements of the 20th century (CDC, 1999b) (Box D-1).

The subsequent *Morbidity and Mortality Weekly Reports (MMWR)* documented the reason these achievements were selected and described the progress made in each area in terms of death and disease prevented. Although efforts were made to account for the reasons for the progress, there was no systematic effort to attribute improvements in health status to specific interventions, and no attempt was made to determine if there were common interventions that contributed to the amelioration of multiple health problems.

A preliminary review of the *MMWR* reports reveals a pattern of categories of interventions that appear to have played a role in accomplishing multiple achievements. The goal was to identify instances, across achievements, of community intervention categories found in the past to have strong evidence of effectiveness with multiple health behaviors or problems. As Table D-1 shows, intervention categories identified most frequently included community-wide campaigns, mass-media strategies, changes to

BOX D-1
Ten Great Public Health Achievements
United States, 1900-1999

- Vaccination
- Motor vehicle safety
- Safer workplaces
- Control of infectious disease
- Decline in deaths from coronary heart disease and stroke
- Safer and healthier foods
- Healthier mothers and babies
- Family planning
- Fluoridation of drinking water
- Recognition of tobacco use as a health hazard

TABLE D-1 Community Intervention Categories and 10 Greatest Public Health Achievements 1900-1999

	Community-Wide Campaigns	School-Based Interventions	Mass-Media Strategies	Laws and Regulations	Provider Reminder Systems	Reducing Costs to Patients
Vaccination	X		X	X		X
Motor-vehicle safety	X	X	X	X		
Safer workplaces	X			X		
Control of infectious diseases	X		X	X		X
Decline in deaths from coronary heart disease and stroke	X		X			
Safer and healthier foods	X	X	X	X		X
Healthier mothers and babies	X		X	X		X
Family planning	X			X		X
Fluoridation of drinking water				X		
Recognition of tobacco use as a health hazard				X	X	X

laws and regulations, and reductions in patient costs. Those categories mentioned least frequently included school-based interventions, and provider reminder systems. In addition, some contextual factors were similar across achievements. For example, in nearly all cases, policy changes were followed by the emergence of new government leadership structures that were effective enforcers of the new policies and oversaw the development and implementation of new programs. Additionally, improved surveillance methods, control measures, technologies, and treatments, and expanding systems of service delivery and provider education, were frequently cited as driving factors in these achievements.

The Guide to Community Preventive Services

Intensive effort has been devoted to reviewing the evidence of effectiveness, first for clinical preventive services (AHRQ, 2002) and now for community preventive services (CDC, 2004c), but these efforts focus on the quality of evidence for specific diseases and health behaviors, rather than drawing conclusions, or generalizing, across health problems.

The task force has completed the analysis of the evidence in nine major areas. More reports, including those central to preventing childhood obesity (e.g., school-based programs, community fruit and vegetable consumption, consumer literacy, and food and nutrition policy) have not yet been released (CDC, 2004c). Of the nine completed reports (most of which focused on adult health behaviors), the task force has determined that 34 interventions could be recommended based on “strong” scientific evidence, another 14 could be recommended as having “sufficient” scientific evidence, and for 42, there was insufficient evidence to make a recommendation. The Guide emphasizes that “...a determination that evidence is insufficient should not be confused with evidence of ineffectiveness.”

There was relatively little overlap in the nearly 50 recommended interventions, primarily because the interventions studied were very specific to the health behavior or health condition studied. However, certain categories of interventions appear to have strong evidence of effectiveness for multiple health behaviors and problems. The interventions listed in Table D-2 appear to be effective in multiple areas.

Thus, there are at least seven types of macrolevel interventions that appear to have evidence supporting their effectiveness for multiple public health problems. Other interventions that are effective for multiple behaviors and conditions may be identified in future work by the task force. Similarly, some of the types of interventions that currently have insufficient evidence may in fact have relevance for multiple health problems, but the current body of research is insufficient in relation to rules of evidence. As is

TABLE D-2 Recommended Public Health Interventions Common to Multiple Health Behaviors and Conditions, *The Guide to Community Preventive Services*

Type of Intervention	Health Behavior or Condition
Community-wide campaigns	Physical activity** Motor vehicle occupant injuries* Oral health (water fluoridation)**
School-based interventions	Physical activity** Oral health (sealants)** Vaccine preventable diseases (requirement for school admission)* Skin cancer*
Mass-media strategies	Tobacco initiation and cessation** Motor vehicle occupant injuries**
Laws and regulations	Reducing exposure to secondhand smoke** Motor vehicle occupant injuries**
Provider reminder systems	Vaccine preventable diseases** Tobacco cessation*
Reducing costs to patients	Tobacco cessation* Vaccine preventable diseases**
Home visits	Vaccine preventable diseases* Violence prevention**

* Sufficient evidence.

** Strong evidence.

SOURCE: CDC, 2004c.

often the case, the requisite research is difficult to conduct, or has yet to be conducted.

Based on the experience to date from *The Guide to Community Preventive Services*, it appears that comprehensive programs that involve communities, schools, mass media, health providers, and laws and regulations are most likely to be effective for a number of health problems. It is reasonable to assume that some or all of the types of interventions may have utility in preventing childhood obesity

Lessons Learned Across Multiple Public Health Problems

The focus on “internal validity” has greatly improved the practice of public health and the implementation of evidence-based approaches shown to be effective for specific health problems. This focus on disease- or behavior-specific evidence has not, however, advanced our understanding of the

“external validity” or generalizability of interventions across multiple health problems. Namely, extant research has failed to determine if there are common approaches that may be effective across a variety of health problems.

There is a clear need for “lessons learned” from public health interventions and an assessment of the generalizability of interventions, and a determination of under what conditions, and for which populations, they may work. While analysis of the same degree of rigor that has been applied to assessing the evidence for effectiveness of specific programs does not exist across multiple programs, some efforts have been made to analyze the experiences of successful public health campaigns, and to identify elements that appear to be associated with program success. Some of this work has been done by academic researchers and some advanced by the public health practice community, most notably the articulation of the Ten Essential Public Health Services (CDC, 2004a) and the National Public Health Performance Standards (CDC, 2004b). While these efforts to improve practice are noteworthy and of critical importance, the following section highlights some of the academic reviews focused on factors associated with successful health movements.

For example, based on analysis of success with lead, fluoride, auto safety, and tobacco, Isaacs and Schroeder (2001) concluded that the ingredients of success for public health programs include a mixture of (1) highly credible scientific evidence, (2) campaigns with highly effective advocates, (3) a supportive partnership with the media, and (4) laws and regulations, often, but not always, at the federal level.

Drawing on social movement and other sociological theories, Nathanson analyzed the tobacco and gun control movements and concluded that successful health-related social movements had the following elements in common: a socially and scientifically credible threat to the public health, mobilization of a diverse constituency, and “the convergence of political opportunities with target vulnerabilities.”

Some researchers have looked for public health lessons that may be directly applicable to obesity or dietary change. Researchers at CDC analyzed the experience with the tobacco control movement in relation to possible implications for preventing obesity (Mercer et al., 2003). They used the intervention framework described in the 2000 Surgeon General’s Report, *Reducing Tobacco Use*, and reflected on the relevance of educational, clinical, regulatory, economic, and comprehensive interventions for the prevention of obesity (DHHS, 2000).

Researchers at the World Health Organization (WHO) looked at the recently adopted Framework Convention on Tobacco Control (FCTC) in terms of its possible implications for improving global dietary and physical activity levels (Yach et al., 2003). These researchers concluded that strate-

gies to improve diet and physical activity levels must be different from those employed for tobacco control, because the nature of the behaviors are different, but also in relation to possible private-sector interactions. According to the authors, a formal treaty approach is not warranted,³ but that the organizing framework for the FCTC may be useful for the development of national plans and policies. In their article, Yach and colleagues (2003) draw comparisons between tobacco and food strategies, using the template of the FCTC, including a discussion of (1) price and tax measures, (2) labeling and product content, (3) educational campaigns, (4) product marketing, (5) clinical interventions, (6) product supply, (7) liability and corporate behavior, and (8) supportive and facilitative measures.

Economos and colleagues (2001) conducted a global analysis of social change models by interviewing 34 key informants. These investigators concluded that a number of factors are being associated with a successful social change. These factors included having the issue being perceived as a crisis, a persuasive science base, important economic implications, strategic leadership (spark plugs), a coalition or mobilizing network, community and media advocacy, government involvement, media involvement, policy and environmental change, and a coordinated, but flexible plan.

A synthesis of these studies suggests a set of core factors that appear to be associated with successful health-related social change efforts. These core factors include:

- A persuasive science base documenting a socially and scientifically credible threat to the public health with important economic implications;
- A supportive partnership with the media;
- Strategic leadership and a prominent champion;
- A diverse constituency of highly effective advocates; and
- Enabling and reinforcing laws, regulations, and policies.

It is not clear whether all these factors need to be present for each public health campaign, or if there is a preferred sequence of activities, although the order presented above corresponds roughly to the tobacco control movement and exhibits some face validity for these core concepts.

In summary, some of the factors associated with successful public health campaigns are formal, planned interventions (e.g., mass-media campaigns,

³However, an accompanying commentary (Daynard, 2003) suggested that consideration should be given to a treaty model for global obesity prevention, similar to the FCTC, if only for the increased awareness of civil society and governments of the problem resultant from treaty development and negotiations process.

school-based programs), while other elements associated with success are cultural or social factors (e.g., leadership, advocacy, scientific evidence). Although these social factors are less likely to be planned in the same way as formal interventions are, they can and should be cultivated and combined with more traditional intervention strategies. This mix of formal interventions, typically provided by the medical and public health communities, coupled with social change strategies, typically stimulated by advocacy organizations and civil society, are most likely to result in successful and sustained health-related social change. Empirical data are lacking, but some could argue that the two types of interventions are inextricably linked, and either alone is unlikely to achieve success. If anything, anecdotal evidence suggests that social factors (those less likely to be initiated by the health community) are more likely to be associated with success in health-related social movements, if only serving to create a “tipping point” for social change (Gladwell, 2000).

AN ORGANIZING FRAMEWORK FOR PUBLIC HEALTH INTERVENTIONS

To learn from the lessons of other public health experiences and determine whether there is any utility or relevance for preventing childhood obesity, it is useful to have a conceptual framework to organize the experiences, principles, and strategies. In the 2000 Surgeon General’s Report, *Reducing Tobacco Use*, a framework was developed to categorize the different types of tobacco control interventions (DHHS, 2000). This framework reviewed the evidence within the following categories: educational, clinical, legal, economic, regulatory, and comprehensive. Although it was developed for tobacco control, this framework may be useful in categorizing interventions for other types of public health problems and has already been used to analyze similarities and differences between tobacco control and the prevention of obesity (Mercer et al., 2003). Analyzing strategies to prevent underage drinking, Komro and Toomey (2002) identified six different types of alcohol prevention strategies: school, extracurricular, family, policy, community, and multicomponent.

Drawing on and expanding the framework in the 2000 Surgeon General’s Report and from other sources, the next section reviews findings from a variety of public health campaigns, particularly efforts to reduce tobacco use, and other public health experiences that have commercial dimensions, or that have been politically sensitive (e.g., underage alcohol consumption, injury prevention). The following section reviews six categories of interventions that may have relevance for the prevention of childhood obesity. These categories are:

- The information environment
- Access and opportunity
- Economic factors
- The legal and regulatory environment
- Prevention and treatment programs
- The social environment

The Information Environment

The environment in which people are informed about public health issues is of critical importance, but also fraught with controversy, particularly when dealing with the marketing of commercial products. As a rule, the public health community tends to favor restrictions on commercial speech, if felt necessary to insure the public health. On the other hand, commercial interests tend to view any restrictions on marketing as infringements of their constitutional right to freedom of speech. A thorough discussion on individual speech versus commercial speech is beyond the scope of this paper; however, this tenet was a central argument in the Food and Drug Administration's (FDA's) attempt to regulate tobacco products (Kessler, 2001), and it remains an argument whenever legislators or regulators attempt to restrict the advertising for commercial products such as tobacco, alcohol, and foods.

Although product advertising may result in a public health benefit when the advertising promotes healthy products (Ippolito and Mathios, 1995), the majority of the debate about product marketing focuses on those products that may have harmful effects, particularly among children. Despite the concerns of commercial interests, governments do have the right to alter the informational environment, particularly when the information being conveyed is considered to be false, misleading, or deceptive. In the United States, the regulatory authority in this area is shared by multiple federal agencies, but particularly by the FDA and the Federal Trade Commission (FTC). Gostin (2003) notes that government's power to alter the informational environment is one of the major ways in which governments can "assure the conditions for people to be healthy." The article goes on to describe that governments can alter the informational environment in a number of ways, including by sponsoring health education campaigns and other persuasive communications, requiring product labeling, and restricting harmful or misleading advertising.

Most of the effort in altering the information environment has been done in relation to children and adolescents, particularly when it is believed that the information being conveyed may be harmful or misleading to children (Strasburger and Donnerstein, 1999). Because of this, the quality of the evidence documenting the effect of informational efforts, particularly

the marketing of commercial products to children is intensely debated. As one might assume, public health advocates are convinced that marketing efforts are a substantial contributing factor to youth risk behaviors, particularly in the areas of tobacco use, underage drinking, and consumption of high-fat and calorie-dense foods. The manufacturers of these products (and their legal counsel) take just the opposite position, claiming there is insufficient empirical evidence to prove the precise role of marketing on the relevant behaviors of children. At most, manufacturers may concede that marketing may influence the selection of a particular brand of a product but that there is little evidence that marketing contributes to the initiation or use of a product, or causes an overall increase in demand for that product. Despite the lack of existence of the single, definitive, experimental study that unarguably proves that advertising affects the health behaviors of young people, including the initiation and continuation of consumption, most public health authorities agree that the overall weight of the scientific evidence points inescapably to this conclusion.

Concern about the effect of the information environment, particularly the effect of the marketing of harmful products on children, became prominent during the early 1990s corresponding to the increase in youth smoking. Discovering that very young children were more likely to recognize Joe Camel than Mickey Mouse, and that adolescents were much more likely than adults to smoke the most advertised brands, led regulators to attempt to restrict the information environment, particularly as it relates to young people (Kessler, 2001). The battles have continued over the last decade, with litigation replacing public policy as the primary vehicle to restrict advertising, or at least receive compensation for the harm caused. To a large extent, the 1998 Master Settlement Agreement (MSA) attempted to resolve this issue, combining cash payments to states and voluntary limitations on marketing practices (Schroeder, 2004). However, most believe the problem continues and marketing for tobacco products is unabated. Following the MSA agreement with the states, in 1999 the U.S. Department of Justice⁴ filed suit against the tobacco industry under racketeering and organized crime statutes, including the claim that tobacco companies aggressively marketed cigarettes to children. This case was scheduled to go to trial in September 2004. In February 2004, the U.S. District Court denied a motion by the tobacco companies to dismiss the section of the case related to youth marketing of tobacco products.⁴

Thus, the issue of the impact of product marketing on the health-related behaviors of young people continues to be reviewed scholarly, as

⁴USA v. Philip Morris USA Inc., Civil Action 99-2496.

well as legally. Overall, there is good evidence that the advertising and marketing of food products influences parental and child food choice (Food Standards Agency, 2003). Additional empirical studies clearly document the increase in the number of television commercials viewed by children (Kunkel, 2001), the increase in ads for high-fat and high-sodium convenience foods (Gamble and Cotugna, 1999), the effect of even brief exposure to television commercials on food preferences of young children (Borzekowski and Robinson, 2001), and an association between television viewing and the consumption of fast foods (French et al., 2001). Most recently, and directly related to the dietary behaviors of children, the Kaiser Family Foundation (2004) reviewed the evidence on the effect of all types of media on children's dietary behavior, and recommended the reduction or regulation of food ads targeted to children, among other policy options. The American Psychological Association (APA, 2004) recently concluded that televised advertising messages can lead to unhealthy eating habits, particularly for children under 8 years of age who are unable to critically comprehend advertised messages. The APA report went on to recommend:

Restrict advertising primarily directed to young children of eight years and under. Policymakers need to take steps to better protect young children from exposure to advertising because of the inherent unfairness of advertising to audiences who lack the capability to evaluate biased sources of information found in television commercials.

Currently, there are no legal restrictions on the marketing of unhealthy food to children. Correspondingly, food companies are unfettered in their marketing of calorie-dense and low-nutritional-quality food to children. Some consider it to be "open season" on children, with cartoon characters, celebrities, promotional tie-ins, product placement, sponsorship, games, and toys all be used to market unhealthy foods to children. Candy, soft drinks, and high-fat and high-sodium foods are even marketed in elementary schools (Levine, 1999). None of these strategies are still used to promote tobacco products to children, mainly because it is illegal to sell tobacco products to minors, some states prohibit the use and possession of tobacco products by minors, and the tobacco companies themselves have either voluntarily agreed not to market to children, or have been prohibited from doing so as the result of the settlement of legal proceedings. There is good evidence to suggest that restrictions on the advertising of unhealthy foods, the promotion of healthy choices, and possibly paid counter-advertising campaigns will improve the information environment relative to the prevention of childhood obesity. It is unlikely, however, that such actions will be forthcoming from the federal government, especially the FTC. Recently, Tim Muris, a month after announcing he would step down as FTC Chairman, penned a commentary in *The Wall Street Journal* entitled, "Don't

Blame TV” where he stated, “Banning junk food ads on kids’ programming is impractical, ineffective and illegal” (Muris, 2004).

Warning Labels, Ingredient Disclosure, and Labeling

As part of being an informed consumer, public health experts are calling for the full disclosure of ingredients. Commercially purchased food products currently have nutritional labels, which contain ingredients used in the food product, as well as nutritional information on calories, fat, and other nutritional parameters. As product packaging has increased, many nutritional labels still present the nutritional parameters for a “serving” rather than for the contents of the package. The FDA is currently investigating the need to require the provision of “whole package data” in addition to nutritional information per serving (Day, 2003; Matthews et al., 2003; Stein, 2003). Food purchased in restaurants and fast food establishments do not contain nutritional information on the menus or with the meals, although many fast food establishments have nutritional information posted or available on request.

Warning labels have been required on cigarette packages since the late 1960s; however, U.S. warning labels have not kept pace with international standards and generally are not noticed by smokers. Starting with Canada and now required by a number of other countries, graphic and vivid warning labels are required on all tobacco products. Similar labels are required by member states who are signatory to the FCTC (WHO, 2003). Graphic and vivid warning labels, similar to those used in Canada, have been shown to attract the attention of smokers, contribute to their interest in quitting smoking, and increase quit attempts (Hammond et al., 2003). They have even been associated with a reduction in cigarette smoking (Hammond et al., 2004). Currently, there are no warnings labels for food products, other than for alcoholic products, and in some instances, for certain food products that may contain a high risk of infectious disease (e.g., uncooked shellfish). The 2004 report of the APA on the effect of advertising on children concluded that any warnings, disclosures, or disclaimers about products advertised to children should be communicated in clear language comprehensible to the intended audience (APA, 2004).

Access and Opportunity

Children’s and adolescents’ ease of access and ready opportunity to purchase foods with high sugar, fat, and sodium content likely contribute to the increase in the prevalence of childhood overweight and obesity. Although empirical evidence on the precise contribution of easy availability and access to food products is not strong, some restrictions on access for

children are appropriate, at a minimum, to establish a foundation for subsequent public health interventions.

The Community Environment

Community access to food products is ubiquitous and, before recommending restrictions or limitations on access in the community, it may be useful to examine the experience with attempting to restrict minors' access to tobacco products. Because the sale, and frequently the possession, of tobacco products by minors is illegal, various steps have been enacted to enforce tobacco access restrictions. Federal legislation has been promulgated to require states to enforce a prohibition on the sale of tobacco products to minors, and some stores voluntarily restrict access to tobacco products by keeping inventory behind the counter and requiring a personal interaction between the sales clerk and the customer to obtain the product. The evidence, however, is unclear about the effectiveness of enforcement of minors' access laws in reducing the use of tobacco products (Warner et al., 2003). Increasingly, minors have used other means (shoplifting, purchasing by friends, social acquisition) to obtain cigarettes. Whether or not these restrictions are effective by themselves, enforcement of laws to prevent the sale of tobacco products by minors sends a strong and consistent message on the hazard of tobacco use and should be considered as necessary, but not necessarily sufficient action, to prevent adolescent tobacco use.

Regarding calorie-dense or low-nutritional-quality foods, there is no restriction whatsoever on their retail and commercial availability. As is the case with cigarettes, these snack and fast food products are ubiquitously available—in vending machines, gas stations, convenience stores, and many other places. In fact, nearly every retail and commercial outlet sells gums, candies, crackers, cookies, and soft drinks. However, in reviewing the literature on the influence of availability on food choices, French and colleagues (1997) concluded that the relationship is inconsistent, particularly compared to the strong inverse relationship between price and consumption. Further research is needed to determine if restricting commercial access and availability would be effective in reducing the consumption of calorie-dense and low-nutritional-quality foods. As long as these products can be sold legally to minors, it is unlikely that widespread restriction of access to these products is feasible, and even if feasible, whether restriction would have a public health effect.

In addition to examining access to certain food products, it is perhaps more important to understand the changing patterns of consumption and how these patterns may inform interventions to reduce the risk of obesity. The published literature indicates that over the past few decades, and accelerating in the past few years, there have been increases in eating outside the

home (particularly at fast food restaurants) (Guthrie et al., 2002; Nielsen et al., 2003; Bowman et al., 2004), increases in portion size (Young and Nestle, 2002; Nielsen and Popkin, 2003), and increases in soft drink consumption (AAP, 2004).

The School Environment

Schools are an important setting to encourage health-promoting behaviors, including the prevention of obesity (Dietz and Gortmaker, 2001). CDC has issued guidelines for schools to prevent nicotine addiction that include smoke-free policies, tobacco prevention policies, and smoking cessation assistance for teachers, staff, and students (CDC, 1994). Similar guidelines exist for nutrition and physical activity programs in schools (CDC, 1996). There is good scientific evidence that manipulation of the school cafeteria and physical activity environment can improve the cardiovascular health of elementary school children, including body mass index (Wechsler et al., 2000). However, the presence of vending machines, concerns about cafeteria menus, and the declining requirement for physical education in schools suggest that the school environment may need improvement.

The American Public Health Association (2003) has called for the development of school policies for the promotion of healthful eating environments and the prohibition of soft drinks and other low-nutrition foods during the school day. The American Academy of Pediatrics (2004) calls for school policies that restrict the sale of soft drinks. There has been some progress in removing soft drinks and snack foods in vending machines from elementary and middle schools particularly in California. This has been achieved by state legislation or local school board policy (e.g., Los Angeles Unified School District), with the major concerns being loss of school district revenue and commitment to long-term contracts with soft drink manufacturers. There is a clear need for additional research on the relative importance of the school environment in contributing to the problem of overweight and obesity among children, as well as the role schools may play in ameliorating this problem. Recently, the National Institutes of Health announced a new funding program to support research in this area (NIH, 2004).

Economic Factors

In addition to altering the informational environment, Gostin (2003) also notes that the government's power to tax and spend is one of the major ways in which governments can "assure the conditions for people to be healthy." He goes on to note that the power to levy taxes can provide

incentives to engage in healthy behaviors and disincentives to practice risky ones, but also notes that these taxes can be inequitable and regressive.

Most of the public health experience with manipulating economic factors to encourage healthy behaviors or to discourage risky behaviors has been related to excise tax policy on products like tobacco, gasoline, and alcohol. Because of the popularity of increasing tobacco taxes as a public health strategy and the parallels that are frequently drawn between tobacco tax policy and a possible similar tax scheme for certain foods, the following section highlights some of the specific aspects of the taxation of tobacco products.

Tobacco products, like most consumer products, have been shown to be price sensitive; as price increases, consumption decreases. Children have been shown to be most price sensitive, with an approximate 7 percent decrease in consumption for every 10 percent increase in price (DHHS, 2000). As a result of this well-established price elasticity, an excise tax increase on tobacco products has been a common and popular way to reduce adolescent tobacco use, and to increase much-needed state revenue. In 2002-2003, nearly half the states increased their excise tax on tobacco products (Campaign for Tobacco Free Kids, 2004). Some states have earmarked or dedicated a portion of the excise tax increase for tobacco prevention or health promotion programs. This approach of excise tax increase and earmarking for prevention programs could be considered to help prevent childhood obesity, especially because one of the most frequently heard argument for not removing vending machines and soft drinks from schools is concerns about loss of much-needed revenue.

It is likely that the same strategy for calorie-dense and low-nutritional-quality foods would have the same effect as seen for tobacco—as price increases, consumption falls. However, it is also likely that efforts to tax these products would be even more difficult than taxing tobacco products. In California, an effort to levy a one-cent excise tax on soft drinks to compensate for the lost revenue from removing soft drinks from vending machines in schools had to be removed in order for the vending machine legislation to pass. Internationally, a plan to tax foods such as dairy products, pastries, chocolates, pizzas, and burgers at a higher rate than other food products was briefly considered, then dismissed as unworkable by the British government (Food Navigator, 2004). Jacobson and Brownell (2000) suggest that to avoid the possible negative reaction to the levying of large excise taxes on soft drinks and snack foods, municipalities should consider small tax increases, and the proceeds from these increases should be used to fund health promotion programs, including subsidizing the availability of healthier food choices. The American Public Health Association adopted a similar policy recommendation at its 2003 annual meeting (APHA, 2003).

In addition to considering excise taxes on calorie-dense or low-nutri-

tional-quality foods, incentives or subsidies to make fruits and vegetables more available and affordable could be considered. French and colleagues (1997) reviewed the literature on the relationship between price and consumption of fruits and vegetables and found a consistent pattern, namely that lower prices are associated with higher consumption. In their own empirical work, these researchers found this same pattern among adolescents and found it to be robust across different age groups and food types.

As efforts progress in reducing tobacco use, concern has been expressed about the economic well-being of tobacco farmers and cigarette manufacturing workers and their communities. Similar concerns could be expressed if economic pressures were exerted on certain segments of the food production, manufacturing, and distribution systems.

The Legal and Regulatory Environment

Laws and regulations have become increasingly prominent and effective in improving the public health. Public health law has emerged as a strategic element in planning public health interventions (Goodman et al., 2003), and the IOM has identified law and policy as one of the eight emerging themes for the future of public health training (IOM, 2002). Laws and regulations seem to be one of the few common themes spanning multiple reports from the Ten Greatest Achievements in Public Health to *The Guide to Community Preventive Services*, and also appear to be an essential factor in successful health-related social movements. The following section discusses the importance of laws, regulations, and litigation.

Laws

Laws have played a critical role in the achievement of many public health accomplishments in the 20th century. Starting with infectious disease control, and moving to public health preparedness, the presence of laws has made the critical difference for public health authorities to safeguard the public health, and correspondingly, the absence of legal authority has consistently served as an impediment. Mensah and his colleagues (2004) reviewed the use of law as a tool for preventing chronic disease with particular attention to the impact of bans or restrictions on public smoking, laws on blood alcohol concentration, food fortification, and the FCTC. In addition to these examples, the public health literature is replete with examples of the use of laws to promote the public health.

With respect to laws related to preventing childhood obesity, there is little related federal legislation, other than efforts to provide liability protection to food and soft drink manufacturers. Therefore, most of the legislative initiatives have occurred at the state level. The Kansas Health Insti-

tute (2004) recently reviewed obesity-related legislation passed by states between 1999 and 2003.

There are a number of examples of federal legislation with relevance for the prevention of childhood obesity. Review articles attest to the importance of laws in preventing motor vehicle injuries, such as the creation of the National Highway Traffic Safety Administration in 1970, and the use of federal legislation in implementing conditional funding mechanisms that encourage state legislatures to pass injury prevention laws (IOM, 1999). With respect to firearm legislation, there is a complex structure to keep firearms out of the hands of criminals, but no federal agency has regulatory authority over gun design. A recent report from the Community Preventive Services Taskforce did not find sufficient evidence of the effectiveness of firearms laws, such as bans on specified firearms or ammunition, restrictions on firearm acquisition, waiting periods for firearm acquisition, firearm registration and licensing of firearm owners, “shall issue” concealed weapon carry laws, child access prevention laws, zero tolerance laws for firearms in schools, and combinations of firearms laws in preventing firearm-related injuries (Hahn et al., 2003). As discussed earlier, however, insufficient evidence should not be confused with evidence of ineffectiveness.

Regulation

Legislation often results in administrative actions to regulate products that might have an adverse effect on the public’s health. There does not appear to be a clear relationship between potential harm from products and the level of regulation. For example, food products are relatively tightly regulated, particularly by the FDA as a result of the authority contained in the Food, Drug and Cosmetic Act. On the other hand, tobacco and gun design are virtually unregulated. The lack of regulation of tobacco products and the public health communities’ call for meaningful FDA regulatory authority may provide a useful framework for the potential that product regulation may play in preventing childhood obesity.

Despite substantial progress in reducing tobacco use, tobacco products continue to be relatively unregulated, although the tobacco industry has made protestations to the contrary (Eriksen and Green, 2002). The 1990s saw unprecedented efforts to regulate tobacco products, with the FDA, under the direction of the President, exerting jurisdiction over tobacco products, only to be rebuffed by the Supreme Court, which ruled that Congress has not provided the FDA with the explicit authority to regulate tobacco products.⁵

⁵FDA v Brown and Williamson.

Food products, on the other hand, do come under FDA authority and are clearly regulated in terms of certain aspects of health and safety, including nutritional labeling and health claims. However, the FDA does not currently regulate the nutritional content of food products, portion size, or marketing strategies. Currently, if a food product were to make an unjustified health claim, the FDA could act. Similarly, if the advertising were deemed to be false, misleading, or deceptive, the FTC could take action. However, concerns about food product marketing are not focused primarily on health claims or deception, but rather focus on making calorie-dense and low-nutritional-quality food particularly attractive to children. So, it is unlikely that traditional FDA or FTC authority would help in the area of greatest concern regarding marketing unhealthy food products to children.

If governmental regulation is not likely or possible, mandatory industry standards could be considered to guide minimum nutrient content, portion size, and marketing of products targeted to children. In addition to federal regulation, local authorities also have the ability to regulate food products, particularly in the areas of licensing, sampling, zoning restrictions, land use (Ashe et al., 2003), and conditional use permits (Bolen and Kline, 2003). Local restrictions on advertising may be more difficult with regards to First Amendment considerations and free speech. Local efforts to regulate tobacco ads have often been stymied because of federal preemptive legislation. The same pre-emption of local authority may not exist for local control over food marketing.

Litigation

In addition to laws and regulation, litigation has recently become a powerful tool in preventing product-related injuries and ensuring the public health in areas such as tobacco, gun violence, and lead paint. In a recent review, Vernick and colleagues (2003) conclude that although litigation is not a perfect tool, it is an important one, and one that has made some products safer. Parmet and Daynard (2000) reach similar conclusions and agree that litigation can deter dangerous activities and contribute to the public health. However, both reviews agree that there is a dearth of empirical evidence on the actual impact of litigation, but litigation appears to have a modest and important role in protecting the public's health. Others argue that product liability litigation has unacceptable social costs and may diminish the role of personal responsibility. Everyone agrees, however, that litigation has played an extremely important role in tobacco control (Jacobson and Warner, 1999), and many see that experience as a model for preventing obesity (Mello et al., 2003).

For tobacco control, the 1990s were the era of tobacco litigation. A myriad of individual, class action, and state Attorney General suits transformed the tobacco control environment and resulted in lasting change in the way tobacco products are marketed and how the public views tobacco companies. Perhaps of most note, the MSA of November 1998 required the participating tobacco companies to agree to restrict certain marketing practices, disband trade associations, reform their corporate behavior, and provide hundreds of billions of dollars to settling states over the next 25 years (Schroeder, 2004). In addition to significant financial disgorgement, tobacco litigation in the 1990s also resulted in an unprecedented level of tobacco industry document disclosure that has served as a treasure trove of insight, scholarship, and, perhaps most importantly, changed the social-normative opinion of the general public toward tobacco companies (Bero, 2003).

With respect to food-related litigation, there have been some initial attempts to sue fast food restaurants based on the claim that they are at least partially responsible for the epidemic of childhood obesity, and for other reasons, such as consumer safety (e.g., excessive temperature of coffee resulting in customer harm). To date, these efforts have been less than successful, but are widely seen as the vanguard of future litigation efforts (Mello et al., 2003). In fact, attorneys experienced in tobacco litigation recently sponsored a conference to develop strategies and resources to direct individual and class action efforts toward the problems of childhood obesity.

At this point, it is not clear whether these efforts will follow the tobacco model and be successful in obtaining settlements or court victories. The process of discovery is likely to yield internal documents that could be damaging to, at least, the public's perception of food companies. On the other hand, the current cases have tended to be seen by the public as frivolous, and as disregarding the dimension of personal responsibility. In response to the increase in litigation directed against food servers and manufacturers, Senator Mitch McConnell, a pro-tobacco legislator from Kentucky, introduced "The Common Sense for Consumption Act," which seeks to stop frivolous law suits against restaurants and the food industry (Higgins, 2003). A dozen states have introduced legislation aimed at prohibiting lawsuits against food and beverage manufacturers for obesity-related health problems (Campos, 2004). This approach is consonant with the effort to provide immunity to manufacturers and distributors of potentially harmful products such as tobacco, alcohol, and guns. Congress is currently considering providing immunity to gun manufacturers and dealers from civil suits by victimized families and local governments (*New York Times*, 2004). Public attitudes toward suing fast food restaurants, docu-

ments obtained through discovery, and federal efforts at tort reform are all likely to shape the litigation environment over the next few years.

Prevention and Treatment Programs

In addition to the effects of product marketing, different environments, economic factors, and laws on health-related behaviors, there is also the strong and direct role played by individual efforts and planned interventions to improve health behaviors. The impact of specific interventions on public health success stories is described earlier in this paper. It is not the intent here to review the literature on the quality of the scientific evidence for changing dietary behaviors, but rather to highlight lessons from other public health areas that may have some utility for multiple health problems, and may be generalizable to preventing childhood obesity.

School-Based Interventions

As previously discussed, school-based programs appear to have robust and generalizable benefits to a number of public health programs, including oral health, motor vehicle safety, and tobacco control. With respect to tobacco use prevention programs, evidence has found them to be effective, especially those that have been conducted in coordination with comprehensive community and mass-media prevention programs (DHHS, 1994; Jago and Baranowski, 2004). It is likely that school-based nutrition and physical activity programs could be even more effective in preventing childhood obesity than school tobacco programs are in reducing tobacco use (Dietz and Gortmaker, 2001). This opinion is due to the fact that nutrition and physical activity behaviors are a normal part of every school day and public health approaches could be fairly easily adopted and implemented. Vending machine policies, school breakfast and lunch programs, and required physical activity programs are all significant components to childhood obesity prevention programs in which schools can play a constructive role.

Media Campaigns

Mass-media efforts that build on sophisticated marketing approaches can also be effective in improving dietary behavior and increasing physical activity levels among young people. In tobacco control, themes of tobacco industry manipulation, the health effects of involuntary smoking on non-smokers, and graphic depictions of the harm of smoking among real people have proven to be effective (Hersey et al., 2004; Sowden and Arblaster, 2004). It is not clear whether these themes will be relevant for preventing

childhood obesity, particularly the extent to which the practices and behavior of food companies will be exploited.

Individual and Clinical Efforts

Historically, the mainstay of efforts to reduce the burden of obesity has focused on individual and clinical efforts. There are well-established interventions for both preventing and controlling obesity, but the challenge now is take the individual and clinical efforts and to extend them so as to have a population effect. The same is the case with helping smokers quit smoking (Fiore et al., 2004). Most smokers would like to quit and wish they had never started, but overcoming nicotine addiction is difficult, with most successful quitters making multiple attempts before achieving success. Smoking cessation is extremely important in order to make public health progress during the next few decades. The public health benefit from cessation is almost immediate, while the benefit from keeping children from starting to smoke will not be reaped for decades. While both prevention and treatment are important, the benefits from treatment or cessation will accrue more quickly. The same is likely to be true for obesity and its sequelae.

Most successful smoking cessation is achieved through individual self-help efforts. Pharmacologic interventions are assuming increasing importance, as is physician counseling, but still, most smokers quit on their own. Similarly, it is important to understand the relative importance of self-help versus medical or health professions intervention in the prevention and treatment of childhood obesity. Because of the lifestyle behaviors associated with obesity (diet and physical activity), it is likely that individual, self-help interventions will be common, but also that the role of the health-care professional is critical, particularly that of the pediatrician (Dietz and Gortmaker, 2001; AAP, 2003).

Efforts to quit smoking may be initially successful, but after a few days or weeks they are plagued by relapse. In fact, after a year, only about 30 percent of short-term quitters have achieved long-term abstinence. Again, a similar situation exists for obesity prevention and treatment, where long-term success in weight loss is often even more elusive than that for smoking cessation.

The Social Environment

The social environment—the way in which citizens, communities, the private sector, and governments interact to create norms and expectations—is a subtle but essential dimension of health-related social movements. Concern about the increase in alcohol-related motor vehicle fatalities created an

environment receptive to increases in public involvement and support for public policies to reduce the harm caused by alcohol-impaired driving (DeJong and Hingson, 1998; Shults et al., 2001). The popularity of designated drivers, minimum legal drinking age, blood alcohol concentration laws, community traffic safety programs, and other interventions are a direct result of changing social norms. The desire of nonsmokers to be protected from exposure to secondhand smoke is a critical element in changing the tobacco control environment and how smoking is perceived in society. As a result of nonsmokers' rights advocacy, most workplaces are smoke-free, serum cotinine levels have been reduced by nearly 75 percent in the last decade (CDC, 2003), and the social norms associated with smoking have been permanently changed. It is not clear, however, that the prevention of childhood obesity has a dimension that can serve as a parallel to nonsmokers' exposure to secondhand smoke.

There are a number of possible ways to engage the interest and involvement of society in the issue of childhood obesity in a similar way that it has been secured by other public health problems. One way, which is already happening, is the increasing public concern about the magnitude of the problem and the need for collective action. Given the rapid increase in the prevalence of childhood obesity, the "visibility" of the problem, and the seriousness of the problem for the affected individuals, social and normative change is already beginning to occur. Further, the social costs of obesity that are being borne by society as a whole, suggest the appropriateness of collective and policy interventions.

One of the biggest changes in the social environment for tobacco control is that some tobacco companies are beginning to acknowledge that their products are harmful and addicting. Despite the decades of scientific evidence on the adverse health effects of tobacco use, tobacco companies, primarily for legal reasons, have denied the harm and addictiveness of tobacco products. As a result of the MSA, tobacco companies have begun to become more candid about the harm caused by their products, both in public statements and on their websites. But the level of candor is not consistent among all companies, nor is it consistent in all instances, especially in litigation, where companies tend to continue to deny that their product contributed to the harm claimed by the plaintiff.

At this point in time, it is not clear how the food industry will respond to social and public health pressures to limit marketing of unhealthful products to children and to assume at least partial responsibility for the epidemic of childhood obesity in this country and around the world (Daynard, 2003). However, some change has already begun, with companies such as Kraft announcing changes in portion size and fat content in some of the products most popular with children. Like tobacco companies, it is likely that the food industry will not respond monolithically. Instead

those market leaders that can afford to have market share frozen, or those companies that want to be perceived as a leader, or can carve out a “health” niche with their customers, will likely respond differently from other companies.

If the tobacco experience is any guide, it is likely that the food companies will act just enough to avoid government regulation, but will fall short on making structural changes in product design or marketing that will fundamentally alter their market position. To date, companies have been much more comfortable with educational campaigns emphasizing personal responsibility and the need for increased physical activity than with proposing major policy or structural changes.⁶

In trying to anticipate possible changes in corporate behavior, it should be remembered that marketing and selling unhealthy food, as opposed to tobacco for minors, is completely legal. On the other hand, document discovery has not yet taken place, and if it does, it may change public perceptions pertaining to the legality versus morality of marketing to children those products with known adverse health effects.

The recognition for collaborative approaches to preventing obesity has already begun, and various governments are beginning to launch broad-based national strategies for tackling obesity (Mayor, 2004). In fact, the WHO approved a Global Strategy for Diet, Physical Activity and Health (WHO, 2004) that calls for multisectoral collaboration to address the increasing global prevalence of obesity.

SUMMARY

Efforts to address contemporary public health problems are often difficult to evaluate for a number of reasons including the urgency and need for a rapid response, the lack of classical experimental design, often not having an unexposed control group, difficulty in measuring social factors, and not understanding the dynamics between social forces and health behaviors (McQueen, 2002).

While difficult, it is important to understand the factors that contribute to public health advances and the reasons for the failure of unsuccessful public health programs. This is particularly true as we face new problems that have complex, multifactorial, and often commercially linked dimensions. Rather than “reinventing the wheel,” making mistakes previously made, or overlooking interventions that have been shown to be effective, it

⁶For example, see the website of the American Council on Food and Nutrition, <http://www.acfn.org/about/>, or the Center for Consumer Freedom, <http://www.consumerfreedom.com/>.

is prudent to look at other public health experiences when developing strategies to reduce public health problems, such as the prevention of childhood obesity.

In reviewing other public health experiences and determining if there are lessons for preventing childhood obesity, it is useful to compare and contrast the similarities and differences between the other public health problems and the causes of childhood obesity. For example, when one compares the prevention of tobacco use to the prevention of childhood obesity, the first and most obvious difference is that tobacco use, from a public health standpoint, is a behavior to be avoided; it presents a serious health risk and no health benefit. Diet and physical activity, on the other hand, are essentials of life, cannot be avoided, and must be kept in balance to ensure good health. Thus, for tobacco, there is the simple message of avoidance, whereas for diet and physical activity there is the much more complex message that includes concepts such as quality, quantity, frequency, and balance (Mercer et al., 2003; Yach et al., 2003).

In summary, the “environmental classifications” of types of intervention strategies may serve as a useful template to determine the utility of different public health interventions for the prevention of childhood obesity. More broadly, categories such as these may be useful in conceptualizing intervention strategies for various public health problems. To increase the utility of this approach, and determine the relevance of specific public health interventions, it may be useful to further analyze the public health problem in terms of specific criteria to ascertain the similarity of certain problems and the likelihood that an approach that was successful with one public health problem, may be generalizable to another. Possible criteria for comparison could include:

- Description of the behavior (addictiveness, possible health benefits, legal aspects)
- Epidemiologic significance (number of deaths, disease burden)
- Clear understanding of etiology
- Feasibility of change
- Availability of effective interventions
- Level of public interest and awareness
- Extent to which public is affected by problem
- Salience to policy makers
- Nature of relation with product manufacturer
- Role of government
- Degree of product regulation
- International dimensions

CONCLUDING PRINCIPLES AND IMPLICATIONS

Individual Responsibility Versus Collective Action

One of the greatest challenges in our efforts to prevent childhood obesity is to strike the right balance between individual versus structural or environmental efforts. With tobacco control, most observers believe that major progress was not achieved until clinical efforts in smoking cessation were subjugated to policy efforts to change the social environment. This same debate is central to our efforts in preventing childhood obesity (Kersh and Morone, 2002; Zernike, 2003). As with many public health problems, a critical issue is the role of coercion versus individual rights, and striking the appropriate balance between commercial interests and the common good (Gostin, 2000).

Need to Change Social Norms About Food and Physical Activity

Fifty years ago, smoking was the norm. The majority of men smoked, smoking was widely advertised on television and radio, and smoking could occur anywhere, including airplanes, schools, hospitals, and doctor's offices. Today, the situation is reversed, with smoking no longer being normative, and nearly considered, if not a deviant behavior, at least one that is typically done in private. Fifty million Americans have quit smoking and there are more ex-smokers than current smokers. No one could have predicted the magnitude of change in perceptions and public opinion that has occurred with tobacco, but similar changes are possible with respect to food and physical activity. Today, foods are "super-sized" to provide the most food or value for the dollar, but with virtually no consideration for diet or health. While there is nothing wrong in seeking "value," it is not inconceivable that, in the future, health considerations will enter the equation in calculating "value." Similarly, nearly all smokers who quit, enjoyed smoking a great deal, but quit because they were more concerned about their health than they were about the pleasure of smoking. The same can be achieved with food.

Learn from Other Public Health Experiences, But Don't Necessarily Duplicate

Much has been learned from the successes, and continuing challenges, in previous public health experiences. However, there are major differences in these earlier efforts and efforts to prevent childhood obesity. The differences are particularly striking for tobacco control. Most notably, people need to eat, but do not need to smoke. In addition, it is illegal to sell tobacco products to minors, marketing to minors is prohibited, and non-

smokers' rights is a powerful social movement that has changed public norms related to smoking. None of these elements exist for preventing childhood obesity. From a macroperspective, and although progress has taken decades, tobacco control is relatively simple compared to the complexities presented by childhood obesity. Accordingly, childhood obesity prevention strategies should be developed with an appreciation for this complexity.

The Role of the Food Industry Is Critical but Uncertain

Part of the success of the tobacco control movement has been the attacks on and marginalization of the tobacco companies. This was a fairly predictable strategy because of their intransigence over decades and the harm resulting from a product that, when used as intended, kills one out of two lifetime users. While predictable, this strategy has also been effective in changing social norms and focusing youth empowerment against tobacco industry tactics. At this point, it is unclear whether a similar strategy directed against food companies is warranted or would be effective. This question will be partially answered by the extent to which food companies deal honestly and constructively with the obesity epidemic, including a candid assessment of their role in helping to create it (Revill, 2003). To the extent that commercial interests respond, if not lead, on behalf of the public good, they may obviate the need for government action. To the extent that they fail, government action will be demanded (Yach et al., 2003). In either respect, it appears clear to most that the overall environment in which food products are produced, marketed, and sold, must be improved (Ebbeling et al., 2002).

The Problem Is Multifactorial, and So Must Be the Solutions

Based on the experience with many different public health problems (e.g., tobacco control, motor vehicle and firearm injuries), it seems clear that comprehensive and multifactorial approaches are required. At a minimum these approaches should address both the individual behaviors and the social environment in which these behaviors take place, particularly the marketing, price, availability, and accessibility related to both dietary and physical activity behaviors. It is important to avoid glib and simple solutions to complex and poorly understood problems.

Need Evidence on Best Practices and Effective Interventions

The rise in childhood obesity is well documented, but less well understood. The relationships among and relative contribution of dietary factors,

the social environment, and physical activity need to be better understood to develop effective interventions (BMJ, 2004). Recent reports by the APA (2004) and the Kaiser Family Foundation (2004) advance the understanding of the role of the media in childhood obesity, but similar analyses are needed for other aspects of childhood obesity prevention, such as the role of fast foods and soft drinks, and how the social environment can be structured to contribute to the prevention of childhood obesity. For tobacco control, we may not know all the answers, but we know enough to make a difference. Research underlies tobacco control guidelines and recommendations, and similar research, recommendations, and guidelines are being developed for preventing childhood obesity. Once the relative effectiveness of various interventions is better known, there needs to be a concerted effort to disseminate and implement approaches that have been found to be effective. The lack of emphasis on the systematic diffusion of effective interventions has plagued multiple public health initiatives.

Need to Consider the Global Dimension

The epidemic of childhood obesity first appeared in the United States, but every indication is that it is beginning to appear in other developed countries, as well as in the developing world. The global implications of our domestic solutions should be considered, so we do not solve our problems by creating a larger one overseas (Yach et al., 2003; WHO, 2004).

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E



Workshop Programs

STRATEGIES FOR DEVELOPING SCHOOL-BASED POLICIES THAT PROMOTE
NUTRITION AND PHYSICAL ACTIVITY AMONG CHILDREN AND YOUTH

WORKSHOP SPONSORED BY THE
COMMITTEE ON PREVENTION OF OBESITY IN CHILDREN AND YOUTH
INSTITUTE OF MEDICINE

JUNE 16, 2003
1:00 PM—5:30 PM

NATIONAL ACADEMY OF SCIENCES AUDITORIUM
NAS BUILDING
2100 C STREET, NW
WASHINGTON, DC 20418

PROGRAM

- 1:00 pm **Welcome and Introductions**
*Jeffrey Koplan, M.D., M.P.H., Chair, Committee on
Prevention of Obesity in Children and Youth*
- 1:10 **Strategies for Developing School-Based Health
Promotion Policies**
*Harold Goldstein, Dr.P.H., California Center for Public
Health Advocacy, Davis, CA*

1:30 **Helping Public Schools Meet Expectations: Balancing Obesity Prevention and Physical Activity Goals with Fiscal and Curriculum Realities**

Alex Molnar, Ph.D., Education Policy Studies

Laboratory, Arizona State University, Tempe, AZ

1:50 **Discussion**

2:30 **Break**

2:50 **Panel Discussion**

*Mark Vallianatos, J.D., Occidental College,
Los Angeles, CA*

*Judith Young, Ph.D., National Association for Sport
and Physical Education, Reston, VA*

*Jennifer Wilkins, Ph.D., R.D., Division of Nutritional
Sciences, Cornell University, Ithaca, NY*

*Paula Hudson Collins, M.H.D.L., R.H.Ed.,
North Carolina Department of Public Instruction,
Raleigh, NC*

3:30 **Discussion**

4:30 **Open Forum**

*Tracy Fox, M.P.H., R.D., Produce for Better Health
Foundation*

*Dianne Ward, M.S., Ed.D., University of North Carolina
at Chapel Hill*

*Margo Wootan, Sc.D., Center for Science in the Public
Interest*

*Kimberly F. Stitzel, M.S., R.D., The American Dietetic
Association*

*Bill Wilkinson, A.I.C.P., National Center for Bicycling
& Walking*

*Alicia Moag-Stahlberg, M.S., R.D., L.D., Action for
Healthy Kids*

*William Potts-Datema, M.S., Harvard School of Public
Health*

*Amy Harris, R.N., National Association of Orthopedic
Nurses*

*Vivian Pilant, M.S., R.D., South Carolina Department of
Education*

*Donna Mazyck, R.N., B.S.N., N.C.S.N., Maryland State
Department of Education; National Association of
School Nurses*

*Sandra Hassink, M.D., A.I. duPont Hospital for
Children; American Academy of Pediatrics (AAP)*

5:30 **Adjourn**

THE PREVENTION OF CHILDHOOD OBESITY:
UNDERSTANDING THE INFLUENCES OF MARKETING,
MEDIA, AND FAMILY DYNAMICS

WORKSHOP SPONSORED BY THE
COMMITTEE ON PREVENTION OF OBESITY IN CHILDREN AND YOUTH
INSTITUTE OF MEDICINE

TUESDAY, DECEMBER 9, 2003
1:00 PM—5:30 PM

KECK CENTER OF THE NATIONAL ACADEMIES
CONFERENCE ROOM 100
500 FIFTH STREET, N.W.
Washington, DC 20001

PROGRAM

- 1:00 pm **Welcome and Introductions**
*Jeffrey Koplan, M.D., M.P.H., Chair, Committee on
Prevention of Obesity in Children and Youth*
- 1:10 **Marketing and Media Influences: Identifying
Challenges and Effective Strategies for the
Prevention of Childhood Obesity**
- 1:10 – 1:30 pm*
Neal Baer, M.D., Executive Producer
University City, CA
- 1:30 – 1:50 pm*
Eric Rosenthal, B.B.A., M.S., Marketing Specialist,
Frankel, Chicago, IL
- 1:50 – 2:10 pm*
Mary Engle, Esq., Division of Advertising Practices,
Federal Trade Commission, Washington, DC
- 2:10 **Discussion Among Presenters and the Committee**
- 3:10 **Break**

- 3:30 **Family Dynamics: Challenges and Opportunities for Preventing Childhood Obesity and Promoting Healthful Lifestyles**
Susan McHale, Ph.D., The Pennsylvania State University, University Park, PA
- 4:00 **Discussion**
- 4:45 **Open Forum**
Joan Almon, U.S. Alliance for Childhood
Lilian Cheung, D.Sc., R.D., Harvard School of Public Health
Jessica Donze, M.P.H., R.D., American Dietetic Association
Tracy Fox, M.P.H., R.D., Produce for Better Health Foundation
Lynn Fredericks, B.A., FamilyCook Productions
Velma LaPoint, Ph.D., Howard University
David Meyers, M.D., United States Breastfeeding Committee
Jill Nicholls, Ph.D., National Dairy Council/Dairy Management Inc.
Anne-Marie Nocton, M.S., M.P.H., R.D., Sports, Cardiovascular, and Wellness Nutritionists
Robert Pallas, M.D., American Academy of Family Physicians
Mercedes Rubio, Ph.D., American Sociological Association
Margo Wootan, Sc.D., Center for Science in the Public Interest
- 5:30 **Adjourn**

F



Biographical Sketches

Jeffrey P. Koplan, M.D., M.P.H. (Chair), is the Vice President for Academic Health Affairs at the Woodruff Health Sciences Center at Emory University in Atlanta. He received a B.A. from Yale College, M.D. from Mt. Sinai School of Medicine, and M.P.H. from the Harvard School of Public Health. He is board certified in internal and preventive medicine. From 1998 to 2002, Dr. Koplan served as the Director of the Centers for Disease Control and Prevention (CDC) and Administrator of the Agency for Toxic Substances and Disease Registry. He worked in the area of enhancing the interactions between clinical medicine and public health by leading the Prudential Center for Health Care Research, a nationally recognized health services research organization. Dr. Koplan has worked on a broad range of major public health issues, including infectious diseases such as smallpox and HIV/AIDS, environmental issues such as the Bhopal chemical disaster, and the health toll of tobacco and chronic diseases, both in the United States and globally. Dr. Koplan is a Master of the American College of Physicians, an Honorary Fellow of the Society of Public Health Educators, and a Public Health Hero of the American Public Health Association. He was elected to the Institute of Medicine (IOM) in 1999. He has served on many advisory groups and consultancies on public health issues in the United States and overseas and authored more than 170 scientific papers.

Dennis M. Bier, M.D., is Professor of Pediatrics and the Director of the U.S. Department of Agriculture/Agricultural Research Service (USDA/ARS) Children's Nutrition Research Center at the Baylor College of Medicine in

Houston. Prior to this appointment, he was Co-director of the Pediatric Endocrinology and Metabolism Division and Director of the Pediatric Clinical Research Center at Washington University School of Medicine in St. Louis. Dr. Bier received his B.S. from LeMoyne College and his M.D. from New Jersey College of Medicine. Dr. Bier's primary research interests are focused on the regulation of inter-organ transport of metabolic fuels with a special emphasis on the substrate and hormonal regulation of glucose, lipid, and protein/amino acid fuels. He has expertise in the areas of nutrition in human health and in the prevention and treatment of disease, particularly the role of maternal, fetal, and childhood nutrition on the growth, development, and health of children through adolescence; the long-term consequences of nutrient inadequacy during critical periods of embryonic and fetal life, infancy, and childhood on the pathogenesis of adult chronic diseases; macronutrients; intermediary metabolism; tracer kinetics; and diabetes, obesity, and endocrine disorders. Dr. Bier has served as President of the International Pediatric Research Foundation, Chair of the USDA/ARS Human Studies Review Committee, Councilor for the American Pediatric Society, and as a member of the 1995 USDA/HHS Dietary Guidelines Advisory Committee, the IOM's Food and Nutrition Board (FNB), and the IOM Committee on Implications of Dioxin in the Food Supply. He was elected to the IOM in 1997. He currently serves on the Board of the International Life Sciences Institute (ILSI) North America, and he is a member of the McDonald's Global Advisory Council on Healthy Lifestyles.

Leann L. Birch, Ph.D., is the Distinguished Professor of Human Development and Nutritional Sciences at The Pennsylvania State University in University Park. She holds a Ph.D. in psychology from the University of Michigan. Dr. Birch's research has focused on the development of eating behaviors in infants, children, and adolescents. Her research explores factors shaping food preferences in infants and children, regulation of food intake in children, dieting and problems of energy balance in school-age girls, predictors of maternal child feeding styles, and parental and environmental influences on children's dietary practices. She currently receives research support from the National Institute of Child Health and Human Development (NICHD). Dr. Birch has received national and international recognition for her work including the Lederle Award from the American Society for Nutritional Sciences. She is the author of more than 150 publications.

Ross C. Brownson, Ph.D., is Professor of Epidemiology and the Chair of the Department of Community Health at St. Louis University School of Public Health in Missouri. He was formerly Division Director with the Missouri Department of Health. He received his Ph.D. in environmental health and epidemiology at Colorado State University. Dr. Brownson is a

chronic disease epidemiologist whose research has focused on tobacco use prevention, promotion of physical activity, and the evaluation of community-level interventions. He is the principal investigator of a CDC-funded Prevention Research Center that is developing innovative approaches to chronic disease prevention among high-risk rural adults. Dr. Brownson is also developing and testing effective dissemination strategies for CDC designed to increase rates of physical activity among adults. Dr. Brownson receives research support from the National Institutes of Diabetes and Digestive and Kidney Diseases to conduct a diabetes prevention study aimed at promoting walking among high-risk rural adults. Dr. Brownson receives support from the Robert Wood Johnson Foundation (RWJF) to understand the environmental characteristics of activity-friendly communities and to measure the perceptual qualities of urban settings through RWJF's Active Living Research program. He is a member of numerous editorial boards and is associate editor of the *Annual Review of Public Health*. Dr. Brownson is the author or editor of several books including *Chronic Disease Epidemiology and Control*, *Applied Epidemiology*, and *Evidence-Based Public Health*.

John Cawley, Ph.D., is an Assistant Professor in the Department of Policy Analysis and Management at Cornell University. Dr. Cawley received his undergraduate degree in economics from Harvard University and his Ph.D. in economics from the University of Chicago. Dr. Cawley joined the Cornell faculty in 2001 after spending two years as a Robert Wood Johnson Scholar in Health Policy Research at the University of Michigan. His research focuses on health economics, in particular the economics of obesity. He is currently studying the effect of body weight on labor market outcomes such as wage rates, unemployment, and employment disability; the role of body weight in the decision of adolescents to initiate smoking; the demand for anti-obesity pharmaceuticals; and the extent to which consumption of calories can be considered addictive. His research is conducted with support from the Economic Research Initiative on the Uninsured, the University of Michigan Retirement Research Consortium, J.P. Morgan Private Bank Global Philanthropic Services, RWJF, Merck, and USDA. In addition to his affiliation with Cornell, Dr. Cawley is a Faculty Research Fellow of the National Bureau of Economic Research in the Health Economics and Health Care programs. He also serves on an advisory board to the CDC's Project MOVE: Measurement of the Value of Exercise.

George R. Flores, M.D., M.P.H., is a Senior Program Officer with The California Endowment, a major health foundation, where his focus is on disparities in health status, prevention of childhood obesity, community-based public health, and health policy. Dr. Flores served previously as

Health Officer and Director of Public Health in San Diego and Sonoma Counties, Deputy Health Officer in Santa Barbara County, Assistant Clinical Professor at the University of California San Francisco School of Medicine, and Program Director for Project HOPE in Guatemala. He is a founder and member of the Board of Directors of the Latino Coalition for a Healthy California. Dr. Flores is an alumnus of the University of Utah College of Medicine, the Harvard School of Public Health, the Kennedy School of Government, and the Public Health Leadership Institute. He has served on the IOM Committee on Assuring the Health of the Public in the 21st Century.

Simone A. French, Ph.D., is Professor in the Division of Epidemiology in the School of Public Health at the University of Minnesota in Minneapolis. She received a B.A. in psychology from Macalester College in St. Paul, Minnesota, and a Ph.D. in psychology from the University of Minnesota in Minneapolis. Dr. French's expertise and research focuses broadly on the social and environmental influences on eating and physical activity behaviors, community-based strategies for eating behavior change, and adolescent nutrition and physical activity. Her obesity prevention research has focused on pricing strategies to promote sales of lower fat foods in cafeterias and vending machines, and changing the availability and promotion of healthful foods in school cafeterias to influence student food choices. She has also researched eating disorders, dieting, and other weight management strategies among adolescents and adults. Dr. French presently receives research support that focuses on obesity and nutrition from the National Heart, Lung, and Blood Institute and NICHD. She serves as co-editor of the *International Journal of Behavioral Nutrition and Physical Activity*. Dr. French has authored more than 100 scientific papers in peer-reviewed academic journals.

Susan L. Handy, Ph.D., is an Associate Professor in the Department of Environmental Science and Policy, University of California at Davis. She earned a B.S. in civil engineering from Princeton University, an M.S. in civil engineering from Stanford University, and a Ph.D. in city and regional planning from the University of California at Berkeley. Dr. Handy's research focuses on the relationships between transportation and land use, including the impact of land use on travel behavior, and the impact of transportation investments on land development patterns. Her work is directed toward developing strategies to enhance accessibility and reduce automobile dependence, including land use policies and telecommunications services. She is the Chair of the Committee on Telecommunications and Travel Behavior and a member of the Committee on Transportation and Land Development of the Transportation Research Board. She is also a

co-principal investigator on a project funded by The RWJF's Active Living and Environmental Studies Program.

Robert C. Hornik, Ph.D., is the Wilbur Schramm Professor of Communication and Health Policy at the Annenberg School for Communication, University of Pennsylvania in Philadelphia. He has a wide range of experience in mass-media communication evaluations, ranging from breastfeeding promotion, AIDS education, immunization and child survival projects, to anti-drug and domestic violence media campaigns at the community, national, and international levels. Dr. Hornik has served as a member of the IOM Committee on International Nutrition Programs, the National Research Council (NRC) Committee on Communication for Behavior Change in the 21st Century: Improving the Health of Diverse Populations, and the NRC Committee to Develop a Strategy to Prevent and Reduce Underage Drinking. He has received the Andreasen Scholar award in social marketing, and the Fisher Mentorship award from the International Communication Association. He has also been a consultant to other agencies such as the U.S. Agency for International Development, UNICEF, CDC, and the World Bank. Dr. Hornik serves on the editorial boards of several journals, including *Social Marketing Quarterly* and the *Journal of Health Communication*. Dr. Hornik was the scientific director for the evaluation of the Office of National Drug Control Policy's National Youth Anti-Drug Media Campaign and he is currently the director of the University of Pennsylvania's National Cancer Institute-funded Center of Excellence in Cancer Communication Research. He most recently edited *Public Health Communication* and was the author of *Development Communication*, and co-author of *Educational Reform with Television: The El Salvador Experience*, and *Toward Reform of Program Evaluation*.

Douglas B. Kamerow, M.D., M.P.H., is the Chief Scientist for Health, Social, and Economics Research at RTI International where he focuses on health-related behaviors, evidence-based care, and improving the quality of health care. Among his responsibilities is serving as principal investigator on an evaluation of the RWJF's National Diabetes Program. He is also a Clinical Professor of Family Medicine at Georgetown University. A family physician who is also board certified in preventive medicine, Dr. Kamerow received his A.B. from Harvard College, M.D. from the University of Rochester, and M.P.H. from Johns Hopkins University. While a Commissioned Officer in the U.S. Public Health Service, he served as Director of the Center for Practice and Technology Assessment, Agency for Healthcare Research and Quality, Department of Health and Human Services and Director of the Clinical Preventive Services staff of the Public Health Service Office of Disease Prevention and Health Promotion. He conceived and supervised

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Exhibit 8

Lincoln County School District Nutrition Services

Nutrition Services is operated under ODE and USDA guidelines and must maintain a non-profit separate fund accounting. This means that Nutrition Services operates just like a business, if we fall short, the schools District's General Fund would need to cover the loss, taking funds away from our students' direct education support. The entire meal program is funded with USDA program reimbursements, vended meal agreements with community partners, and a small catering operation. The funding is a balancing act with our partner Sodexo to cover food and labor costs as well as keeping kitchen equipment working well and up to health code standards, and implementing new items to provide outstanding customer service to our students.

Community Eligibility Provision or CEP, the program that allows Lincoln County School District to offer free breakfast and lunches to all students regardless of income, is based on the number of students directly certified plus a multiplier designated by ODE annually. Direct Cert students are students who receive SNAP, are in the DHS Foster system, are categorized as Migrant, or identify as Homeless. The multiplier used is to represent students who may qualify for a reduced-price lunch or are unable to apply for benefits.

Newport High enrollment is just over 600 students. With 28.23% direct cert students identified plus the multiplier of 1.6%, NHS has a poverty rate of 45%. Almost half, yet to qualify for the universal meals, each school alone needs to be at 40% direct cert. LCSD groups all schools into one large group in order to extend the benefit across the entire county.

CEP puts all students on the same level and offers much needed and appreciated financial relief to working families who do not meet income thresholds to qualify for free meals. Even a charged meal price at the low rate of \$2.50 for breakfast and \$3.75 lunch per day add up for the month to over \$125 per child.

LCSD does not receive 100% reimbursement for all meals served. We receive reimbursement at the free rate for approximately 65% of participation. The remaining 35% is reimbursed at the USDA reduced meal rate. Any funding left over from paying labor and meal costs is used to purchase and repair kitchen equipment.

Another factor is student participation in the program. 2018-19 was the last year for which we have regular statistics. NHS's participation rate in the lunch program was 27%. This is for an open campus with food options directly across the street (Cubs Cave). Waldport High, Toledo Jr/Sr High and Taft 7-12's participation rates were 60%, 72% and 50% respectively. In those areas there is an open campus but limited choices close by and no options across the street. Participation in all of these schools is higher than NHS. The other higher participating schools carry or subsidize NHS because they have the lowest participation in the district. Participation increased to 40% during Covid because there was a completely closed campus. Each 5% reduction in participation represents only 7 meals. A 10% reduction brings it to only 17% participation and represents a loss of only 14 meals per day. As shown below, NHS meal service already falls short of breakeven by about 100 meals per day. This school is already being subsidized by participation at the other schools.

Breakeven is 15 meals/labor hour	Labor Hours	# Meals/Day to Break Even
Lead	7	105
Assistant	6	90
Dishwasher	4	60
1 Additional Staff for Enrollment	4	60
	<u>21</u>	<u>315</u>
Days/Month		<u>20</u>
Meals Needed to Maintain Staffing		6,300
18/19 Monthly Meals		<u>4,280</u>
Shortfall Monthly		(2,020)
Daily Shortfall in Meals Served		(101)

LCSD has invested heavily over the last few years to increase participation. NHS piloted the 2nd chance breakfast, which offered a hallway kiosk for a grab-n-go breakfast between 1st and 2nd period. Breakfast participation increased from 13% to 28%. The cafeteria is currently being remodeled at the cost of an estimated \$150,000 to update the outdated room and make it a safe place for students to eat a healthy meal and hang with friends. Polished concrete flooring with updated panel walls and a sound system with TV's, bistro style tables, updated salad bar and a lounge area with USB charging stations are already in the works. A "coffee" bar will be added along with a grab-n-go cooler for faster service.

If CEP was no longer an option at Newport High, what does this mean?

- LCSD would again have to ask families to provide free and reduced meal applications, only SNAP kids would automatically qualify
- LCSD would have to process and vet all those applications
- Benefits such as Summer EBT would only be extended to "free" families
- Participation would likely fall even further, resulting in the loss of kitchen staff
- Impact to our meal service to our Infant and Cubby Program, forcing applications (we are currently able to provide formula to all families at no charge all day)
- Participation drop would also affect product deliveries from some suppliers and would need to be dropped at a neighboring school and trucked over by LCSD/Sodexo staff
- CEP allows for additional grant opportunities that would no longer be available
- Working families would need to pay for meals and in many cases, students would go without

HB3454 or the "lunch shaming" house bill would become a real concern. This House bill prevents a school from withholding meal service from a student or giving them the "cheese sandwich" option if they are unable to pay. Now, LCSD long ago got rid of the "cheese sandwich" option, and stands behind feeding kids no matter what, but with HB3454, students can and do in many districts, rack up large lunch

balances that many families will never pay. This can take away from program updates and needed repairs. Many districts are forced to clear the debt with general fund.

During the Covid shut down, LCSD operated an impressive #mealsonthebus program, serving thousands of meals daily. Because ALL schools are included in CEP, we could run busses to any corner of the county serving 3 meals a day. If a CEP status had changed for Newport, areas of Newport would have not qualified for delivery or even a supper meal under area eligibility restrictions.

Will a drop in participation really matter?

The short answer is yes, and not just for NHS but also for Lincoln County School District and Lincoln County as a whole.

The balancing act that is food service has many variables. At some point, other schools may not be able to make up for the shortfall at NHS. We will not be able to provide enough meals to justify the staffing. This could mean meal choices will be limited to balance to the new staff level. The Newport Middle School kitchen may need to prepare the meals and we will transport them down. We will need to get creative. LCSD will always feed kids but these meals may no longer be free.

Exhibit 9



School Meals Patterns with Flexibilities for SY 2018/2019

(per Interim Final Rule 82 FR 56703, Nov. 30, 2017)

	Breakfast Meal Pattern		
	Grades K-5	Grades 6-8	Grades 9-12
Food Components	Amount of Food ^a per Week		
	(minimum per day)		
Fruits (cups) ^{b,c}	5 (1)	5 (1)	5 (1)
Vegetables (cups) ^{b,c}	0	0	0
Dark green	0	0	0
Red/Orange	0	0	0
Beans and peas (legumes)	0	0	0
Starchy	0	0	0
Other	0	0	0
Grains (oz eq) ^d	7-10 (1)	8-10 (1)	9-10 (1)
Meats/Meat Alternates (oz eq) ^e	0	0	0
Fluid milk ^f (cups)	5 (1)	5 (1)	5 (1)
Other Specifications: Daily Amount Based on the Average for a 5-Day Week			
Min-max calories (kcal) ^{g,h}	350-500	400-550	450-600
Saturated fat (% of total calories) ^h	<10	<10	<10
Sodium Target 1 (mg) ^{h,i}	≤540	≤600	≤640
Trans fat ^{h,j}	Nutrition label or manufacturer specifications must indicate zero grams of <i>trans</i> fat per serving.		

^a Food items included in each group and subgroup and amount equivalents. Minimum creditable serving is 1/8 cup.

^b One quarter cup of dried fruit counts as 1/2 cup of fruit; 1 cup of leafy greens counts as 1/2 cup of vegetables. No more than half of the fruit or vegetable offerings may be in the form of juice. All juice must be 100% full-strength.

^c Schools must offer 1 cup of fruit daily and 5 cups of fruit weekly. Starchy vegetables can be served at any time during the week provided the menu planner offers at least 2 cups from the under consumed subgroups during that same week. Under consumed vegetable subgroups are the dark green, red/orange, legumes, and "other vegetables" subgroups, as defined in 7 CFR 210.10(c)(2)(iii).

^d All grains must be whole-grain-rich. Exemptions are allowed as specified in 7 CFR 220.8(c)(2)(iv)(B). Schools may substitute 1 oz. eq. of meat/meat alternate for 1 oz. eq. of grains after the minimum daily grains requirement is met.

^e There is no meat/meat alternate requirement.

^f All fluid milk must be fat-free (skim) or low-fat (1 percent fat or less). Milk may be unflavored or flavored.

^g The average daily calories for a 5-day school week must be within the range (at least the minimum and no more than the maximum values).

^h Discretionary sources of calories (solid fats and added sugars) may be added to the meal pattern if within the specifications for calories, saturated fat, *trans* fat, and sodium. Foods of minimal nutritional value and fluid milk with fat content greater than 1 percent milk fat are not allowed.

ⁱ Sodium Target 1 (shown) is effective from July 1, 2014 (SY 2014-2015) through June 30, 2019 (SY 2018-2019). For sodium targets due to take effect beyond SY 2018-2019, see 7 CFR 220.8(f)(3).

^j Food products and ingredients must contain zero grams of trans fat (less than 0.5 grams) per serving.

	Lunch Meal Pattern		
	Grades K-5	Grades 6-8	Grades 9-12
Food Components	Amount of Food ^a per Week		
	(minimum per day)		
Fruits (cups) ^b	2½ (½)	2½ (½)	5 (1)
Vegetables (cups) ^b	3¾ (¾)	3¾ (¾)	5 (1)
Dark green ^c	½	½	½
Red/Orange ^c	¾	¾	1¼
Beans and peas (legumes) ^c	½	½	½
Starchy ^c	½	½	½
Other ^{c,d}	½	½	¾
Additional Vegetables to Reach Total ^e	1	1	1½
Grains (oz eq) ^f	8-9 (1)	8-10 (1)	10-12 (2)
Meats/Meat Alternates (oz eq)	8-10 (1)	9-10 (1)	10-12 (2)
Fluid milk (cups) ^g	5 (1)	5 (1)	5 (1)
Other Specifications: Daily Amount Based on the Average for a 5-Day Week			
Min-max calories (kcal) ^h	550-650	600-700	750-850
Saturated fat (% of total calories) ^h	<10	<10	<10
Sodium Target 1 (mg) ^{h,i}	≤1,230	≤1,360	≤1,420
Trans fat ^{h,j}	Nutrition label or manufacturer specifications must indicate zero grams of <u>trans</u> fat per serving.		

^a Food items included in each group and subgroup and amount equivalents. Minimum creditable serving is 1/8 cup.

^b One quarter-cup of dried fruit counts as 1/2 cup of fruit; 1 cup of leafy greens counts as 1/2 cup of vegetables. No more than half of the fruit or vegetable offerings may be in the form of juice. All juice must be 100% full-strength.

^c Larger amounts of these vegetables may be served.

^d This category consists of "Other vegetables" as defined in 7 CFR 210.10(c)(2)(iii)(E). For the purposes of the NSLP, the "Other vegetables" requirement may be met with any additional amounts from the dark green, red/orange, and beans/peas (legumes) vegetable subgroups as defined in 7 CFR 210.10(c)(2)(iii).

^e Any vegetable subgroup may be offered to meet the total weekly vegetable requirement.

^f All grains must be whole grain-rich. Exemptions are allowed as specified in 7 CFR 210.10(c)(2)(iv)(B).

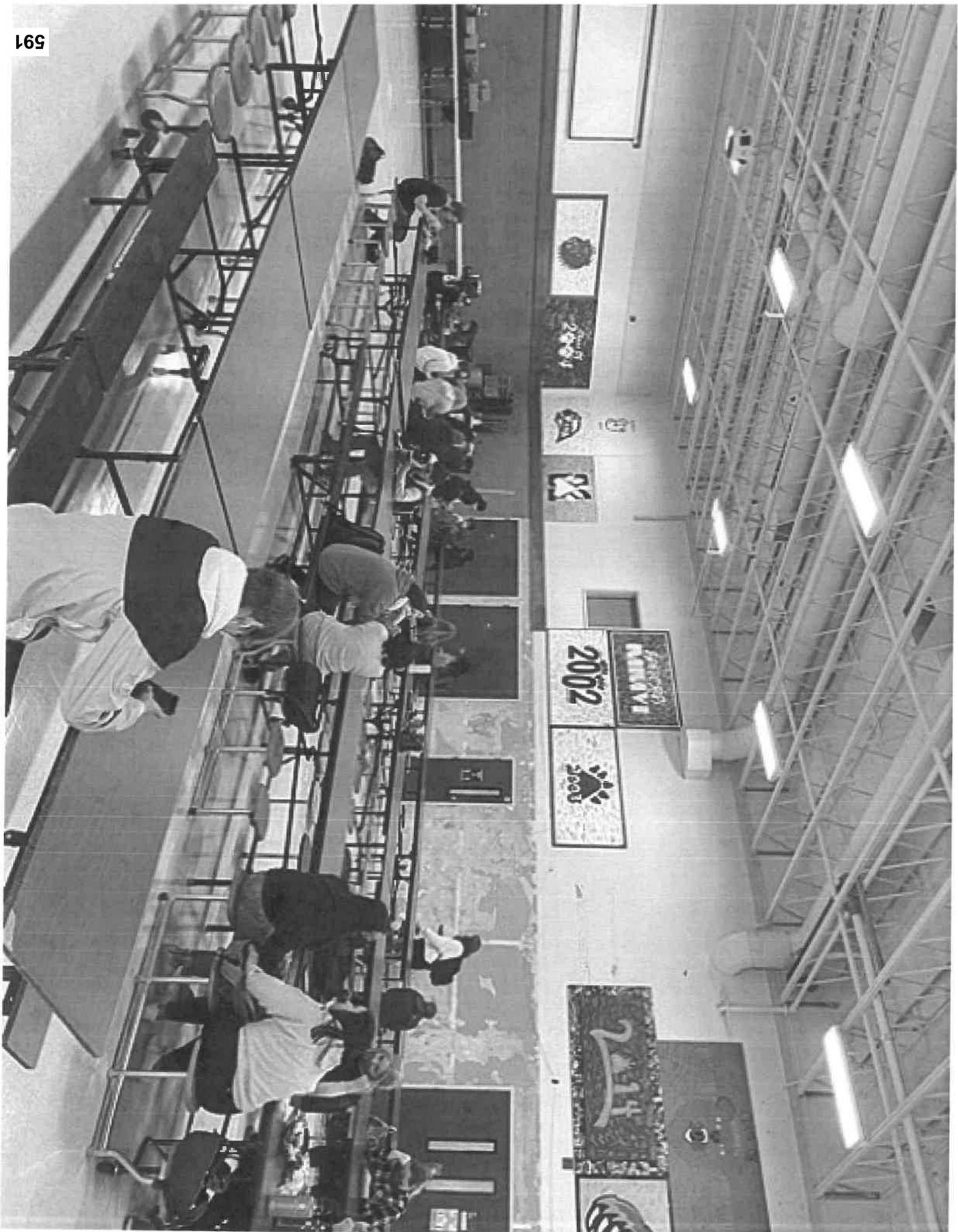
^g All fluid milk must be fat-free (skim) or low-fat (1 percent fat or less). Milk may be unflavored or flavored as specified in 7 CFR 210.10(d)(1)(i).

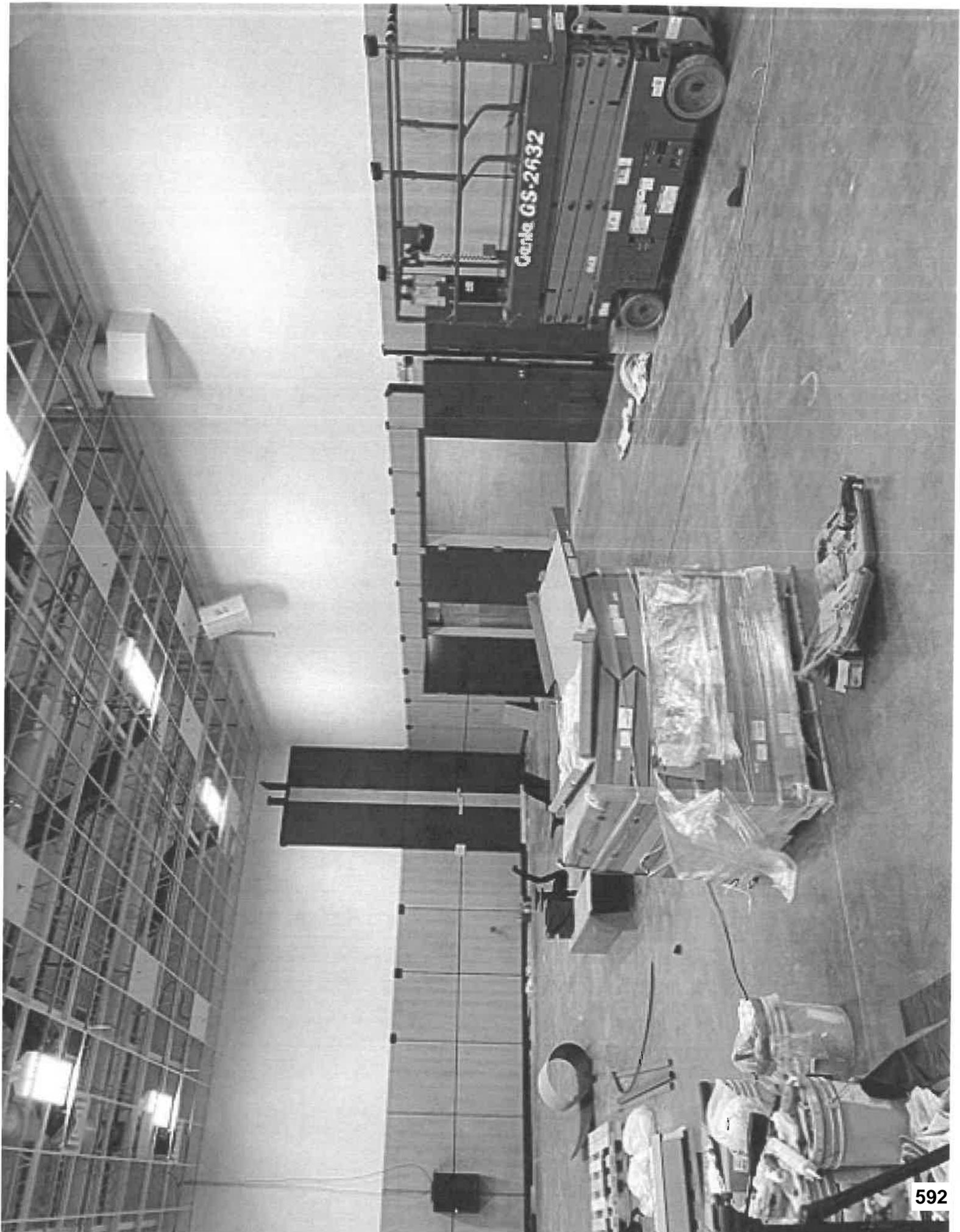
^h Discretionary sources of calories (solid fats and added sugars) may be added to the meal pattern if within the specifications for calories, saturated fat, trans fat, and sodium. Foods of minimal nutritional value and fluid milk with fat content greater than 1 percent are not allowed.

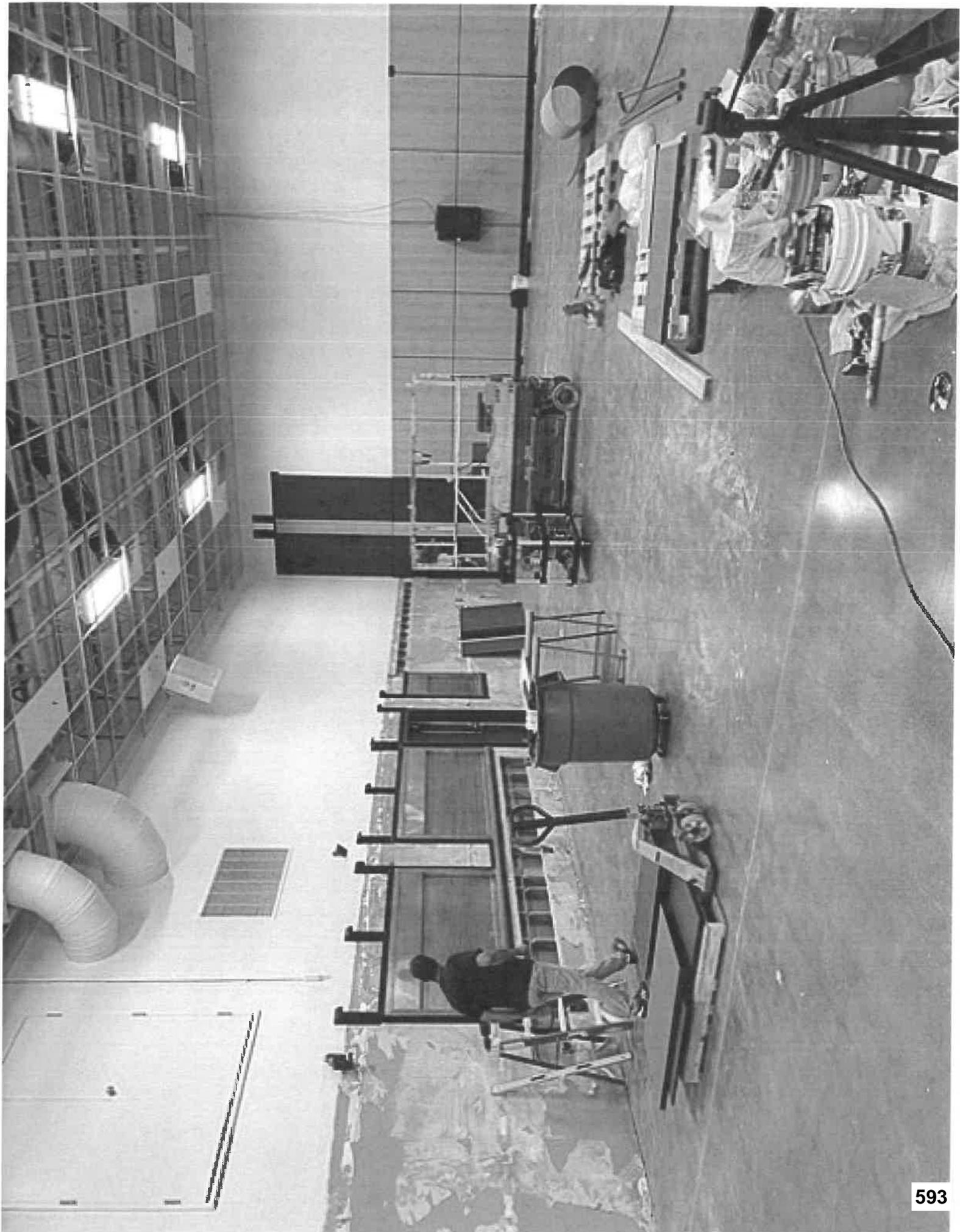
ⁱ Sodium Target 1 (shown) is effective from July 1, 2014 (SY 2014-2015) through June 30, 2019 (SY 2018-2019). For sodium targets due to take effect beyond SY 2018-2019, see 7 CFR 210.10(f)(3).

^j Food products and ingredients must contain zero grams of trans fat (less than 0.5 grams) per serving.

Exhibit 10



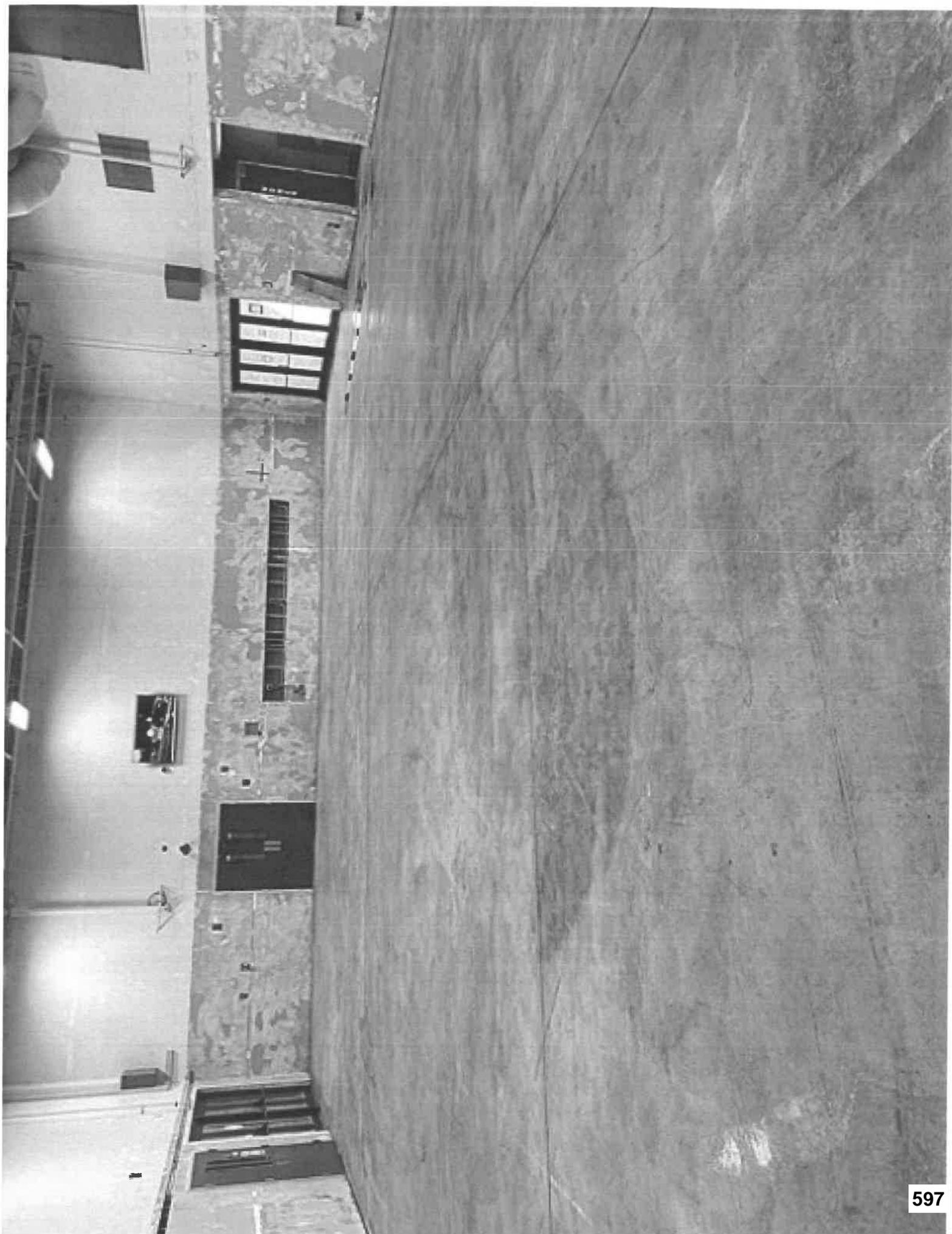


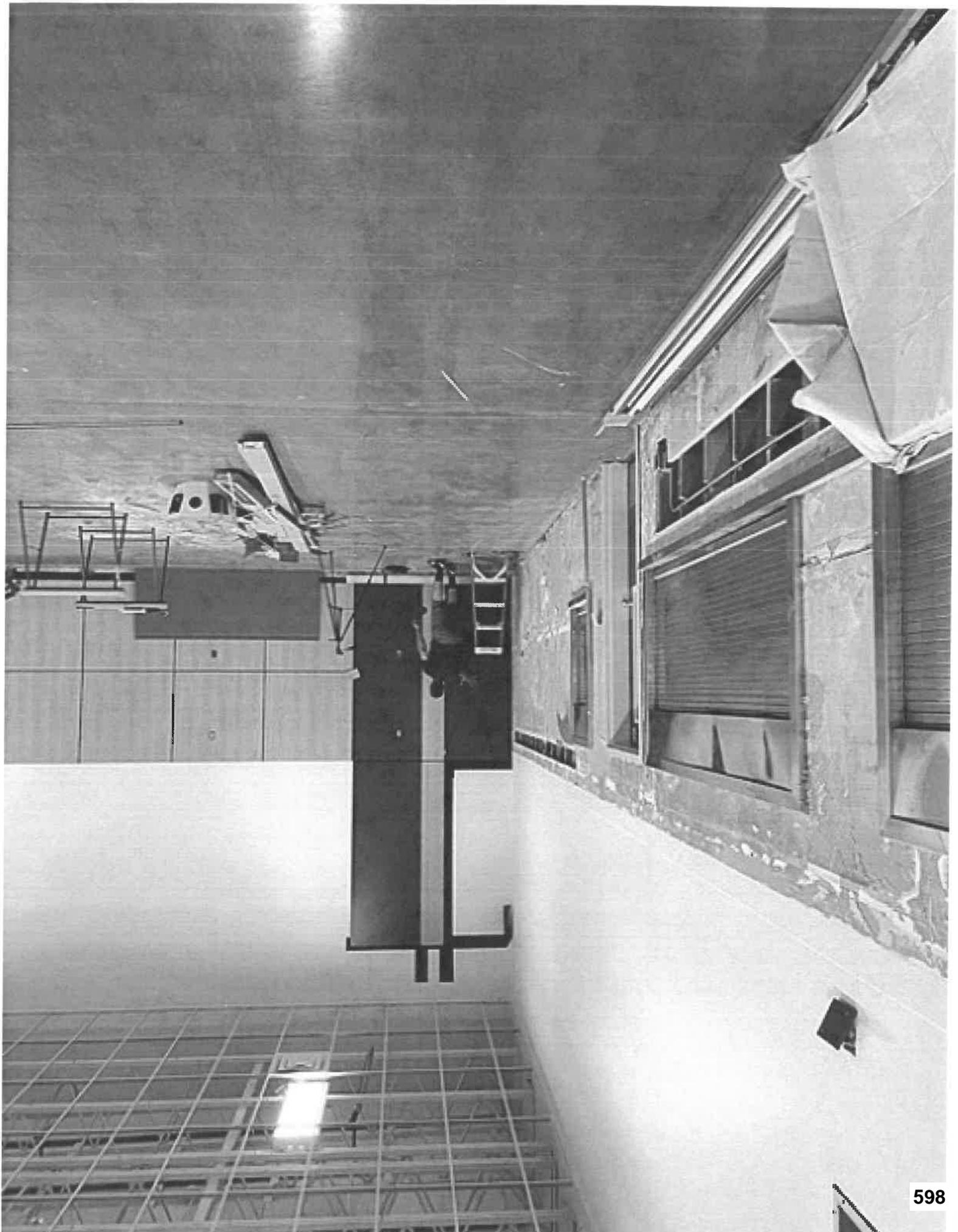












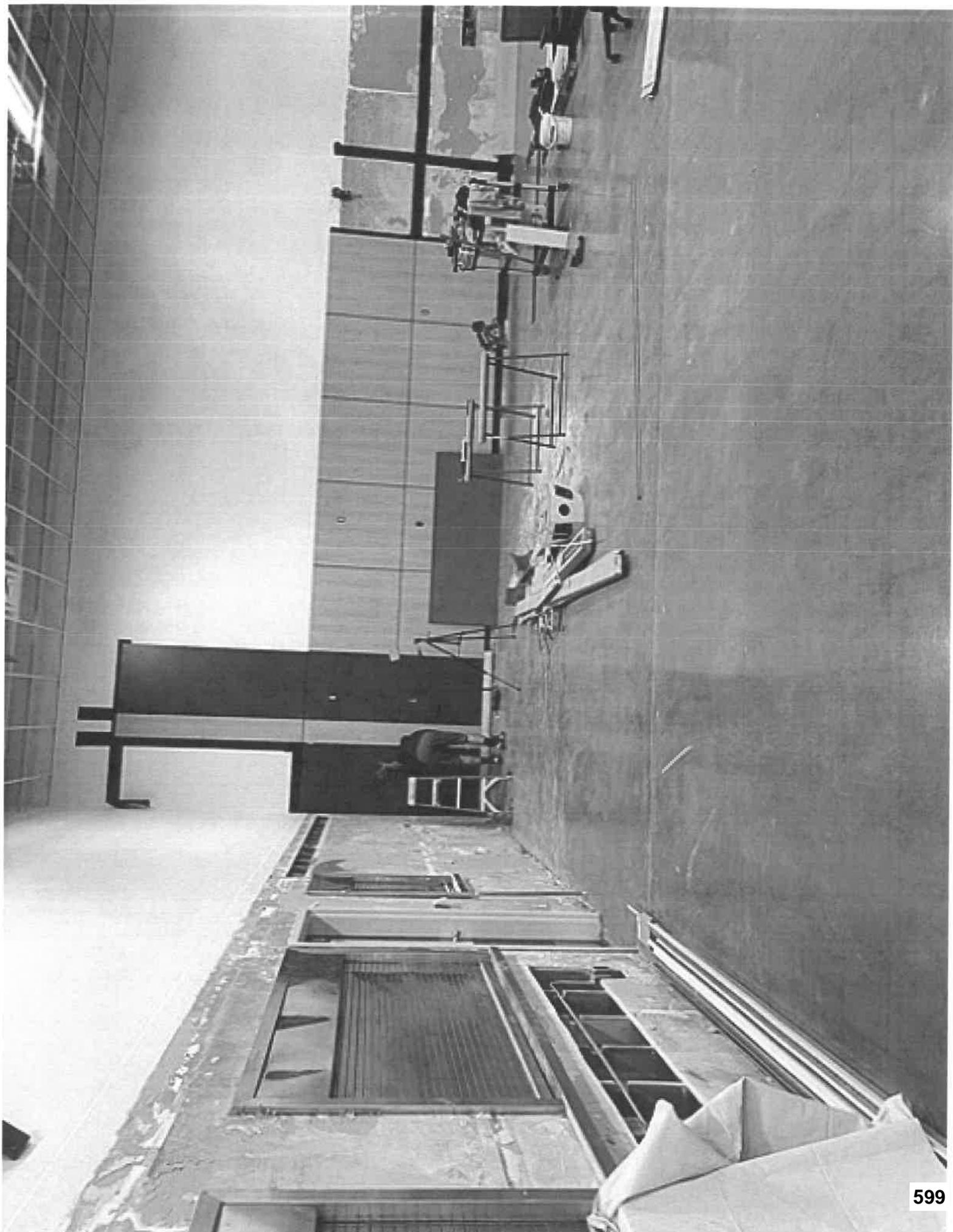


Exhibit 11

DEPARTMENT OF AGRICULTURE

Food and Nutrition Service

7 CFR Parts 210 and 220

[FNS–2011–0019]

RIN 0584–AE09

National School Lunch Program and School Breakfast Program: Nutrition Standards for All Foods Sold in Schools as Required by the Healthy, Hunger-Free Kids Act of 2010

AGENCY: Food and Nutrition Service, USDA.

ACTION: Final rule and interim final rule.

SUMMARY: This rule adopts as final, with some modifications, the National School Lunch Program and School Breakfast Program regulations set forth in the interim final rule published in the *Federal Register* on June 28, 2013. The requirements addressed in this rule conform to the provisions in the Healthy, Hunger-Free Kids Act of 2010 regarding nutrition standards for all foods sold in schools, other than food sold under the lunch and breakfast programs. Most provisions of this final rule were implemented on July 1, 2014, a full year subsequent to publication of the interim final rule. This was in compliance with section 208 of the Healthy, Hunger-Free Kids Act of 2010, which required that State and local educational agencies have at least one full school year from the date of publication of the interim final rule to implement the competitive food provisions.

Based on comments received on the interim final rule and implementation experience, this final rule makes a few modifications to the nutrition standards for all foods sold in schools implemented on July 1, 2014. In addition, this final rule codifies specific policy guidance issued after publication of the interim rule. Finally, this rule retains the provision related to the standard for total fat as interim and requests further comment on this single standard.

DATES: *Effective date:* This final rule is effective September 27, 2016.

Comment date: Comments on the interim final rule total fat standard must be submitted by September 27, 2016.

Compliance dates: Except as noted in this final rule, compliance with the nutrition standards and other provisions of the interim final rule began on July 1, 2014. The potable water provision was effective on October 1, 2010, and compliance with that provision was required no later than August 27, 2013.

ADDRESSES: To be considered, written comments must be submitted by one of the following methods:

- *Federal eRulemaking Portal:* Go to <http://www.regulations.gov>, select “Food and Nutrition Service” from the agency drop-down menu, and click “Submit”. In the Docket ID column of the search results select “FNS–2011–0019” to submit or view public comments and to view supporting and related materials available electronically. Information on using *Regulations.gov*, including instructions for accessing documents, submitting comments, and viewing the docket after the close of the comment period is available through the site’s “User Tips” link.

- *By Mail:* Send comments to Tina Namian, Branch Chief, School Meals Branch, Policy and Program Development Division, Child Nutrition Programs, Food and Nutrition Service, 3101 Park Center Drive, Alexandria, Virginia 22302. Mailed comments must be postmarked on or before the comment deadline identified in the **DATES** section of this preamble to be assured of consideration.

All submissions received in response to the interim final provision on total fat will be included in the record and will be available to the public. Please be advised that the substance of the comments and the identity of the individuals or entities submitting comments will be subject to public disclosure. FNS also will make the comments publicly available by posting a copy of all comments on <http://www.regulations.gov>.

FOR FURTHER INFORMATION CONTACT: Tina Namian, Branch Chief, School Meals Branch, Policy and Program Development Division, Child Nutrition Programs, Food and Nutrition Service, 3101 Park Center Drive, Alexandria, Virginia 22302, or by telephone at (703) 305–2590.

SUPPLEMENTARY INFORMATION:

I. Overview

This rule affirms, with some modifications, the interim final rule (IFR) that implemented amendments made by sections 203 and 208 of Public Law 111–296, the Healthy, Hunger-Free Kids Act of 2010 (HHFKA), to the Child Nutrition Act of 1966 (CNA) and the Richard B. Russell National School Lunch Act (NSLA) for schools that participate in the School Breakfast Program (SBP) and the National School Lunch Program (NSLP). The final rule addresses public comments submitted in response to the IFR and makes some adjustments that improve clarity of the

provisions set forth in the IFR. In response to comments and implementation experience as shared by operators, the final rule also incorporates and codifies some policy guidance to allow additional foods and combinations to meet the nutrition standards. Specifically, the regulation finalizes the IFR, with the following changes:

Modifies definitions as follows:

- Adds the term “main dish” to the definition of “Entrée” for clarification;
- Adds the term “grain-only” breakfast entrées to the definition of “Entrée” to codify policy guidance issued during implementation; and
- Adds a definition of “Paired exempt foods” to codify policy guidance issued during implementation.

Expands exemptions as follows:

- Adds a specific exemption to the total fat and saturated fat standard for eggs; and
- Modifies the exemption to the General Standards for canned vegetables to exempt low sodium and no-salt added vegetables with no added fat to more closely align with USDA Foods standards and industry production standards.

Retains as interim with a request for comment:

- The nutrient standard for total fat.
- Makes a technical change as follows:*
- In § 210.11(i) and § 210.11(j), a revision is made to clarify that the calorie and sodium limits apply to all competitive food items available on school campus and not just to those sold a la carte during the meal service.

Impact of the 2015–2020 Dietary Guidelines for Americans

The original development of the standards contained in this regulation was informed by the 2010 Dietary Guidelines for Americans (DGA), which were published in December 2010. Based on a thorough review of the recently published 2015–2020 DGA, USDA has determined that the standards contained in this regulation are also consistent with the new DGA. Key recommendations from the 2010 DGA are maintained in the 2015–2020 DGA, and so continue to be in line with the standards included in this rule. The 2015–2020 DGA contain a specific additional recommendation on limiting added sugar. A discussion of this recommendation and its relationship to the standards included in this rule is contained in this preamble in the discussion of the standard for sugar.

II. Background

The NSLP served an average of 30.4 million children per day in Fiscal Year

(FY) 2014. In that same FY, the SBP served an average of 13.6 million children daily.

The NSLA (42 U.S.C. 1751 *et seq.*) and the CNA (42 U.S.C. 1771 *et seq.*) require the Secretary to establish nutrition standards for meals served under the NSLP and SBP, respectively. Prior to the enactment of the HHFKA, section 10 of the CNA limited the Secretary's authority to regulate competitive foods, *i.e.*, foods sold in competition with the school lunch and breakfast programs, to those foods sold in the food service area during meal periods. The Secretary did not have authority to establish regulatory requirements for food sold in other areas of the school campus or at other times in the school day.

The HHFKA, enacted December 13, 2010, directed the Secretary to promulgate regulations to establish science-based nutrition standards for foods sold in schools other than those foods provided under the NSLP and SBP. Section 208 of the HHFKA amended section 10 of the CNA (42 U.S.C. 1779) to require that such nutrition standards apply to all foods sold:

- Outside the school meal programs;
- On the school campus; and
- At any time during the school day.

Section 208 requires that such standards be consistent with the most recent DGA and that the Secretary consider authoritative scientific recommendations for nutrition standards; existing school nutrition standards, including voluntary standards for beverages and snack foods; current State and local standards; the practical application of the nutrition standards; and special exemptions for infrequent school-sponsored fundraisers.

In addition, the amendments made by section 203 of the HHFKA amended section 9(a) of the NSLA (42 U.S.C. 1758(a)) to require that schools participating in the NSLP make potable water available to children at no charge in the place where meals are served during the meal service. This is a nondiscretionary requirement of the HHFKA that became effective October 1, 2010, and was required to be implemented by August 27, 2013.

The Department published a proposed rule in the *Federal Register* on February 8, 2013 (78 FR 9530), titled *National School Lunch Program and School Breakfast Program: Nutrition Standards for All Foods Sold in School as Required by the Healthy, Hunger-Free Kids Act of 2010*. This rule proposed nutrition standards for foods offered for sale to students outside of the NSLP and SBP,

including foods sold à la carte and in school stores and vending machines. The standards were designed to complement recent improvements in school meals, and to help promote diets that contribute to students' long term health and well-being. The proposed rule also would have required schools participating in the NSLP and afterschool snack service under NSLP to make water available to children at no charge during the lunch and afterschool snack service. USDA received a total of 247,871 public comments to the proposed rule during the 60-day comment period from February 8, 2013 through April 9, 2013. This total included several single comment letters with thousands of identical comments. Approximately 245,665 of these were form letters, nearly all of which were related to 104 different mass mail campaigns. The remaining comments—over 2,200—were unique comments rather than form letters. Comments represented a diversity of interests, including advocacy organizations, industry and trade associations, farm and other industry groups, schools, school boards and school nutrition and education associations, State departments of education, consumer groups and others. USDA appreciated the public interest in the proposed rule and carefully considered all comments in drafting the IFR.

As referenced earlier in this preamble, the Department published an IFR in the *Federal Register* on June 28, 2013, (78 FR 39068) titled *National School Lunch and School Breakfast Program: Nutrition Standards for All Foods Sold in School as Required by the Healthy, Hunger-Free Kids Act of 2010*, and all provisions were required to be implemented on July 1, 2014, a full year subsequent to publication of the IFR standards. This was in compliance with section 208 of the HHFKA requirement that State and local educational agencies have at least one full school year from the date of publication of the IFR to implement the competitive food provisions.

III. General Summary of Comments Received on the Interim Rule

A total of 520 public comments on the IFR were received during the 120-day comment period that ended on October 28, 2013. Fifty-three of these comments were copies of form letters related to nine different mass mail campaigns. The remaining comments included 460 letters with unique content rather than form letters. A total of 386 of these comments were substantive. Comments represented a diversity of interests, including advocacy organizations; health care organizations; industry and

trade associations; farm and industry groups; schools, school boards and school nutrition and education associations; State departments of education; consumer groups; and others. A relatively modest number of comments were received on the IFR, many of which reiterated previous comments received during the proposed rule comment period and which had been taken into consideration as the IFR was drafted. This final rule, therefore, incorporates relatively minor modifications to the provisions of the IFR.

In general, there was support for the IFR. Stakeholders were very supportive of the IFR, and some had specific comments and suggestions on several provisions included in the rule. Of the 520 comments, 103 were in full support of the rule. Fifty commenters objected to implementation of this rule, indicating that no standards for competitive food should be implemented in schools. The remaining commenters included suggested revisions to various aspects of the rule and its implementation.

Commenters recommended expanding exemptions to several of the standards for specific food items, such as side items served in the NSLP and the SBP, while others recommended continuing the initial sodium standard for snack foods. Several commenters recommended that the General Standard which allowed foods meeting the 10 percent Daily Value for nutrients of public health concern be made permanent rather than eliminated on July 1, 2016, as was included in the IFR. More detailed discussions of these specific issues are included in this preamble.

Twenty-five comments expressed general support for the IFR, many citing concerns for childhood obesity and stating that competitive food standards will reinforce healthy eating habits in school and outside of school. In addition to their overall support of the rule, an advocacy organization and an individual commenter stated that lower income students may not have the opportunity to experience healthier food items outside of the school. These commenters asserted that this rule will introduce these students to healthier foods and possibly influence home food consumption patterns and protect the nutritional needs of children. One trade association applauded the Department's encouragement of dairy foods consumption throughout the rule and urged that these changes be retained. One individual commenter remarked that the inclusion of recordkeeping and compliance requirements, consideration of special situations, and

implementation information makes this rule even more complete.

Although in support of the IFR in general, two commenters asserted that there are other factors that cause obesity in our society besides foods available in schools. For example, these commenters suggested that reducing physical education class in school has led to increased sedentary lifestyles of children. Commenters also noted the importance of supplementing nutrition requirements for foods available in schools with nutrition and health education in schools.

Some of those commenters concerned about the competitive food standards established in the IFR asserted that foods sold in schools are not the cause of childhood obesity and that the rule will result in significant revenue losses for school food service, citing financial strain on schools caused by the recently revised NSLP standards. Most of these comments were opposed to the rule in its entirety and did not comment on specific provisions of the IFR.

The Department acknowledges that there are many factors contributing to childhood obesity and supports the idea that developing a healthy nutrition environment in school plays an important role in combatting childhood obesity, as well. This rule reinforces the development of a healthy school

environment. In addition, the Department recognizes that nutrition and health education as well as physical activity are important to the development of a healthy lifestyle and encourages schools to develop local school wellness standards that incorporate these items into the school day.

In addition to public comments submitted during the formal comment period, USDA continued to respond to feedback and questions from program operators and other impacted parties throughout the implementation year in order to provide clarification, develop policy guidance, and inform us as the final rule was being developed.

The description and analysis of comments in this preamble focus on general comment themes, most frequent comments, and those that influenced revisions to this final rule. Provisions not addressed in the preamble to this final rule did not receive significant or substantial public comments and remain unchanged. The reasons supporting the provisions of the proposed and interim regulations were carefully examined in light of the comments received to determine the continued applicability of the justifications. Those reasons, enunciated in the proposed and interim regulations, should be regarded as the basis for this

final rule unless otherwise stated, or unless inconsistent with this final rule or this preamble. A thorough understanding of the rationale for various provisions of this final rule may require reference to the preamble of both the proposed rule published on February 8, 2013 (78 FR 9530) and the interim final rule published on June 28, 2013 (78 FR 39068).

To view all public comments on the IFR, go to www.regulations.gov and search for public submissions under document number FNS-2011-0019-4716. Once the search results populate, click on the blue text titled, "Open Docket Folder." USDA appreciates the public comments and shared operator experiences as they have been essential in developing a final rule that is expected to improve the quality of all foods sold outside of the NSLP and SBP.

IV. Summary of the Final Rule Competitive Food Standards

The competitive foods and beverages standards included in the June 28, 2013, IFR were implemented on July 1, 2014, and are retained in this final rule with some modifications, as noted in the following chart in bold letters. The modifications or changes made in this final rule are discussed next in the preamble.

SUMMARY OF FINAL RULE COMPETITIVE FOOD STANDARDS

Food/nutrient	Standard	Exemptions to the standard
General Standard for Competitive Food.	To be allowable, a competitive FOOD item must: (1) Meet all of the proposed competitive food nutrient standards; and (2) Be a grain product that contains 50% or more whole grains by weight or have whole grains as the first ingredient; <i>or</i> (3) Have as the first ingredient one of the non-grain main food groups: fruits, vegetables, dairy, or protein foods (meat, beans, poultry, seafood, eggs, nuts, seeds, etc.); <i>or</i> (4) Be a combination food that contains at least 1/4 cup fruit and/or vegetable. (5) If water is the first ingredient, the second ingredient must be one of the above.	<ul style="list-style-type: none"> • Fresh and frozen fruits and vegetables with no added ingredients except water are exempt from all nutrient standards. • Canned fruits with no added ingredients except water, which are packed in 100% juice, extra light syrup, or light syrup are exempt from all nutrient standards. • Low sodium/No salt added canned vegetables with no added fats are exempt from all nutrient standards.
NSLP/SBP Entrée Items Sold à la Carte.	Any entrée item offered as part of the lunch program or the breakfast program is exempt from all competitive food standards if it is served as a competitive food on the day of service or the day after service in the lunch or breakfast program.	
Grain Items	Acceptable grain items must include 50% or more whole grains by weight, or have whole grains as the first ingredient.	
Total Fats ¹	Acceptable food items must have ≤35% calories from total fat as served.	<ul style="list-style-type: none"> • Reduced fat cheese (including part-skim mozzarella) is exempt from the total fat standard. • Nuts and seeds and nut/seed butters are exempt from the total fat standard. • Products consisting of only dried fruit with nuts and/or seeds with no added nutritive sweeteners or fats are exempt from the total fat standard. • Seafood with no added fat is exempt from the total fat standard.

SUMMARY OF FINAL RULE COMPETITIVE FOOD STANDARDS—Continued

Food/nutrient	Standard	Exemptions to the standard
Saturated Fats	Acceptable food items must have <10% calories from saturated fat as served.	<ul style="list-style-type: none"> • Whole eggs with no added fat are exempt from the total fat standard. <p>Combination products other than paired exempt foods are not exempt and must meet all the nutrient standards.</p> <ul style="list-style-type: none"> • Reduced fat cheese (including part-skim mozzarella) is exempt from the saturated fat standard. • Nuts and seeds and nut/seed butters are exempt from the saturated fat standard. • Products consisting of only dried fruit with nuts and/or seeds with no added nutritive sweeteners or fats are exempt from the saturated fat standard. • Whole eggs with no added fat are exempt from the saturated fat standard. <p>Combination products other than paired exempt foods are not exempt and must meet all the nutrient standards.</p>
Trans Fats	Zero grams of trans fat as served (≤0.5 g per portion).	<ul style="list-style-type: none"> • Dried whole fruits or vegetables; dried whole fruit or vegetable pieces; and dehydrated fruits or vegetables with no added nutritive sweeteners are exempt from the sugar standard. • Dried whole fruits, or pieces, with nutritive sweeteners that are required for processing and/or palatability purposes (<i>i.e.</i>, cranberries, tart cherries, or blueberries) are exempt from the sugar standard. • Products consisting of only dried fruit with nuts and/or seeds with no added nutritive sweeteners or fats are exempt from the sugar standard.
Sugar	Acceptable food items must have ≤35% of weight from total sugar as served.	
Sodium	<p>Snack items and side dishes: ≤200 mg sodium per item as served, including any added accompaniments.</p> <p>Entrée items: ≤480 mg sodium per item as served, including any added accompaniments.</p>	
Calories	<p>Snack items and side dishes: ≤200 calories per item as served, including any added accompaniments.</p> <p>Entrée items: ≤350 calories per item as served including any added accompaniments.</p>	
Accompaniments	Use of accompaniments is limited when competitive food is sold to students in school. The accompaniment must be included in the nutrient profile as part of the food item served and meet all proposed standards.	
Caffeine	<p>Elementary and Middle School: foods and beverages must be caffeine-free with the exception of trace amounts of naturally occurring caffeine substances.</p> <p>High School: foods and beverages may contain caffeine.</p>	
Beverages	<p>Elementary School</p> <ul style="list-style-type: none"> • Plain water or plain carbonated water (no size limit); • Low fat milk, unflavored (≤8 fl oz); • Non-fat milk, flavored or unflavored (≤8 fl oz), including nutritionally equivalent milk alternatives as permitted by the school meal requirements; • 100% fruit/vegetable juice (≤8 fl oz); and • 100% fruit/vegetable juice diluted with water (with or without carbonation), and no added sweeteners (≤8 fl oz). <p>Middle School</p> <ul style="list-style-type: none"> • Plain water or plain carbonated water (no size limit); • Low-fat milk, unflavored (≤12 fl oz); • Non-fat milk, flavored or unflavored (≤12 fl oz), including nutritionally equivalent milk alternatives as permitted by the school meal requirements; • 100% fruit/vegetable juice (≤12 fl oz); and • 100% fruit/vegetable juice diluted with water (with or without carbonation), and no added sweeteners (≤12 fl oz). <p>High School</p> <ul style="list-style-type: none"> • Plain water or plain carbonated water (no size limit); • Low-fat milk, unflavored (≤12 fl oz); 	

SUMMARY OF FINAL RULE COMPETITIVE FOOD STANDARDS—Continued

Food/nutrient	Standard	Exemptions to the standard
Sugar-free Chewing Gum	<ul style="list-style-type: none"> • Non-fat milk, flavored or unflavored (≤12 fl oz), including nutritionally equivalent milk alternatives as permitted by the school meal requirements; • 100% fruit/vegetable juice (≤12 fl oz); • 100% fruit/vegetable juice diluted with water (with or without carbonation), and no added sweeteners (≤12 fl oz); • Other flavored and/or carbonated beverages (≤20 fl oz) that are labeled to contain <5 calories per 8 fl oz, or ≤10 calories per 20 fl oz; and • Other flavored and/or carbonated beverages (≤12 fl oz) that are labeled to contain ≤40 calories per 8 fl oz, or ≤60 calories per 12 fl oz. <p>Sugar-free chewing gum is exempt from all of the competitive food standards and may be sold to students at the discretion of the local educational agency.</p>	

V. Discussion of Comments and Changes to the Final Rule

Definitions

The amendments made by the HHFKA stipulate that the nutrition standards for competitive food apply to all foods and beverages sold: (a) Outside the school meals programs; (b) on the school campus; and (c) at any time during the school day. The IFR at § 210.11(a) included definitions of *Competitive food*, *School day*, and *School campus*.

Competitive food means all food and beverages other than meals reimbursed under programs authorized by the NSLA and the CNA available for sale to students on the *School campus* during the *School day*. Fifteen comments were received on this definition. Several commenters, including advocacy organizations and professional associations, generally agreed with the definition for “competitive food.” More specifically, these commenters supported that the competitive food standards will apply to all foods and beverages sold across the school campus and throughout the school day (until at least 30 minutes after school ends). An advocacy organization and an individual commenter suggested that FNS substitute the word “served” for the term “available for sale” in the definition of “competitive food” because doing so would send a more consistent message to students and families by assuring that all foods brought into the school were subject to the same standards. The Department

wishes to point out that the amendments made by the HHFKA do not provide the Secretary with jurisdiction over foods brought from outside of the school. Therefore, the definition for “competitive food” is unchanged in this rule.

School day means, for the purpose of competitive food standards implementation, the period from the midnight before, to 30 minutes after the end of the official school day. Thirty comments were received on this definition. Nine of those comments mentioned the applicability of the IFR to non-school hours.

Some commenters, including a trade association, a food manufacturer, and a school district, expressed support for the IFR definition for “school day.” However, more commenters disagreed with the IFR definition of “school day” primarily requesting that the definition should be expanded to include all times during which students are on campus and engaged in school-sponsored activities or all after-school hours in order to achieve the objective of promoting healthy food choices for children. Some commented that imposing competitive food standards during the school day but eliminating them after school sends a mixed message with regard to the need to eat healthy foods at all times.

In contrast, a trade association and a food manufacturer suggested that USDA should more narrowly define “school day” to exclude foods sold at school programs and activities that occur before the start of the instructional school day to achieve consistency with the treatment of afterschool activities. Other individual commenters suggested that the school day should start at the beginning of school and end at the dismissal bell in order to allow morning

and after school sales of noncompliant competitive foods.

The Department wishes to reiterate that section 208 of the HHFKA amended the CNA to require that the competitive food standards apply to foods sold at any time during the school day, which does not include afterschool programs, events and activities. In addition, as a reminder, these standards are minimum standards. If an LEA wishes to expand the application of the standards to afterschool activities, they may do so. The definition of “school day” is, therefore, unchanged in this final rule. In addition, in order to clarify the applicability of the competitive foods nutrition standards, if a school operates a before or after-school program through the Child and Adult Care Food Program or the NSLP, the meal pattern requirements of the appropriate program shall be followed.

Paired Exempt Foods

The competitive food standards provide exemptions for certain foods that are nutrient dense, even if they may not meet all of the specific nutrient requirements. For example, all fresh, frozen and most canned fruits as specified in § 210.11(d)(1) are exempt from all of the nutrient standards because we want to encourage students to consume more of these foods. Similarly, peanut butter and other nut butters are exempt from the total fat and saturated fat standards, since these foods are also nutrient dense and primarily consist of healthier fats.

A combination food is defined as a product that contains two or more foods representing two or more of the food groups: Fruit, vegetable, dairy, protein or grains. When foods are combined, they no longer retain their individual exemptions and must meet the nutrient standards that apply to a single item.

¹ Please note that the Total Fat nutrient standard is being maintained as an interim final standard. The Department is requesting additional comments on this standard in this rulemaking. Please see further discussion in Part V of this preamble.

However, the regulation did not specifically address the treatment of foods that are exempt from the regulatory requirements when they are simply paired and packaged with other products (without added ingredients) that are also exempt from one or more of the standards. Many of these “paired exemptions” are nutrient dense and contain foods that meet the intent of the competitive foods requirements. In response to concerns raised by operators in the first year of implementation, FNS issued policy guidance clarifying that “paired exempt foods” retain their individually designated exemption for total fat, saturated fat, and/or sugar when packaged together and sold. Paired exempt foods are required to meet the designated calorie and sodium standards specified in paragraphs § 210.11(i) and (j) at all times. Some examples of paired exemptions include:

- *Peanut Butter and celery.* Peanut butter is exempt from the total fat and saturated fat requirements. When it is paired with a vegetable or fruit, such as celery, the paired snack retains the total fat and saturated fat exemptions and may be served as long as the calorie and sodium limits are met.

- *Celery paired with peanut butter and unsweetened raisins.* As noted above, celery and peanut butter both have exemptions. Similarly, dried fruit, such as unsweetened raisins, are exempt from the sugar limit. However, calorie and sodium limits still apply to the snack as a whole.

- *Reduced fat cheese served with apples.* Reduced fat cheese is exempt from the total fat and saturated fat limits. When it is paired with a vegetable or fruit, such as apples, the paired snack is only required to meet the calorie and sodium limits.

- *Peanuts and apples.* Peanuts are exempt from the total fat and saturated fat limits. When peanuts are paired with a vegetable or fruit, such as apples, the paired snack is only required to meet calorie and sodium limits.

Operator implementation using the policy guidance was positive. Therefore, FNS is formalizing this policy clarification through this final rule by adding a definition of *Paired exempt foods* at § 210.11(a)(6).

Definition of Entrée Item

Entrée item was defined in § 210.11(a)(3) as an item that includes only the following three categories of main dish food items:

- A combination food of meat or meat alternate and whole grain rich food;
- A combination food of vegetable or fruit and meat or meat alternate; or

- A meat or meat alternate alone, with the exception of yogurt, low-fat or reduced fat cheese, nuts, seeds and nut or seed butters.

During the course of implementation, some questions were received with regard to packaging and selling two snack items together, such as a cheese stick and a pickle or a whole grain-rich cookie and yogurt, and considering that item to be an entrée in order to sell products with the higher entrée calorie and sodium limits. The proposed rule clearly expressed the Department’s intent that an entrée be the main dish in the meal. Therefore, in order to clarify the definition of “Entrée item”, the phrase “intended as the main dish” is being added to the regulatory definition.

Some commenters, including trade associations and food manufacturers, urged FNS to expand the definition of entrée to include a grain only, whole-grain rich entrée, on the basis that such foods are commonly served entrée items in the SBP (e.g., pancakes, cereal, or waffles). A trade association and a food manufacturer commented that if a breakfast item does not qualify for the definition of entrée item, it will be restricted to the 200-calorie limit for snack items, which falls well below the minimum calorie requirements for breakfast under the SBP.

An individual commenter recommended creating a separate definition of “breakfast entrée” to allow grain/bread items as an option. A professional association and a food manufacturer requested that typical breakfast foods, such as a bagel and its accompaniments be considered an entrée rather than a snack/side item at breakfast time or at lunch time. However, a State department of education, a community organization, and some individual commenters recommended that FNS not allow a grain-only entrée to qualify as a breakfast entrée item. The community organization argued that these items are of minimal nutritional value and typically involve the addition of high-sugar syrups. The State department of education commented that allowing grain-only entrée items under the competitive food regulations would allow schools to sell SBP entrée items such as muffins, waffles, and pancakes that would not otherwise meet the competitive food standards.

In view of the comments as well as input received on grain-only entrées during implementation of the IFR, the Department published Policy Memorandum SP 35–2014 to clarify that, although grain-only items were not included in the IFR as entrées, an SFA

is permitted to determine which item(s) are the entrée items for breakfasts offered as part of the SBP. The policy flexibility was well received and, therefore, this final rule amends the definition of “Entrée item” to include reference to whole grain rich, grain-only breakfast items served in the SBP, making them allowable breakfast entrées subject to the entrée exemptions allowed in the rule on the day of and the day after service in the SBP. Such entrée items also may be served at lunch in the NSLP on the day of or the day after service in the SBP.

In summary, this final rule makes no changes to the IFR definitions of *Competitive food*, *Combination foods*, *School day*, and *School campus* at § 210.11(a). This rule adds a definition of *Paired exempt foods* to allow paired exemption items to be sold in schools, and amends the definition of *Entrée item* to include: (1) A specific reference to grain only breakfast entrées served in the SBP, and (2) to incorporate the term “intended as the main dish” into the definition to further clarify the requirements for entrées as well as entrée exemptions.

State and Local Educational Agency Standards

Under § 210.11(b)(1) of the IFR, State and/or LEAs have the discretion to establish more rigorous restrictions on competitive food, as long as they are consistent with the provisions set forth in program regulations.

Thirty-five comments addressed this discretion and numerous commenters expressly supported the provision. Several commenters, including a school professional association, and individual commenters, urged FNS to not allow additional standards for competitive foods beyond the Federal standards because a national standard will allow manufacturers to produce food items at a lower cost. A trade association recognized that the IFR may not be preemptive, but requested that USDA not encourage States to create additional criteria for competitive foods. This commenter expressed concerns that inconsistent State policies for competitive foods will limit reformulation opportunities.

However, 12 advocacy organizations and an individual commenter expressed the need for a national framework for competitive foods and also expressed support for allowing States and localities to implement locally-tailored, standards that are not inconsistent with the Federal requirements. Similarly, some school professional associations and individual commenters supported allowing States the flexibility to create

their own restrictions on competitive foods, as needed.

The ability of State agencies and LEAs to establish additional standards that do not conflict with the Federal competitive food requirements is consistent with the intent of section 208 of the HHFKA, and with the operation of the Federal school meal programs in general. That discretion also provides an appropriate level of flexibility to States and LEAs to set or maintain additional requirements that reflect their particular circumstances consistent with the development of their local school wellness policies. Any additional restrictions on competitive food established by school districts must be consistent with both the Federal requirements as well as any State requirements.

This final rule makes no change to the provision allowing States and LEAs to establish additional competitive food standards that are not inconsistent with the Federal requirements. This provision may be found at § 210.11(b)(1).

Suggestions To Prohibit Foods With Artificial Colors, Flavors and/or Preservatives

Four individual commenters expressed concerns about continuing to allow the sale of foods that contain genetically modified organisms (GMO) and foods containing artificial ingredients, colors, and flavors. Just over 30 comments were received on other issues relating to food requirements. These comments included suggestions such as eliminating or putting limitations on high fructose corn syrup, sugar, fiber, and GMO foods. One individual commenter urged that all foods sold in schools should be organic.

The Food and Drug Administration (FDA) makes determinations regarding the safety of particular food additives and USDA defers to FDA on such determinations. As discussed previously, these standards are minimal standards that must be met regarding competitive foods sold in schools. This final rule continues to provide the flexibility to implement additional standards at the State and/or local level.

General Competitive Foods Standards

The rationale for many comments received on the IFR was consistency with the HUSSC and Alliance for a Healthier Generation standards. The Department wishes to point out that while those standards were considered in the development of the proposed rule, both of those standards have conformed to the USDA competitive

foods standards subsequent to publication of the IFR.

Combination Foods

The general nutrition standard in the rule at § 210.11(c)(2)(iv) specifies that combination foods must contain $\frac{1}{4}$ cup of fruit or vegetables. The Department received 45 comments on this provision of the IFR, the majority of which urged us to reduce the fruit or vegetable components to $\frac{1}{8}$ cup to be consistent with NSLP/SBP standards, which allow schools to credit $\frac{1}{8}$ cup of fruit or vegetable toward the total quantity required for school meals. As indicated in the preamble to the IFR rule, maintaining the higher $\frac{1}{4}$ cup quantity requirement for fruits/vegetables in combination foods generally supports the availability of more nutritious competitive food products and is consistent with the Institute of Medicine (IOM) recommendations and the DGA. Competitive foods are evaluated on the basis of the qualities of the individual product being sold as opposed to the quantity of the ingredients of the product being credited toward the meal pattern requirement in the NSLP or SBP. Moreover, it is important to note that combination foods with less than $\frac{1}{4}$ cup of a fruit or vegetable may indeed qualify under the other food requirements specified in the rule, such as the whole grain rich or food group criteria, depending on the composition of the food item. It is only for those foods that qualify solely on the basis of being a competitive food product that contains a fruit or vegetable that this $\frac{1}{4}$ cup specification is required. This food standard as specified in § 210.11(c)(2)(iv) is, therefore, retained in the final rule.

Whole Grains

One of the general standards for competitive foods included in § 210.11(c)(2)(ii) and (e) requires that grain products be whole-grain rich, meaning that they must contain 50 percent or more whole grains by weight or have whole grains as the first ingredient.

About 60 comments addressed this IFR requirement. Many commenters, including a State department of education, urged USDA to make the competitive food whole grain standard consistent with the NSLP/SBP whole grain standard. Several commenters, including a school professional association and individual commenters, supported the "whole grain rich" requirement. In particular, food manufacturers, trade associations, and a school district emphasized the importance of including the criteria that

the whole grains per serving should be greater than or equal to 8 grams in the whole grain-rich identifying criteria. Three individual commenters generally opposed the whole grain-rich requirement.

As indicated in the preamble to the proposed rule, this standard is consistent with the DGA recommendations, the whole grain-rich requirements for school meals and the prior HUSSC whole grain-rich requirement (HUSSC has subsequently updated the standards to conform to these competitive food standards). The Department wishes to point out that the whole grain criteria for competitive foods is used as a criterion for determining the allowability of an individual item to be sold as a competitive food, while school meals' whole grain-rich criteria determine the crediting of the menu items toward the grain component of the meal. Allowing the additional measures for grain suggested by some commenters such as ≥ 8 grams of whole grain would not ensure that grain products in competitive food contain at least 50 percent whole grains and would require additional information from the manufacturer. Therefore, the whole grain-rich standard established in the interim final rule is affirmed in this final rule.

The food industry has made a significant effort to reformulate products to meet this standard and to reinforce the importance of whole grains to the general public as well. These efforts have resulted in the availability of numerous whole grain-rich products in the general public marketplace as well as in the foods available for service and purchase in schools. Maintaining this standard ensures that students have the flexibility to make choices among the numerous whole grain-rich products that are now available to them in school.

Since this competitive food standard is consistent with the DGA recommendations, the whole grain-rich requirements for school meals, and HUSSC standards, this final rule affirms the requirement as established by interim final rule.

DGA Nutrients of Public Health Concern

In recognition of the marketplace and implementation limitations, but also mindful of important national nutrition goals, the IFR implemented a phased-in approach to identifying allowable competitive foods under the general standard. For the initial implementation period in School Year 2014–15 through June 30, 2016 (School Year 2015–16), the general food standard included a criterion that if a competitive food met

none of the other General Standards, that food may be considered allowable if it contained 10 percent of the Daily Value of a nutrient of public health concern (*i.e.*, calcium, potassium, vitamin D, or dietary fiber). Effective July 1, 2016, this criterion was removed as a general criterion.

Eight commenters, including some food manufacturers, opposed the phase out of this criterion as a General Standard for allowable foods. However, information available to the Department indicates that industry has made major strides over the past three years and many manufacturers have come into compliance with the competitive food standards by reformulating their products in recognition of the fact that the 10-percent DV General Standard would become obsolete as of July 1, 2016. Prior to July 1, 2016, fewer than 21 products that depended solely on the 10-percent DV General Standard appeared on the Alliance for a Healthier Generation (AHG) Food Navigator as Smart Snacks compliant foods. There are currently about 2,500 Smart Snacks compliant products listed in the AHG product database. This means that items that had qualified based solely upon the 10-percent DV General Standard represented less than 1 percent (0.84 percent) of the products that had been captured in the Alliance Navigator.

Therefore, this final rule makes no changes to the General Standards for competitive foods established by the IFR and the 10-percent DV standard has expired as scheduled. Eliminating the 10-percent DV criterion more closely aligns the competitive food standards with the DGA, as required by the HHFKA.

Elimination of this standard aligns the competitive foods rule with the DGA which states that “nutrients should come primarily from foods” as well as the IOM recommendations which indicate that this approach “reinforces the importance of improving the overall quality of food intake rather than nutrient-specific strategies such as fortification and supplementation.”

Specific Nutrient Standards § 210.11(d)-(k)

In addition to the General Standards, the rule includes nutrient standards for specific nutrients contained in allowable foods. These include standards for total fat, saturated fat, trans fat, total sugars, calories and sodium. These standards apply to competitive foods as packaged or served to ensure that the competitive food standards apply to the item sold to the student.

Twenty commenters expressed general support for the IFR nutrient standards for competitive foods without discussing a specific element of the nutrient standards. Several advocacy organizations and professional associations agreed with requiring that all foods sold in schools meet the nutrient standards and with limiting calories, fats, sugars, and sodium in snack foods and beverages. A health care association expressed support for the nutrition standards adopted in the IFR suggesting that any changes made should strengthen the standards and not weaken them. Another health care association expressed the belief that the established limits will inherently preclude the sale of candy and other confections and products with added sugars that promote tooth decay. An individual commented that the nutrient standards will eliminate many seemingly healthy foods that are surprisingly laden with sugar, calories, fat, or salt. A trade association supported the use of a nutrition criteria-based system for competitive food standards, as opposed to a structure that allows and disallows specific foods, because manufacturers will have the opportunity to reformulate and innovate to meet the rule’s provisions.

Seven commenters expressed general opposition to the IFR nutrient standards for competitive foods without discussing a specific element of the nutrient standards. A few individual commenters expressed concerns that the IFR nutrient standards will encourage chemically processed low-fat foods and sugar substitutes at the expense of whole foods and natural sugars. A food manufacturer urged USDA to simplify the criteria for competitive foods by using only the calorie limit and eliminating the total fat, saturated fat, and sugar limits, arguing that the combined calorie limit and food group standards would be less burdensome to implement and would inherently limit fats and sugars.

The overwhelming majority of comments received on the proposed rule supported the nutrient standards and those standards were incorporated into the IFR with some minor changes. The IFR comments received on this issue were minimal and primarily supported the established standards. Therefore, this rule finalizes the nutrient standards as included in the IFR with the addition of several modifications being made to items exempt from those nutrient standards as discussed below.

Fruits and Vegetables

Generally consistent with both the IOM and the DGA, the IFR included an exemption to the nutrient standards for fresh, frozen and canned fruits and vegetables with no added ingredients except water or, in the case of fruit, packed in 100 percent fruit juice, extra light syrup or light syrup; and for canned vegetables that contain a small amount of sugar for processing purposes in order to maintain the quality and structure of the vegetable.

Ten comments expressed support for the IFR exemption from the nutrient standards for fresh, frozen, or canned fruits and vegetables. In particular, a school professional association and some individual commenters agreed with the decision to include “light syrup” in the exemption. A food manufacturer supported the inclusion of all forms of fruit, and products made with fruit, without added nutritive sweeteners, as competitive foods.

Three commenters recommended that the exemption for fruits and vegetables be more stringent. These commenters suggested that any added syrup contributes added unneeded sugars. Two trade associations supported the IFR provision that fruit packed in light syrup is exempt from the nutrition standards.

However, a few comments were received addressing the exemption parameters for canned vegetables—allowing an exemption only for those canned vegetables containing water and a small amount of sugar for processing. A trade association and a food manufacturer stated that they were not aware of any canned vegetables that contain only water and sugar for processing purposes. They indicated that sodium, citric acid, and other ingredients are commonly used in the processing of canned vegetables. They also pointed out that those processing aids are allowed to be used in the low sodium vegetables packed for the USDA Foods Program.

The Department wishes to point out that, although some sodium is used in processing canned vegetables, most canned vegetables would still meet the nutrient standards for sodium without being given a specific exemption. However, in light of the important nutrients provided by vegetables, for ease of operator implementation and in recognition of common processing procedures, the Department agrees that low sodium/no salt added canned vegetables should also benefit from the fruit and vegetable exemption. This final rule, therefore, revises the canned vegetable exemption to allow low

sodium/no salt added canned vegetables with no added fat to be exempt from each of the competitive food nutrient standards.

Total Fat, Saturated Fat and Trans Fat

To qualify as an allowable competitive food, the IFR at § 210.11(f) requires that no more than 35 percent of the total calories per item as packaged or served be derived from total fat and requires that the saturated fat content of a competitive food be less than 10 percent of total calories per item as packaged or served. In addition, as specified in § 210.11(g), a competitive food must contain zero grams of trans fat per portion as packaged or served (not more than 0.5 grams per portion).

While there are no exemptions from the trans fat standard, there are a number of exemptions from the total fat and the saturated fat standards. Seafood with no added fat is exempt from the total fat standard but is still subject to the saturated fat, trans fat, sugar, calorie and sodium standards. Exemptions included in the IFR to both the total fat and saturated fat standards include reduced fat cheese and part skim mozzarella cheese not included in a combination food item, nuts and seeds and nut/seed butters not included in a combination food item and products that consist of only dried fruit with nuts and/or seeds with no added nutritive sweeteners or fat. Such exempt products are still subject to other competitive food nutrient standards such as the trans fat, sugar, calorie and sodium standards.

Total Fat

Fifteen commenters, including a school professional association and several individuals, expressed support for the IFR competitive food restriction on total fat. No comments were received to make this standard more stringent. However, about 30 comments opposed the IFR restriction on total fat, arguing in favor of either making the restriction less stringent or eliminating the standard entirely. Two trade associations asserted that the total fat limit is inconsistent with the NSLP/SBP standards, which limit saturated fat and trans fat but not total fat. These commenters suggested that limitations on calories, saturated fat, and trans fat in competitive food standards will ensure that the foods are low in total fat. Similarly, a school district also recommended removing the total fat limit, asserting that such a limit is inconsistent with the NSLP/SBP requirements and will place an undue burden on menu planners.

Fifty-five comments addressed the IFR exemptions from the total fat limit. Three trade associations and a food manufacturer expressed support for the exemption for part-skim mozzarella. Two individual commenters, however, opposed the exemption for reduced-fat cheese and part-skim mozzarella, asserting that whole foods may be healthier than low-fat alternatives. Three trade associations and a school district favored extending the exemption for reduced-fat cheese to all cheese that meets the calorie limits.

Some commenters suggested various other modifications to the standards for individual foods, such as eggs, yogurt, and full fat cheese. A couple of comments dealt with various combinations of food items that are effectively dealt with in this final rule with the addition of a definition of *Paired exempt foods* discussed previously in this preamble.

One commenter mistakenly noted that alternative milk products allowed in the reimbursable meals programs may not meet these requirements. We wish to clarify that total fat, saturated fat and trans fat standards do not apply to beverages.

The Department recognizes that there may be foods that are commonly enjoyed by students and are generally healthy, but do not currently meet the competitive food standards due to the total fat content. Specifically, we are aware that some legume-based spreads/dips may offer significant nutritional benefits, but may not be able to meet total fat standards due to the inherent fat content of key ingredients in traditional legume based spreads or dips, such as hummus. Another common and generally healthy snack food is guacamole. Although avocado is currently exempt from the total fat standard because it is a fruit, when other non-fruit or vegetable ingredients are added to make a dip, the exemption is lost and the total fat standard is exceeded. Other common and generally healthy foods that may benefit from removal of the total fat standard include snack bars and salads with dressing.

Because the DGAs are based on the latest scientific research and do not have a key recommendation for total fat and to address commenter requests for consistency between standards for competitive foods sold in schools and the NSLP/SBP, the Department has determined that further comment should be accepted on the total fat standard. In particular, comments are requested on whether the standard for total fat should be eliminated given that there will continue to be standards in place for calories, sodium, saturated fat,

and trans fats which will limit unhealthy fats. Comments are also sought on whether the total fat standard should be maintained but should exempt certain food items. While the total fat standard as currently implemented will continue to be in place, this single, individual standard remains an interim final standard. The Department, as previously noted, will accept public comments on this standard only. The Department is interested in comments related to the impact revising or eliminating the total fat standard may have. This could include allowing more items to be sold that are lower in unhealthy, saturated fats but that might be higher in healthy, unsaturated fats and simplifying implementation for local operators. Commenters also should consider whether there could be unintended consequences to revising or eliminating the total fat standard. As noted above, commenters should keep in mind that the standards for calories, sodium, saturated fat, and trans fat remain in place and will continue to limit the types of foods that may be sold in schools.

Saturated Fat (<10% of Calories)

Twenty comments expressed support for the IFR competitive food restriction on saturated fat. A school district recommended consistency with NSLP/SBP by only calculating saturated fat and total calories.

Twenty-five commenters were opposed to the IFR restriction on saturated fat, arguing in favor of either making the restriction less stringent or eliminating the standard entirely. A school professional association and individual commenters argued that the standard is too restrictive and will exclude grilled cheese, chicken tenders, hot dogs, pizza, and healthy option entrées.

Forty-five comments addressed the IFR exemptions from the saturated fat limit. Most of the comments requested saturated fat exemptions for the same products for which they requested total fat exemptions discussed above. Three trade associations and a school district favored extending the saturated fat exemption to all cheese that meets the calorie limits.

Additional comments specifically addressed exemptions from the saturated fat limit. A professional association and several individual commenters suggested that the saturated fat standard should exclude eggs or cheese packaged for individual sale and for non-fried vegetables and legumes.

Seven comment letters included other comments relating to the IFR saturated

fat limit. Two trade associations and a food manufacturer requested that FNS clarify a conflict in the IFR. These commenters stated that the “Summary of Major Provisions” in the preamble states that competitive foods must contain “no more than 10 percent” of total calories from saturated fat, but § 210.11(f)(1)(ii) states that the saturated fat content of a competitive food must be “less than 10 percent” of total calories. The Department wishes to clarify that the requirement as included in the regulatory provision at § 210.11(f)(1)(ii) that the saturated fat content of a competitive food must be less than 10 percent of total calories is correct.

The Department does not agree that all cheese should be exempt from the total fat and saturated fat standards because the total fat standard included in the IFR is identical to the recommended IOM standard for total fat, and the saturated fat standard is consistent with the DGA recommendations.

Trans Fat (0g as Stated on the Label)

Twenty comments addressed the IFR trans fat restriction. Several commenters, including a school professional association and some individual commenters who supported the total fat and saturated fat limits, also expressed support for the IFR trans fat limit. A school district also expressed support for the IFR limitation of zero grams of trans fat in competitive foods. To reduce confusion among school food service workers and State auditors, a trade association and a food manufacturer recommended that the phrasing of the trans-fat provision for competitive foods should be consistent with the provision in the NSLP/SBP requirements, which does not apply to naturally occurring trans fats present in meat and dairy products. While trans fat content is normally indicated on the label, the Department will provide additional guidance as necessary on this issue through technical assistance resources.

Exemption for Eggs With No Added Fat

The competitive food standards in the IFR provided that, in order to qualify as an allowable competitive food, no more than 35 percent of calories may be contributed by total fat, and less than 10 percent of a food's calories may come from saturated fat. Eggs do exceed these fat standards. However, similar to nut butters, reduced-fat cheese, and seafood, eggs exceed the competitive foods fat standards and are nutrient dense. Eggs are high in protein and contain essential nutrients including, B vitamins, Vitamin

E, Vitamin D, iron, zinc, and magnesium. While eggs are high in fat, the DGA recommends increased consumption of nutrient dense foods and includes eggs in a healthy eating pattern. Evidence suggests that one egg a day does not increase a person's risk for high cholesterol or cardiovascular diseases. In addition, some previous State agency standards as well as the previous standards implemented by the Alliance for a Healthier Generation did allow eggs for the reasons cited above.

Therefore, in response to comments, the nutrient profile of eggs mentioned above and operator requests to allow this nutrient dense and low cost option, this final rule is amended to add an exemption from the total fat and saturated fat standards for whole eggs with no added fat. This exemption appears in § 210.11(f)(iv).

Calorie and Sodium Standards for Competitive Foods

Calories

Some commenters supported the IFR competitive food calorie limits. In particular, a health care association urged USDA not to grant requests to increase the IFR calorie limits because doing so would increase the likelihood that students would choose and consume more than the recommended number of calories, which this commenter asserted would undermine USDA's efforts to address the childhood obesity epidemic. A food manufacturer urged replacing the sugar and fats nutrition standards with only the calorie limit.

Many commenters expressed opposition to the calorie limits for competitive foods. Commenters said the proposed limits were too stringent and would limit student access to many food products, particularly a la carte foods sold during the meal service. Some commenters provided specific suggestions for alternative calorie limits for snacks, ranging from 240 to 300 calories, and for entrées, ranging from 400 to 500 calories.

Fifteen commenters addressed age and grade groupings, several suggesting separate calorie limits by grade, similar to the structure of the school meal patterns, reasoning that children have different calorie needs as they grow.

This final rule retains the calorie limits for snacks/side dishes (200 calories per item as packaged or served), and entrée items (350 calories per item as packaged or served), which are consistent with IOM recommendations and some voluntary standards. The Department does not agree that higher limits are appropriate, as suggested by

some commenters, particularly since it is not possible to limit the number of competitive food items that may be purchased. We appreciate that separate calorie limits by grade levels for snacks would align with existing voluntary standards that many schools have adopted, and would be more tailored to the nutritional needs of children of different ages. However, separate calorie limits for different grade levels would also add complexity for local program operators with schools of varying grade levels. State agencies or school districts could choose to implement varying calorie limits based on grades, provided the maximum level does not exceed the limit in this final rule. Please note that the calorie limit for entrée items would apply to all entrées that do not meet the exemption for NSLP/SBP entrée items.

The Department wishes to point out that great strides have been made in the availability of competitive foods that meet the standards. Numerous products have been reformulated and/or repackaged to ensure that the products meet the competitive foods standards and those products have been made available to schools for sale to students. In addition, many changes have been made to the a la carte offerings available in the cafeteria and these changes are contributing greatly to the overall healthy environment that is so important in our schools.

Sodium

Under the IFR at § 210.11(i), snack items and side dishes sold à la carte could contain no more than 200 calories and 230 mg of sodium per portion as served, including the calories and sodium in any accompaniments, and must meet all other nutrient standards for non-entrée items. The IFR stipulated that as of July 1, 2016, snack items and side dishes must have not more than 200 calories and 200 mg of sodium per item as packaged or served. Under the IFR at § 210.11(j), entrée items sold à la carte could contain no more than 350 calories and 480 mg sodium per portion as served, including any accompaniments, and meet all other nutrient standards.

Several comments, including one from a health care association and two from individuals, agreed with the IFR sodium provisions. The health care association argued that although some commenters urge USDA to create “consistent” sodium standards for the NSLP/SBP and competitive foods standards, the sodium limits for the school meals program apply to an entire meal, while the sodium limits for competitive foods only apply to one component of a meal—a single entrée,

side dish, or snack. Therefore, this commenter reasoned that the sodium limits for competitive food items should be lower than those for a reimbursable meal. An individual commenter acknowledged that sodium limits will alter the tastes of many foods, but suggested that there are many other spices, herbs, and other ways to enhance the flavors of foods without increasing the risk of hypertension.

Several commenters recommended that the sodium reductions should continue to be phased in gradually to allow taste preferences and manufacturers additional time to adjust. Some commenters provided suggestions for higher sodium limits, ranging from 230 mg to 360 mg for snacks and 550 mg to 650 mg for entrées. One commenter, a manufacturer, wanted USDA to add an exemption to the sodium limit for natural reduced fat cheese and reduced fat, reduced sodium pasteurized processed cheese.

The Department's standards for sodium were based on the IOM recommendations. The proposed "per portion as served" standards for competitive food were considered in the context of the DGAs and of the overall sodium limits for school meals, the first of which took effect in School Year 2014–15, the same school year these competitive food standards were implemented. USDA acknowledges that sodium reduction is an issue that impacts the broader marketplace, not just schools, and understands that sodium reduction is a process that will take time.

In recognition of the fact that there were existing voluntary standards for competitive food that had the higher sodium limit of 230 mg for snacks/side dishes, which meant there were existing products that had been formulated to meet the higher standard available to schools, the IFR set the initial limit for sodium for snacks and side dishes at 230 mg per item as packaged or served, for the first two years of implementation of these standards. The IFR provided that, as of July 1, 2016, the sodium limit for snacks and side dishes shall be reduced to 200 mg per item as packaged or served.

It is evident that many manufacturers have developed new products or reformulated existing products to meet the July 1, 2016, 200 mg standard. The Department believes that the phased in approach taken in the IFR did work to ensure product availability for schools for initial implementation and provided ample time for manufacturers to adjust to meet the lower limit. Therefore, this final rule does not change the sodium requirement for snacks and side dishes.

The sodium standard of 230 mg for snacks and side dishes expired as scheduled and the 200 mg standard is implemented as of July 1, 2016. In addition, the entrée limit of 480 mg per item as packaged and served will remain in place. The Department wishes to point out that any entrées served in school meals will be covered under the NSLP/SBP entrée item exemption in § 210.11(c)(3)(i).

Total Sugars in Competitive Foods

The IFR at § 210.11(h)(1) provided that not more than 35 percent of the *weight* per item as packaged and served could be derived from total sugars. In addition, § 210.11(h)(2) provided the following exemptions to the total sugar standard:

- Dried whole fruits or vegetables; dried whole fruit or vegetable pieces; and dehydrated fruits or vegetables with no added nutritive sweeteners;
- Products that consist of only dried fruit with nuts and/or seeds with no added nutritive sweeteners or fat; and
- Dried fruit with nutritive sweeteners required for processing and/or palatability purposes. (At this time, this applies to dried cranberries, tart cherries and dried blueberries only.)

Most commenters generally supported the application of the total sugars by weight standard. Many commenters stated that this standard provides flexibility and would allow the sale of more products that are favorites among students.

A trade association expressed the opinion that a restriction on sugar is not a necessary component of the competitive food standards because calorie limits will prevent excess sugar consumption. A State department of education and an individual suggested expressing the sugar limit in grams rather than percentages. Several commenters indicated that sugar limits would force manufacturers to produce foods which are actually less healthy in order to meet that standard. Another food manufacturer expressed support for a sugar restriction based on percent calories by weight, although stating that it did not believe a total sugar limit is warranted. A trade association and a food manufacturer asserted that the sugar criterion of 35 percent by weight is in line with the Alliance for a Healthier Generation guidelines, which was the basis of many products specially formulated for schools. The trade association added that for foods that naturally contain fat and sugar, such as dairy products, making lower fat versions of these products reduces the percentage of calories from fat, which increases the percentage of calories from

sugar, so a sugar limit based on weight is preferable.

Two comments, one received from an advocacy organization and another from an individual commenter, favored a sugar limit as a percent of calories arguing that such an alternative would be more protective. The individual asserted that there are many foods that would be disallowed were the standard 35 percent sugar by calories, but will be allowed because the sugar limit is a percentage of calories by weight.

The Department acknowledges that this standard allows more products to qualify to be sold as a competitive food in schools but wishes to point out that the portion sizes of these and all foods would be limited by the calorie and fat standards. State agencies and school districts could choose to implement a sugar standard based on calories, provided that it is at least as restrictive as the regulatory standard (*i.e.*, no allowable product under the calorie measure could exceed 35 percent sugar by weight).

Most commenters supported the exemptions to the total sugar requirement as well as the provision allowing an exemption for dried fruit with nutritive sweeteners required for processing and/or palatability purposes. (At this time, this applies to dried cranberries, tart cherries and blueberries only.) A school district requested guidance listing specific dried fruits that require nutritive sweeteners and urged that this list be maintained as guidance rather than as part of the rule so that USDA has flexibility to modify the list as warranted without requiring rulemaking. A trade association commended USDA for agreeing to issue future guidance on determining which dried fruits with added nutritive sweeteners qualify for the exemption. The portion sizes of these dried fruits would be limited by the calorie standards.

A few commenters requested that processed fruit and vegetable snacks (*e.g.*, fruit strips, fruit leathers or fruit drops) be included under the exemption for dried fruit, as many are processed with concentrated fruit puree. The Department, however, does not agree that processed fruit and vegetable snacks should be included under either dried fruit/vegetable exemption. These snack type products are not whole dried fruit pieces and the concentrated fruit puree or juice concentrate used to make these products is often the primary ingredient. These products could still qualify without the exemption as a competitive food if they meet all of the standards, including having a fruit or vegetable as the first ingredient.

The 2015–2020 DGA contain specific recommendations on limiting *added* sugar. This recommendation specifies that no more than 10 percent of calories should come from added sugars. The competitive food standards address sugar content in the context of the percentage of sugar by weight of the product sold. The standards do not include a focus on added sugars, or added sugars representing a particular percentage value compared to calories. The rationale for limiting sugar by weight in the IFR was that a sugar by weight standard was included in a number of voluntary standards reviewed during the development of the proposed rule, and, generally, this standard was supported by commenters as providing the most flexibility for program operators. The Department acknowledged in both the proposed rule and IFR that a sugar standard based on added sugars is preferable but that such a standard would be very difficult for local program operators to implement and for State agencies to monitor, because the current Nutrition Facts label does not differentiate between naturally occurring and added sugars. The Department has consistently indicated that the sugar standard included in this rule will be reconsidered if the Nutrition Label is updated to reflect added sugars. On May 27, 2016, the FDA published a final regulation which included a requirement that added sugars in foods be included on the Nutrition Facts Label (81 FR 34000). The new labeling requirements will be fully implemented by summer 2019. Because of the implementation period of the labeling rule, FNS is maintaining in this final rule the sugar standard that was put forth in the interim final rule. The Department will monitor implementation of the new labeling requirements and, in the future, anticipates updates to program regulations and guidance regarding the sugar standard, particularly considering how to set standards for added sugars in competitive foods sold to students on the school campus during the school day.

Therefore, this final rule continues to require in § 210.11(h)(1), that the total sugar content of a competitive food must be not more than 35 percent of *weight* per item as packaged or served and retains the exemption included in § 210.11(h)(2) to the total sugar content standards for dried fruit with added nutritive sweeteners that are required for processing and/or palatability purposes (currently dried cranberries, tart cherries and blueberries). USDA will issue any necessary future guidance

when a determination is made to include any additional dried fruits with added nutritive sweeteners for processing and/or palatability to qualify for this exemption.

Exemptions for Some or All of the Nutrition Standards for Menu Items Provided as Part of the NSLP/SBP

The IFR exempts NSLP/SBP entrée items from the competitive food standards when served as a competitive food on the day of service or the day after service in the reimbursable lunch or breakfast program. Six commenters expressed support for this approach regarding NSLP/SBP menu items sold as competitive foods. Most of these commenters, including advocacy organizations and a health care association, urged USDA not to grant requests to expand the exemption for NSLP/SBP items sold a la carte to, for example, include side dishes. Some of these commenters stated that expanding the exemption would undermine or weaken the competitive food standards. One advocacy organization expressed support that the IFR will require NSLP/SBP side dishes sold a la carte to meet the competitive food standards. Another advocacy organization stated that the approach taken in the IFR will allow for reasonable flexibility for the school food service while also addressing concerns regarding the frequency with which particular food items are available.

Fifteen comments recommended that NSLP/SBP entrées should not receive an exemption from the competitive food standards at any time. Some commenters argued that reimbursable meals are designed to provide a variety of foods and beverages that, over the course of a week, create a balance of all nutrients, while limiting calories, fats and sodium, and this balance can be disrupted when individual foods may be chosen at the expense of the whole meal. Specifically, a health care association commented that because schools are allowed to balance the nutrition components of reimbursable meals over a week, foods that may exceed the limits for fat, sodium, and calories can be included in a reimbursable meal when balanced over the week with healthier sides. For this reason, an advocacy organization stated that the exemption for a la carte NSLP/SBP entrées from the competitive food standards will allow children to continue to purchase less healthy entrée items a la carte instead of nutritious snack foods or more balanced reimbursable meals.

Several advocacy organizations and a professional association argued that allowing the sale of any foods that are

inconsistent with the competitive food standards will undermine the IFR and efforts of parents to provide healthy food options to children. This commenter asserted that although the exemption for a la carte NSLP/SBP entrée items only exists on the day and day after it is served as part of a reimbursable meal, many schools—particularly high schools that offer multiple meals each day—may offer popular items like pizza, breaded chicken nuggets, and burgers every day or nearly every day.

One advocacy organization recognized the importance of consistency between foods served in meals and a la carte and argued that there can be consistency without exempting a significant number of a la carte items from competitive food standards. This commenter stated that if individual items meet the competitive food standards, they should have no problem fitting into healthful NSLP/SBP menus, which would allow for consistency and flexibility, while also safeguarding children's health.

One hundred commenters suggested that the competitive food standards should exempt NSLP/SBP entrée items sold a la carte regardless of the day on which they are served as part of the reimbursable meal. Many of those commenters argued that once an item is served that meets reimbursable meal pattern guidelines, it should be allowed to be sold as a competitive food without frequency restrictions. Some stated that such an exemption would ease menu planning and operational issues as well as reduce confusion. These comments were primarily made by trade associations and food industry commenters as well as some school food service organizations.

Closely associated with the issue of exempting NSLP and SBP entrées on the day served and the day after served in the reimbursable meal is the lack of an exemption for side dishes served in the reimbursable meals. Commenters were also split on whether or not such food items should enjoy an exemption from the competitive food standards. Eighty commenters urged that NSLP/SBP side items sold a la carte should be exempt from competitive food standards. Many of the arguments made to support this view were the same as those discussed above related to the suggestion that all NSLP/SBP entrée items should be exempt from all competitive food standards regardless of day served. Other commenters indicated that side items should not be exempt from the competitive food standards.

USDA understands the concerns of commenters on both sides of this issue.

Given the circumstances surrounding NSLP and SBP meal planning as well as the increase in healthful entrées being served, it is important to maintain some flexibility when it comes to NSLP and SBP entrées. However, there is a distinction to be made between the meal patterns for reimbursable meals and the competitive food standards. The NSLP and SBP offer meals over the course of the school week and less nutritious selections may be balanced out with healthier items over the course of the week. Competitive food standards are based on the nutrients that are provided by individual food items that are sold to students on the school campus during the school day. In addition, it is important to note that it appears that many schools have successfully adapted to this requirement, some by expanding the number of entrées available to students on a daily basis and others by incorporating side items that meet the competitive foods requirements into their reimbursable meal menus.

Therefore, the exemption for NSLP/SBP entrée items only is retained. Side dishes sold à la carte would be required to meet all applicable competitive food standards. The exemption for the entrée items is available on the day the entrée item is served in NSLP/SBP, and the following school day. Entrée items are provided an exemption, but side dishes are not, in an attempt to balance commenter opposition to any exemptions for NSLP/SBP menu items and needed menu planning flexibilities. The approach adopted in this rule supports the concept of school meals as being healthful, and provides flexibility to program operators in planning à la carte sales and handling leftovers. We anticipate that this approach, along with the recent changes to school meal standards will continue to result in healthier menu items in meals than in the past, including entrées. Exempt entrées that are sold as competitive food must be offered in the same or smaller portion sizes as the NSLP and SBP.

Guidance on Competitive Foods

Several commenters requested information on a variety of other issues specific to individual foods. Many of these questions have been clarified in the extensive guidance issued by the Department in policy memoranda and other materials that are available on our Web site at <http://www.fns.usda.gov/healthierschoolday/tools-schools-focusing-smart-snacks>. We encourage interested parties to review these materials since they are updated frequently. In addition, the Alliance for a Healthier Generation, in partnership with FNS, has developed extensive

resources including guidance materials and the Competitive Foods Calculator and Navigator, which provide a way to evaluate individual foods and beverages as well as a listing of Smart Snacks allowable foods and beverages, respectively. These items are available at www.healthiergeneration.org.

Accompaniments

The IFR at § 210.11(n) limited the use of accompaniments to competitive food, such as cream cheese, jelly, butter, salad dressing, etc., by requiring that all accompaniments be included in the nutrient profile as part of the food item served. Two commenters supported requiring accompaniments to be included in the nutrient profile as part of the food item served. A State department of education commented that the requirement to include the nutrient content of accompaniments in the nutrient profile of the product is appropriate and reasonable because condiments can contribute significant calories, sugar, fat and/or sodium. A school district expressed support for the IFR requirements relating to accompaniments not requiring pre-portioning, but requiring that they be included in the nutrient profile of competitive foods. Forty-five commenters opposed the requirement by suggesting that a weekly calorie range should be applied or that there should be no consideration of accompaniments.

The Department maintains that it is important to account for the dietary contribution of accompaniments in determining whether a food item may be served as a competitive food. Accompaniments can provide substantial sodium, sugar and/or calories to food items sold. Therefore, the requirement that accompaniments be included in the nutrient profile of foods is retained. As provided in the IFR, schools may determine the average serving size of the accompaniments at the site of service (e.g., school district). This is similar to the approach schools have used in conducting nutrient analysis of school meals in the past. Schools have successfully implemented this requirement and have not had difficulty in determining the average serving size of accompaniments that are used in schools, but the Department will provide further guidance if necessary.

Nutrition Standards for Beverages

The IFR at § 210.11(m) established standards for allowable beverage types for elementary, middle and high school students. At all grade levels, water, low fat and nonfat milk, and 100 percent juice and 100 percent juice diluted with

water with no added sweeteners are allowed in specified maximum container sizes, which varied by grade level. The rule also allows additional beverages for high school students in recognition of the wide range of beverages available to high school students in the broader marketplace and the increased independence such students have, relative to younger students, in making consumer choices.

General Comments on Beverage Requirements

Ten commenters expressed general support for the beverage standards included in the IFR. Sixty-five commenters generally opposed the ICR beverage standards and cited a variety of reasons, from wanting to allow all grade levels to have no-calorie/low calorie beverages to opposing allowing high school students to have no-calorie/low calorie beverages available to them in school. A few commenters asserted that milk is produced in 8 ounce and 16 ounce containers and that requiring a limit of 12 ounce size milk for middle school and high school students may be problematic. While some commenters recommended larger portion sizes for all beverages, others recommended smaller portion sizes, particularly related to juice products. Still other commenters wished to restrict food colorings and other ingredients in 100 percent juice. Several commenters indicated that no-calorie/low calorie beverages should not be allowed in high school due to the inclusion of non-nutritive sweeteners in such beverages. While about 40 commenters supported the removal of the time and place restriction on the sale of other beverages in high school lunchrooms during the meal service, several commenters objected to the elimination of the restriction and a few indicated that such beverages should not be sold in any location at any time in high schools.

A few commenters suggested that USDA use only two grade groups for the beverage standards—elementary and secondary—to ease implementation. Some commenters stated that it would be difficult and/or costly to administer the beverage requirements in combined grade campuses, such as 7–12 or K–12. In response, USDA appreciates that implementation could be more difficult in schools with overlapping grade groups, but considers it important to maintain in the final rule the three grade groupings included in the IFR. These groupings reflect the IOM recommendations and appropriately provide additional choices to high school students, based on their increased level of independence. USDA

has provided guidance on this issue and will continue to provide technical assistance and facilitate the sharing of best practices as appropriate.

Other Beverages for High School

Most of the comments received on the IFR beverage requirements dealt with the standards for other beverages allowed in high school. A number of commenters wanted no-calorie and low-calorie beverages to be available in elementary and middle schools as well as high schools, while others opposed these beverages at any grade level. Several commenters stated that although schools may impose more stringent standards, schools may choose to sell diet beverages because the sale of such drinks are profit making. Other commenters indicated that if schools are not allowed to sell no-calorie/low calorie beverages in high school students will purchase them elsewhere and bring them to school.

USDA appreciates the input provided by commenters. The Department maintains that, given the beverages available in the broader marketplace and the independence that high school students enjoy, low calorie/no-calorie beverages may be sold in high schools. However, we do not agree that such beverages should be available to elementary and middle school students in school. No changes are made to this standard.

Caffeine

The IFR at § 210.11(l) required that foods and beverages available in elementary and middle schools to be caffeine free, with the exception of trace amounts of naturally occurring caffeine substances. This is consistent with IOM recommendations. The IFR did, however, permit caffeine for high school students.

Four commenters agreed with the IFR caffeine provisions. A food industry commenter expressed support for limited beverage choices for young children but allowing a broader range of products, including those containing typical amounts of caffeine, in high schools, given the increased independence of high school students. A trade association agreed that high school students should have access to beverages that contain caffeine and asserted that in 1987 FDA found no evidence to show that the use of caffeine in carbonated beverages would render such beverages injurious to health. This commenter asserted that its members provide a wide array of low- and no-calorie beverages to high schools, some of which contain modest amounts of caffeine, but member companies have

voluntarily instituted policies against the sale of caffeinated beverages marketed as energy drinks to schools. Two school districts supported caffeinated beverages for high school students.

Forty-five commenters opposed the IFR caffeine provisions, generally because it will allow foods and beverages in high school to contain caffeine. Those commenters were primarily concerned about the use of caffeinated low-calorie energy drinks that contain unregulated amounts of caffeine and other additives.

An advocacy organization cited warnings from the American Academy of Pediatrics and added that aggressive marketing of caffeinated products is designed to appeal to youth and there is a lack of information on caffeine content on food labels. Several commenters opposed allowing the sale of caffeinated drinks in high schools, particularly drinks with high levels of caffeine and no nutritive value.

USDA is concerned, as are some commenters, that some foods and beverages with very high levels of caffeine may not be appropriate to be sold in schools, even at the high school level. The FDA has not set a daily caffeine limit for children, but the American Academy of Pediatrics discourages the consumption of caffeine and other stimulants by children and adolescents. However, the health effects of caffeine are currently being considered by the FDA and the IOM. FDA did announce that it will investigate the safety of caffeine in food products, particularly its effects on children and adolescents. The FDA announcement cited a proliferation of products with caffeine that are being aggressively marketed to children, including "energy drinks." FDA, working with the IOM, convened a public workshop on August 5–6, 2013, to review existing science on safe levels of caffeine consumption and the potential consequences to children of caffeinated products in the food supply. The workshop did not result in any recommendations but a report was produced and may be found at <http://iom.nationalacademies.org/Reports/2014/Caffeine-in-Food-and-Dietary-Supplements-Examining-Safety.aspx>. USDA will continue to monitor efforts by FDA to identify standards regarding the consumption of caffeine by high school aged children.

Therefore, given the lack of authoritative recommendations at this time, this rule will not prohibit caffeine for high school students. However, USDA acknowledges commenters' concerns and encourages schools to be

mindful of the level of caffeine in food and beverages when selecting products for sale in schools, especially when considering the sale of high caffeine products such as energy drinks. It is also important to note that local jurisdictions have the discretion to further restrict the availability of caffeinated beverages should they wish to do so.

The caffeine provisions as included in the IFR at § 210.11(k) are not changed.

Non-Nutritive Sweeteners

The IFR did not explicitly address the issue of non-nutritive sweeteners; however, the rule allowed calorie-free and low-calorie beverages in high schools, which would implicitly allow beverages including non-nutritive sweeteners.

Ten commenters addressed the use of non-nutritive sweeteners in food products. Some commenters opposed allowing artificially sweetened beverages. For example, some commenters opposed the sale of diet sodas, whereas others stated that there is little evidence regarding the advisability of intake of sugar-sweetened beverages versus intake of non-nutritive sweeteners in beverages. In contrast, some commenters supported the use of non-nutritive sweeteners. USDA appreciates commenter input but is not explicitly addressing the use of non-nutritive sweeteners in the regulatory text of this final rule. Local program operators can decide whether to offer food and/or beverage items for sale that include non-nutritive sweeteners.

Other Requirements

Fundraisers

The IFR at § 210.11(b)(4) requires that food and beverage items sold during the school day meet the nutrition standards for competitive food but allows for special exemptions for the purpose of conducting infrequent school-sponsored fundraisers, as specified in the HHFKA. The provision included in the IFR was that exempt fundraiser frequency would be determined by the State agency during such periods that schools are in session. The IFR also required that no specially exempted fundraiser foods or beverages may be sold in competition with school meals in the food service area during the meal service.

Ten commenters indicated that USDA should establish the number and type of fundraisers that are exempt from the competitive food standards to ensure consistency among States. Other commenters recommended that the Department set parameters for the minimum and maximum numbers of

exempt fundraisers based on the size of schools. Thirty comments suggested that all food fundraisers taking place in schools be required to adhere to the competitive food standards at all times. Some commenters indicated that allowing exempt fundraisers will create confusion among parents, students and staff. A number of commenters noted that the approval of exempt fundraisers should be governed by the school wellness policies. Thirty commenters indicated that time and place restrictions on exempt fundraisers should apply not only to the food service area during the meal service but to all locations in the school during the meal service and some suggested placing timeframes on when such fundraisers may be held (for example: one hour after the school lunch service is completed).

The final rule retains the requirements regarding the responsibility of the State agency to determine the frequency of exempt fundraisers in schools. In addition, the rule continues to stipulate that there are no limits on the sale of food items that meet the competitive food requirements (as well as the sale of non-food items) at school fundraisers. In addition, the Department wishes to remind the public that the fundraiser standards do not apply to food sold during non-school hours, weekends and off-campus fundraising events such as concessions during after-school sporting events.

USDA is confident that State agencies possess the necessary knowledge, understanding and resources to make decisions about what an appropriate number of exempt fundraisers in schools should be and that the most appropriate approach to specifying the standards for exempt fundraisers is to allow State agencies to set the allowed frequency of such fundraisers. If a State agency does not specify the exemption frequency, no fundraiser exemptions may be granted. It is not USDA's intent that the competitive food standards apply to fundraisers in which the food sold is clearly not for consumption on the school campus during the school day. It is also important to note that LEAs may implement more restrictive competitive food standards, including those related to the frequency with which exempt fundraisers may be held in their schools, and may impose further restrictions on the areas of the schools and the times during which exempt fundraisers may occur in the schools during the school day.

In addition, USDA has provided guidance on fundraisers in response to a variety of specific questions received during implementation and this

guidance may be found in Policy Memo SP 23–2014(V.3) available on our Web site at <http://www.fns.usda.gov/nslp/policy>.

In summary, the exempt fundraiser provisions contained in § 210.11(b)(4) of the IFR are unchanged and the final rule continues to specify that competitive food and beverage items sold during the school day must meet the nutrition standards for competitive food, and that a special exemption is allowed for the sale of food and/or beverages that do not meet the competitive food standards for the purpose of conducting an infrequent school-sponsored fundraiser. Such specially exempted fundraisers must not take place more than the frequency specified by the State agency during such periods that schools are in session. Finally, no specially exempted fundraiser foods or beverages may be sold in competition with school meals in the food service area during the meal service.

Availability of Water During the Meal Service

The IFR codified a provision of the HHFKA that requires schools participating in the NSLP to make free, potable water available to children in the place lunches are served during the meal service. Just over 40 comments addressed the part of the IFR that requires schools participating in the NSLP to make free, potable water available to children in the place lunches are served during the meal service and in the cafeteria during breakfast meal service.

Many of these commenters, including advocacy organizations, professional associations and individual commenters, expressed support for the potable water requirement. Two advocacy organizations commented that water has zero calories and is a healthy alternative to sugary drinks. These commenters stated that making the water free and easily accessible may help combat obesity and promote good health. Similarly, one individual commenter stated that the free, potable water requirement will help reduce the purchase of other drinks that are high in added sugars. A few individual commenters remarked that low-income students do not have the luxury of bringing or buying water bottles or even have access to clean running water outside of school, and free potable water is imperative to these students. Two individual commenters recommended that free potable water be available during breakfast, lunch, and all break and recess times regardless of where food is being served.

Section 210.10(a)(1) of the final rule continues to require that schools make potable water available and accessible without restriction to children at no charge in the place where lunches are served during the meal service. In addition, § 220.8(a)(1) requires that when breakfast is served in the cafeteria, schools must make potable water available and accessible without restriction to children at no charge. The Department continues to encourage schools to make potable water available without restriction at all meal and snack services when possible.

Recordkeeping

The IFR at § 210.11(b)(2), outlined the recordkeeping requirements associated with competitive foods. Local educational agencies and school food authorities would be required to maintain records documenting compliance with the requirements. Local educational agencies would be responsible for maintaining records documenting compliance with the competitive food nutrition standards for food sold in areas that are outside of the control of the school food service operation. Local educational agencies also would be responsible for ensuring any organization designated as responsible for food service at the various venues in the school (other than the school food service) maintains records documenting compliance with the competitive food nutrition standards. The school food authority would be responsible for maintaining records documenting compliance with the competitive food nutrition standards for foods sold in meal service areas during meal service periods. Required records would include, at a minimum, receipts, nutrition labels and/or product specifications for the items available for sale.

About 120 commenters expressed concerns about recordkeeping, monitoring and compliance. Twenty commenters specifically addressed recordkeeping. Some of those commenters suggested that recordkeeping is costly, unrealistic and/or not necessary. Yet others recommended minimizing the recordkeeping on non-school groups. A number of commenters representing school food service were concerned that the local educational agency would require school food service to be responsible for recordkeeping on behalf of school food service as well as other entities/organizations within the local educational agency. Additionally, they were concerned that school food service could not affect the requirements throughout the local educational agency

since they have no authority over other school organizations.

The Department appreciates that this regulation may have created some new challenges initially, as schools implemented the IFR and took steps to improve the school nutrition environment. Such challenges may be ongoing for some schools. However, maintaining a record that substantiates that the food items available for sale in the schools meet the standards is essential to the integrity of the competitive food standards. To determine whether a food item is an allowable competitive food, the local educational agency designee(s) must assess the nutritional profile of the food item. This may be accomplished by evaluating the product Nutrition Facts Label and/or using the Alliance for a Healthier Generation Calculator to do so and retaining a copy of that evaluation in the files, retaining receipts for the food items ordered or purchased for secondary sale at the various venues at the schools, etc. Absent an evaluation of the nutritional profile of the competitive foods available for sale at the schools, the local educational agency has no way of knowing whether a food item meets the nutrition standards set forth in this rule. The recordkeeping requirement simply requires the local educational agency to retain the reviewed documentation (e.g., the nutrition labels, receipts, and/or product specifications) in their files.

Commenters also expressed concern about the designation of responsibility for this activity. As stated in the IFR, the Department does not expect the responsibility to rest solely with the nonprofit school food service. School food service personnel are expected to have a clear understanding of the nutrition profile of foods purchased using nonprofit school food service funds for reimbursable meals, a la carte offerings, etc. Their authority and responsibilities are typically limited to the nonprofit school food service. Local educational agencies are responsible for ensuring that all entities involved in food sales within a school understand that the local educational agency as a whole must comply with these requirements.

As stated in the IFR, the Department continues to recommend that cooperative duties associated with the sale of competitive foods be coordinated and facilitated by the local school wellness policy designee(s). Section 204 of the HHFKA amended the NSLA by adding section 9A (42 U.S.C. 1758b) which requires each local educational agency to: (a) Establish a local school wellness policy which includes

nutrition standards for all foods available on each school campus, and (b) designate one or more local educational agency officials or school officials, to ensure that each school complies with the local school wellness policy. State agencies were advised of the section 204 requirements in FNS Memorandum, *Child Nutrition Reauthorization 2010: Local School Wellness Policies*, issued July 8, 2011 (SP 42-2011). In addition, the Department published a proposed rule titled *Local School Wellness Policy Implementation Under the Healthy, Hunger Free Kids Act of 2010* on February 26, 2014 at 79 FR 10693. Comments were submitted by the public and those comments are being analyzed for the development of an upcoming final rule.

The Department believes, and the experience of many operators confirms, that if the LEA local school wellness designee(s), school food service, and other entities and groups involved with the sale of food on the school campus during the school day work together to share information on allowable foods and coordinate recordkeeping responsibilities, the result is the successful implementation and maintenance of a healthy school environment. As always, State agencies and the Department will provide technical assistance to facilitate ongoing implementation of the competitive food nutrition standards.

Therefore, there are no changes to the recordkeeping requirements and § 210.11(b)(2) of the IFR is affirmed.

Compliance and Monitoring

Section 210.18(h)(6) requires State agencies to ensure that local educational agencies comply with the nutrition standards for competitive food and retain documentation demonstrating compliance with the competitive food service and standards.

As indicated above, about 120 commenters submitted comments related to recordkeeping, monitoring and compliance. A number of commenters, largely school food service personnel, expressed concerns about how monitoring would occur for foods sold by groups outside of the school food service. Some commenters believed technical assistance would be insufficient and raised questions about means to effect compliance. Other commenters expressed concerns about the need to train and educate non-school food service personnel as to how to comply with the regulations. Several State agencies, school districts and individuals requested that the SFA not

be held accountable for compliance issues outside of the control of the SFA.

The Department agrees that training will be needed to ensure compliance with the nutrition standards. As mentioned under the discussion of *Recordkeeping* above, the Department envisions local educational agency designees, potentially the local school wellness coordinator(s), taking the lead in developing performance or compliance standards and training for all local educational personnel tasked with selling competitive food on the school campus during the school day. The Department and State agencies will also offer training to ensure local educational agencies are able to comply in the most efficient manner possible.

The Department published a proposed rule titled *Administrative Reviews in the School Nutrition Programs* on May 11, 2015 (80 FR 26846) addressing an updated administrative review process that includes these new monitoring responsibilities. This rule, together with administrative review guidance, provides information regarding the proposed conduct and scope of reviews, and the monitoring and records review that will be conducted with regard to competitive foods. Currently, USDA is reviewing the comments received from the public on the proposed rule in preparation for the development of an implementing rule.

The Department would like to assure commenters that we see technical assistance and training as the first approach to non-compliance; however, we recognize that egregious, repeated cases of non-compliance may require a more aggressive approach. In this regard, section 303 of the HHFKA amended section 22 of the NSLA (42 U.S.C. 1769c) to provide the Department with the authority to impose fines against any school or school food authority repeatedly failing to comply with program regulations. This authority will be addressed in a proposed rule dealing with a number of integrity issues related to local educational agencies administering the Child Nutrition Programs which is currently under development. Interested parties will have an opportunity to comment on the proposed integrity rule.

Special Situations/Applicability

This rule continues to require that all local educational agencies and schools participating in the NSLP and SBP meet the nutrition standards for competitive foods sold to students on the school campus during the school day. Several questions have been received regarding the applicability of these standards to after school programs operated in

schools that participate in NSLP/Child and Adult Care Food Program (CACFP). The Department wishes to clarify that such programs are required to comply with their specified meal patterns. Only if food is sold to their program participants outside of their meal pattern would the competitive foods standards be applicable for 30 minutes after the end of the official school day, consistent with the definition of *School day* specified in § 210.11(a)(5).

Forty comments addressed impacts of the IFR on culinary training programs. These commenters urged for complete exemption from the competitive food standards for foods prepared and sold as part of culinary education programs. In contrast, a school district, school food service staff, and other individual commenters urged USDA to apply the competitive food standards to foods sold to students during the school day by culinary arts programs.

The Department addressed the applicability of the competitive foods regulation on culinary arts programs in Policy Memo SP 40–2014, published on April 22, 2014. That memo recognized that culinary education programs providing students with technical career training operate in some schools nationwide. Some of those culinary education programs operate food service outlets that sell foods to students, faculty, or others in the community, with a minority of programs doing so during the school day. The memo also clarified that the competitive foods nutrition standards have no impact on the culinary education programs' curriculum in schools, nor do they have any impact on foods sold to adults at any time or to students outside of the school day. However, to the extent that such programs are selling food to students on campus during the school day, the statutory applicability of the Smart Snacks nutrition standards to all foods sold outside of the School meals programs is clear. Section 12(l)(4)(J) of the NSLA (42 U.S.C. 1760(l)(4)(J)), prohibits the Secretary from granting a waiver that relates to the requirements of the NSLA, the CNA, or any regulation issued under either statute with regard to the sale of foods sold outside of the school meal programs. The nutrition standards included in the final rule continue to apply to all foods sold to students on the school campus during the school day, including food prepared and/or sold by culinary education programs.

Related Information

Implementation

The competitive food provisions contained in the IFR were implemented by State agencies and local educational agencies on July 1, 2014. Changes made in this final rule may be implemented as specified in the **DATES** section of this preamble. While the total fat standard remains in place, additional comments on the interim final total fat standard are being accepted and must be received as specified in the **DATES** section of this preamble. The saturated fat and trans fat standards are finalized in this rule. This final rule removes § 210.11a and its corresponding Appendix B, which references the sale of foods of minimal nutritional value, since those standards were eliminated as of July 1, 2014, the date that competitive food standards were implemented in their place. Similar changes are made to the breakfast program regulations at 7 CFR part 220.

Procedural Matters

Executive Order 12866 and Executive Order 13563

Executive Orders 12866 and 13563 direct agencies to assess all costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety effects, distributive impacts, and equity). Executive Order 13563 emphasizes the importance of quantifying both costs and benefits, of reducing costs, of harmonizing rules, and of promoting flexibility.

This Final rule has been designated an "economically significant regulatory action" under section 3(f) of Executive Order 12866. Accordingly, the rule has been reviewed by the Office of Management and Budget.

Regulatory Flexibility Analysis

This rule has been reviewed with regard to the requirements of the Regulatory Flexibility Act of 1980 (5 U.S.C. 601–612). The rule directly regulates the 54 State education agencies and 3 State Departments of Agriculture that operate the NSLP pursuant to agreements with USDA's Food and Nutrition Service. While State agencies are not considered small entities as State populations exceed the 50,000 threshold for a small government jurisdiction, many of the service-providing institutions that work with them to implement the program do meet definitions of small entities.

The requirements established by this final rule will apply to school districts, which meet the definitions of "small governmental jurisdiction" and other establishments that meet the definition of "small entity" in the Regulatory Flexibility Act. The Regulatory Flexibility Act analysis is published as part of the docket (FNS–2011–0019) on www.regulations.gov.

Regulatory Impact Analysis Summary

As required for all rules that have been designated as significant by the Office of Management and Budget, a Regulatory Impact Analysis (RIA) was developed for this final rule. A summary is presented below. The full RIA is published as part of the docket (FNS–2011–0019) on www.regulations.gov.

Need for Action

The final rule responds to two provisions of the Healthy, Hunger-Free Kids Act of 2010. Section 208 of HRFKA amended Section 10 of the Child Nutrition Act of 1966 to require the Secretary to establish science-based nutrition standards for all foods sold in schools during the school day. In addition, the amendments made by section 203 of the HRFKA amended section 9(a) of the NSLA (42 U.S.C. 1758(a)) to require that schools participating in the NSLP make potable water available to children at no charge in the place where meals are served during the meal service. This is a nondiscretionary requirement of the HRFKA that became effective October 1, 2010, and was required to be implemented by August 27, 2013.

Response to Comments

The full Regulatory Impact Analysis includes a brief discussion of comments submitted by school officials, public health organizations, industry representatives, parents, students, and other interested parties on the costs and benefits of the final rule submitted. The analysis also contains a discussion of how USDA modified the final rule in response, and the effect of those modifications on the costs and benefits of the rule.

Benefits

The primary purpose of the rule is to ensure that nutrition standards for competitive foods are consistent with those used for the NSLP and SBP, holding competitive foods to standards similar to the rest of foods available to students during the school day. These standards, combined with recent improvements in school meals, will help promote diets that contribute to students' long-term health and well-

being. In addition, these standards continue to support a healthy school environment and the efforts of parents to promote healthy choices for children at home and at school.

Obesity has become a major public health concern in the U.S., with one-third of U.S. children and adolescents now considered overweight or obese (Beydoun and Wang 2011²), with current childhood obesity rates four times higher in children ages six to 11 than they were in the early 1960s (19 vs. 4 percent), and three times higher (17 vs. 5 percent) for adolescents ages 12 to 19.³ Research focused specifically on the effects of obesity in children indicates that obese children feel they are less capable, both socially and athletically, less attractive, and less worthwhile than their non-obese counterparts.⁴ Further, there are direct economic costs due to childhood obesity: \$237.6 million (in 2005 dollars) in inpatient costs⁵ and annual prescription drug, emergency room, and outpatient costs of \$14.1 billion.⁶

Because the factors that contribute both to overall food consumption and to obesity are so complex, it is not possible to define a level of disease or cost reduction expected to result from implementation of the rule. There is some evidence, however, that competitive food standards can improve children's dietary quality.

² Beydoun, M.A. and Y. Wang. 2011. Socio-demographic disparities in distribution shifts over time in various adiposity measures among American children and adolescents: What changes in prevalence rates could not reveal. *International Journal of Pediatric Obesity*, 6:21–35. As cited in Food Labeling: Calorie Labeling of Articles of Food in Vending Machines NPRM. 2011. Preliminary Regulatory Impact Analysis, Docket No. FDA–2011–F–0171.

³ Ogden et al. *Prevalence of Obesity Among Children and Adolescents: United States, Trends 1963–1965 Through 2007–2008*. CDC–NHCS, NCHS Health E-Stat, June 2010. On the web at http://www.cdc.gov/nchs/data/hestat/obesity_child_07_08/obesity_child_07_08.htm.

⁴ Riazi, A., S. Shakoor, I. Dundas, C. Eiser, and S.A. McKenzie. 2010. Health-related quality of life in a clinical sample of obese children and adolescents. *Health and Quality of Life Outcomes*, 8:134–139. Samuels & Associates. 2006. *Competitive Foods*. Policy Brief prepared by Samuels & Associates for The California Endowment and Robert Wood Johnson Foundation. Available at: <http://www.healthyeatingactivecommunities.org/downloads/>

⁵ Trasande, L., Y. Liu, G. Fryer, and M. Weitzman. 2009. Trends: Effects of Childhood Obesity on Hospital Care and Costs, 1999–2005. *Health Affairs*, 28:w751-w760.

⁶ Cawley, J. 2010. The Economics of Childhood Obesity. *Health Affairs*, 29:364–371. As cited in Food Labeling: Calorie Labeling of Articles of Food in Vending Machines NPRM. 2011. Preliminary Regulatory Impact Analysis, Docket No. FDA–2011–F–0171.

• Taber, Chriqui, and Chaloupka (2012⁷) concluded that California high school students consumed fewer calories, less fat, and less sugar at school than students in other States. Their analysis “suggested that California students did not compensate for consuming less within school by consuming more elsewhere” (p. 455).

• In an assessment of the reach and effectiveness of childhood obesity strategies, Gortmaker et al.⁸ project that implementing nutrition standards for all foods and beverages sold in schools outside of reimbursable school meals will prevent an estimated 345,000 cases of childhood obesity in 2025 (p. 1937).

• Schwartz, Novak, and Fiore, (2009⁹) determined that healthier competitive food standards decreased student consumption of low nutrition items with no compensating increase at home.

• Researchers at Healthy Eating Research and Bridging the Gap found that “[t]he best evidence available indicates that policies on snack foods and beverages sold in school impact children's diets and their risk for obesity. Strong policies that prohibit or restrict the sale of unhealthy competitive foods and drinks in schools are associated with lower proportions of overweight or obese students, or lower rates of increase in student BMI” (Healthy Eating Research and Bridging the Gap, 2012, p. 3¹⁰).

A comprehensive assessment of the evidence on the importance of competitive food standards conducted by the Pew Health Group concluded that a national competitive foods policy would increase student exposure to healthier foods, decrease exposure to less healthy foods, and would also likely improve the mix of foods that students purchase and consume at school. Researchers concluded that these kinds of changes in food exposure and consumption at school are important influences on the overall quality of children's diets.

⁷ Taber, D.R., J.F. Chriqui, and F. J. Chaloupka. 2012. Differences in Nutrient Intake Associated With State Laws Regarding Fat, Sugar, and Caloric Content of Competitive Foods. *Archives of Pediatrics & Adolescent Medicine*, 166:452–458.

⁸ Gortmaker SL, Claire Wang Y, Long MW, Giles CM, Ward ZJ, Barrett JL, Kenney EL, Sonnevile KR, Afzal AS, Resch SC, Craddock AL., *Health Affairs*, 34, no. 11 (2015).

⁹ Schwartz, M.B., S.A. Novak, and S.S. Fiore. 2009. The Impact of Removing Snacks of Low Nutritional Value from Middle Schools. *Health Education & Behavior*, 36:999–1011.

¹⁰ Healthy Eating Research and Bridging the Gap. 2012. *Influence of Competitive Food and Beverage Policies on Children's Diets and Childhood Obesity*. Available at http://www.healthyeatingresearch.org/images/stories/her_research_briefs/Competitive_Foods_Issue_Brief_HER_BTG_7-2012.pdf

Although nutrition standards for foods sold at school alone may not be a determining factor in children's overall diets, they are critical to providing children with healthy food options throughout the entire school day. Thus, these standards will help to ensure that the school nutrition environment does all that it can to promote healthy choices, and help to prevent diet-related health problems. Ancillary benefits could derive from the fact that improving the nutritional value of competitive foods may reinforce school-based nutrition education and promotion efforts and contribute significantly to the overall effectiveness of the school nutrition environment in promoting healthful food and physical activity choices.¹¹

Costs

While there have been numerous success stories, best practices, and innovative practices, it is too early to definitively ascertain the overall impact to school revenue. The changes and technical clarifications in the final rule do not change the methodology of the cost benefit analysis from the methodology used in the interim final regulatory impact analysis, however the estimates are updated using the most recent data available to assess the impacts to revenue and to account for the potential variation in implementation and sustainability experiences across SFAs and schools.

The limited information available indicates that many schools have successfully introduced competitive food reforms with little or no loss of revenue and in a few cases, revenues from competitive foods increased after introducing healthier foods. In some of the schools that showed declines in competitive food revenues, losses from reduced sales were fully offset by increases in reimbursable meal revenue. In other schools, students responded favorably to the healthier options and competitive food revenue declined little or not at all.

But not all schools that adopted or piloted competitive food standards fared as well. Some of the same studies and reports that highlight school success stories note that other schools sustained some loss after implementing similar standards. While in some cases these were short-term losses, even in the long-

¹¹ Pew Health Group and Robert Wood Johnson Foundation. 2012. *Health Impact Assessment: National Nutrition Standards for Snack and a la Carte Foods and Beverages Sold in Schools*. Available online: http://www.pewhealth.org/uploadedFiles/PHG/Content_Level_Pages/Reports/KS%20HIA_FULL%20Report%20062212_WEB%20FINAL-v2.pdf.

term the competitive food revenue lost by those schools was not offset (at least not fully) by revenue gains from the reimbursable meal programs.

Our analysis examines the possible effects of the rule on school revenues from competitive foods and the administrative costs of complying with the rule's competitive foods provisions. The analysis uses available data to construct model-based scenarios that different schools may experience in implementing the rule. While these vary in their impact on overall school food revenue, each scenario's estimated impact is relatively small (+0.5 percent to -1.3 percent). That said, the data behind the scenarios are insufficient to assess the frequency or probability of schools experiencing the impacts shown in each.

Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and Tribal governments and the private sector. Under section 202 of the UMRA, the Department generally must prepare a written statement, including a cost/benefit analysis, for proposed and final rules with Federal mandates that may result in expenditures by State, local, or Tribal governments, in the aggregate, or by the private sector, of \$100 million or more in any one year. When such a statement is needed for a rule, section 205 of the UMRA generally requires the Department to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, more cost-effective or least burdensome alternative that achieves the objectives of the rule. Because data is not available to meaningfully estimate the quantitative impacts of this rule on school food authority revenues, we are not certain that this rule is subject to the requirements of sections 202 and 205 of the UMRA. That said, it is possible that the rule's requirements could impose costs on State, local, or Tribal governments or to the private sector of \$100 million or more in any one year. FNS therefore conducted a regulatory impact analysis that includes a cost/benefit analysis substantially meeting the requirements of sections 202 and 205 of the UMRA.

Executive Order 12372

The NSLP is listed in the Catalog of Federal Domestic Assistance under No. 10.555. The SBP is listed in the Catalog of Federal Domestic Assistance under No. 10.553. For the reasons set forth in the final rule in 7 CFR part 3015,

subpart V and related notice (48 FR 29115, June 24, 1983), these programs are included in the scope of Executive Order 12372, which requires intergovernmental consultation with State and local officials.

Executive Order 13132

Executive Order 13132 requires Federal agencies to consider the impact of their regulatory actions on State and local governments. Where such actions have federalism implications, agencies are directed to provide a statement for inclusion in the preamble to the regulations describing the agency's considerations in terms of the three categories called for under section (6)(b)(2)(B) of Executive Order 13132. USDA has considered the impact of this rule on State and local governments and has determined that this rule does not have federalism implications. This rule does not impose substantial or direct compliance costs on State and local governments. Therefore, under Section 6(b) of the Executive Order, a federalism summary impact statement is not required.

Executive Order 12988

This rule has been reviewed under Executive Order 12988, Civil Justice Reform. This rule is intended to have preemptive effect with respect to any State or local laws, regulations or policies which conflict with its provisions or which would otherwise impede its full implementation. This rule is not intended to have retroactive effect unless specified in the **DATES** section of the final rule. Prior to any judicial challenge to the provisions of this rule or the application of its provisions, all applicable administrative procedures must be exhausted.

Civil Rights Impact Analysis

FNS has reviewed this rule in accordance with Departmental Regulations 4300-4, "Civil Rights Impact Analysis," and 1512-1, "Regulatory Decision Making Requirements." After a careful review of the rule's intent and provisions, FNS has determined that this rule is not intended to limit or reduce in any way the ability of protected classes of individuals to receive benefits on the basis of their race, color, national origin, sex, age or disability nor is it intended to have a differential impact on minority owned or operated business establishments and woman-owned or operated business establishments that participate in the Child Nutrition Programs.

Paperwork Reduction Act

In accordance with the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*), this final rule does not contain substantive changes to information collection requirements that require additional approval by OMB. The paperwork requirements for this final rule were previously approved by the Office of Management and Budget (OMB) for the interim final rule under OMB control #0584-0576 and merged into #0584-0006.

E-Government Act Compliance

The Food and Nutrition Service is committed to complying with the E-Government Act of 2002, to promote the use of the Internet and other information technologies to provide increased opportunities for citizen access to Government information and services and for other purposes.

Executive Order 13175—Consultation and Coordination With Indian Tribal Governments

Executive Order 13175 requires Federal agencies to consult and coordinate with Tribes on a government-to-government basis on policies that have Tribal implications, including regulations, legislative comments or proposed legislation, and other policy statements or actions that have substantial direct effects on one or more Indian Tribes, on the relationship between the Federal Government and Indian Tribes, or on the distribution of power and responsibilities between the federal government and Indian Tribes. In the spring of 2011, FNS offered opportunities for consultation with Tribal officials or their designees to discuss the impact of the Healthy, Hunger-Free Kids Act of 2010 on tribes or Indian Tribal governments. The consultation sessions were coordinated by FNS and held on the following dates and locations:

1. HHFKA Webinar & Conference Call—April 12, 2011
2. Mountain Plains—HHFKA Consultation, Rapid City, SD—March 23, 2011
3. HHFKA Webinar & Conference Call—June 22, 2011
4. Tribal Self-Governance Annual Conference in Palm Springs, CA—May 2, 2011
5. National Congress of American Indians Mid-Year Conference, Milwaukee, WI—June 14, 2011

The five consultation sessions in total provided the opportunity to address Tribal concerns related to school meals. There were no comments about this regulation during any of the

aforementioned Tribal consultation sessions.

Currently, FNS provides regularly scheduled quarterly consultation sessions as a venue for collaborative conversations with Tribal officials or their designees. The most recent specific discussion of the Nutrition Standards for All Foods Sold in Schools rule was included in the consultation conducted on August 19, 2015. No questions or comments were raised specific to this rulemaking at that time.

Reports from these consultations are part of the USDA annual reporting on Tribal consultation and collaboration. FNS will respond in a timely and meaningful manner to Tribal government requests for consultation concerning this rule.

List of Subjects

7 CFR Part 210

Grant programs-education; Grant programs-health; Infants and children; Nutrition; Reporting and recordkeeping requirements; School breakfast and lunch programs; Surplus agricultural commodities.

7 CFR Part 220

Grant programs-education; Grant programs-health; Infants and children; Nutrition; Reporting and recordkeeping requirements; School breakfast and lunch programs.

Accordingly, for the reasons set forth in the preamble, 7 CFR parts 210 and 220 are amended as follows:

PART 210—NATIONAL SCHOOL LUNCH PROGRAM

- 1. The authority citation for 7 CFR part 210 continues to read as follows:

Authority: 42 U.S.C. 1751–1760, 1779.

- 2. In § 210.11:
 - a. Revise paragraph (a)(3);
 - b. Add paragraph (a)(6);
 - c. Remove paragraph (c)(2)(v);
 - d. Paragraph (c)(2)(vi) is redesignated as (c)(2)(v);
 - e. Revise paragraph (d);
 - f. Add paragraph (f)(3)(iv);
 - g. Revise the heading and the first sentence of paragraph (i); and
 - h. Revise paragraph (j);

The revisions and additions read as follows:

§ 210.11 Competitive food service and standards.

(a) * * *

(3) *Entrée item* means an item that is intended as the main dish and is either:

(i) A combination food of meat or meat alternate and whole grain rich food; or

(ii) A combination food of vegetable or fruit and meat or meat alternate; or

(iii) A meat or meat alternate alone with the exception of yogurt, low-fat or reduced fat cheese, nuts, seeds and nut or seed butters, and meat snacks (such as dried beef jerky); or

(iv) A grain only, whole-grain rich entrée that is served as the main dish of the School Breakfast Program reimbursable meal.

* * * * *

(6) *Paired exempt foods* mean food items that have been designated as exempt from one or more of the nutrient requirements individually which are packaged together without any additional ingredients. Such “paired exempt foods” retain their individually designated exemption for total fat, saturated fat, and/or sugar when packaged together and sold but are required to meet the designated calorie and sodium standards specified in §§ 210.11(i) and (j) at all times.

* * * * *

(d) *Fruits and vegetables*. (1) Fresh, frozen and canned fruits with no added ingredients except water or packed in 100 percent fruit juice or light syrup or extra light syrup are exempt from the nutrient standards included in this section.

(2) Fresh and frozen vegetables with no added ingredients except water and canned vegetables that are low sodium or no salt added that contain no added fat are exempt from the nutrient standards included in this section.

* * * * *

(f) * * *

(3) * * *

(iv) Whole eggs with no added fat are exempt from the total fat and saturated fat standards but are subject to the trans fat, calorie and sodium standards.

* * * * *

(i) *Calorie and sodium content for snack items and side dishes sold as competitive foods*. Snack items and side dishes sold as competitive foods must have not more than 200 calories and 200 mg of sodium per item as packaged or served, including the calories and sodium contained in any added accompaniments such as butter, cream cheese, salad dressing, etc., and must meet all of the other nutrient standards in this section. * * *

(j) *Calorie and sodium content for entrée items sold as competitive foods*. Entrée items sold as competitive foods, other than those exempt from the competitive food nutrition standards in paragraph (c)(3)(i) of this section, must have not more than 350 calories and 480 mg of sodium per item as packaged or served, including the calories and

sodium contained in any added accompaniments such as butter, cream cheese, salad dressing, etc., and must meet all of the other nutrient standards in this section.

* * * * *

§ 210.11a [Removed]

- 3. Section 210.11a is removed.

Appendix B to Part 210 [Removed]

- 4. Appendix B to part 210 is removed.

PART 220—SCHOOL BREAKFAST PROGRAM

- 5. The authority citation for 7 CFR part 220 continues to read as follows:

Authority: 42 U.S.C. 1773, 1779, unless otherwise noted.

§ 220.12a [Removed]

- 6. Remove § 220.12a.

Appendix B to Part 220 [Removed and Reserved]

- 7. Remove and reserve Appendix B to part 220.

Dated: June 21, 2016.

Kevin W. Concannon,
Under Secretary, Food, Nutrition, and
Consumer Services.

[FR Doc. 2016–17227 Filed 7–28–16; 8:45 am]

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DEPARTMENT OF AGRICULTURE

Food and Nutrition Service

7 CFR Parts 210 and 220

[FNS–2014–0010]

RIN 0584–AE25

Local School Wellness Policy Implementation Under the Healthy, Hunger-Free Kids Act of 2010

AGENCY: Food and Nutrition Service, USDA.

ACTION: Final rule.

SUMMARY: This final rule requires all local educational agencies that participate in the National School Lunch and School Breakfast Programs to meet expanded local school wellness policy requirements consistent with the requirements set forth in section 204 of the Healthy, Hunger-Free Kids Act of 2010. The final rule requires each local educational agency to establish minimum content requirements for the local school wellness policies, ensure stakeholder participation in the development and updates of such policies, and periodically assess and disclose to the public schools’