

# ***THE CDC GUIDE TO STRATEGIES FOR REDUCING THE CONSUMPTION OF ENERGY DENSE FOODS***

## **TABLE OF CONTENTS**

<b>I. INTRODUCTION TO ENERGY DENSITY .....</b>	<b>3</b>
<b>III. RESTAURANTS.....</b>	<b>4</b>
Strategy 1: Promote menu labeling .....	5
Strategy 2: Promote restaurant programs.....	9
<b>IV. RETAIL FOOD STORES .....</b>	<b>14</b>
Strategy 1: Improve geographic accessibility of supermarkets in underserved areas	14
Strategy 2: Improve existing small stores in underserved areas.....	21
<b>V. SCHOOL .....</b>	<b>27</b>
Strategy: Ensure that students have only appealing, healthy choices in foods and beverages offered outside of the school meals program .....	27
<b>VI. CHILDCARE .....</b>	<b>32</b>
Strategy 1: Expand curriculum-based strategies that support nutrition standards ...	32
Strategy 2: Ensure that regulations, policies and legislation at all levels promote healthier foods .....	36
<b>VII. WORKPLACES .....</b>	<b>42</b>
Strategy: Promote healthful foods at workplace cafeterias, in workplace vending machines, and at meetings and conferences .....	42
<b>REFERENCES.....</b>	<b>49</b>

## ***Using This Guide***

This document provides guidance and direction in selecting strategies to reduce consumption of high energy dense foods. It offers the most relevant information on each type of strategy to help the reader make wise decisions. The following categories of information have been included:

***Strategy:*** An activity intended to prevent disease or promote health in a group of people, also referred to in the literature by the term “approach”. Criteria for inclusion of a strategy in the document are a rationale supporting the strategy and program examples of the strategy being implemented.

***Description/Definition:*** Briefly describes the type of strategy.

***Rationale:*** Explains why a particular type of strategy is important to reducing consumption of high energy dense foods.

***Evidence of effectiveness:*** Draws on peer-reviewed literature and current practice to summarize support for the strategy as well as evidence of effectiveness.

***Key considerations:*** Includes items that may be important to keep in mind during the planning, implementation, and/or evaluation phases of an environment or policy strategy. These represent common themes and are not meant to comprise an all-inclusive list of issues to consider.

***Action Steps:*** Provides specific activities that public health professionals can take to implement strategies.

***Program Examples:*** Includes innovative programs that seek to increase access to affordable, higher quality, less calorie dense foods. Program examples were selected from published interventions in peer review journals and practice-based interventions. When available the practice-based program examples include those that received evaluability assessments through the RWJ/CDC Early Assessment of Programs and Policies to Prevent Childhood Obesity or those reviewed by the University of North Carolina Center of Excellence for Training and Research Translation (<http://www.center-trt.org/index.cfm?fa=evidence.overview>).

***Resources:*** Guides the reader to further information about programs and other items of interest described earlier in the chapter, such as contact information, Web links, and books.

Note: Web site addresses of nonfederal organizations are provided solely as a service to our readers. Provision of an address does not constitute an endorsement of this organization by CDC or the federal government, and none should be inferred. CDC is not responsible for the content of the individual organization Web pages.

***References:*** Provides a sequential list of all information sources cited.

# I. INTRODUCTION TO ENERGY DENSITY

Research shows that people eat a fairly consistent amount of food on a day-to-day basis. This finding holds true whether the amount of food contains many or few calories. Therefore, the number of calories in a particular amount or weight of food, the food's energy density, affects the total number of calories a person consumes. Energy density is the amount of energy (kilocalories or kcal) in a gram (g) of food [1]. Foods with lower energy density have fewer kilocalories per gram than those with higher energy density. Energy density is affected by the water and macronutrient contents of foods. For example, water has 0 kcal/g, fiber has 1.5 to 2.5 kcal/g, carbohydrates and proteins have 4 kcal/g, and fat has an energy density of 9 kcal/g. Thus, foods with a higher fat content will generally have a higher energy density; however, the addition of water or fiber-rich ingredients will lower the energy density of higher energy dense foods [1].

Observational studies among adults have shown that lower energy dense diets are associated with lower energy intakes [2-11]. These lowered energy intakes are achieved with consumption of the same amount as or even more food by weight (or volume) than those consuming higher energy dense diets [2, 3, 5, 6, 9]. In addition, the nutritional quality of the diet is generally higher for adults consuming lower energy dense diets. Lower energy dense diets are generally higher in vitamin A, vitamin C, vitamin B6, folate, iron, calcium and potassium [5, 7, 12, 13]. Experimental studies have reinforced many of the findings noted in observational studies. Adults consuming diets lower in energy density exhibited lower energy intakes [14-17], consumed a comparable amount of food by weight [14], and reported no increase in hunger [14, 15]. Similar findings have been observed among children. In experimental trials among pre-school children (2 to 5 y) energy intake of an entrée and of a meal were reduced by decreasing the energy density of the entrée [18, 19]. In addition, some studies have shown that satiety is enhanced and meal energy intake is reduced with consumption of a large portion of a low-energy dense food at the start of the meal [20, 21].

Associations between energy density and body weight or BMI (body mass index, a measure of weight status) have been reported in observational studies as well. The diets of normal weight adults are lower in energy density than the diets of obese adults [6] and higher energy dense diets are associated with higher BMI values [6, 8, 9, 22] or greater odds of being overweight or obese [5, 10, 23]. In addition, weight gain is attenuated among women consuming lower energy dense diets [2, 9] and weight gain during gestation is positively associated with increasing energy density [24]. In terms of weight loss, clinical studies have shown that obese patients counseled to consume a reduced energy diet lost 6.3 kg over 7 months [25] and that incorporation of a lower energy dense food into a reduced energy diet led to a 7.2 kg weight loss among overweight or obese adults over 1 year [26]. Additionally, obese women counseled to eat more fruits and vegetables while consuming less fat lost 7.9 kg over 1 year [27]. A recent prospective study among children showed that a high energy-dense diet is associated with greater odds of excess adiposity during childhood [28, 29].

Because studies have linked lower energy dense diets to decreased energy intake, decreased overweight and obesity, and higher nutritional quality; environment and policy strategies to reduce energy density among the population has become a priority for public health professionals. Therefore, this *Guide to Strategies for Reducing Energy Density* is designed as a

resource for those involved in making policies and implementing programs to prevent or reduce overweight and obesity through decreasing energy density. The specific strategies described within this guide can be framed within at least one of three overarching strategies to reduce the consumption of high energy dense foods that are of low nutritive value. These overarching strategies include 1) substituting low energy dense foods for high energy dense foods, 2) decreasing the portion sizes of high energy dense foods, and 3) limiting the availability of high energy dense foods. It should be noted that the interventions used to support the recommendation of the specific strategies used in this document come from a variety of studies and program examples that were generally designed to improve dietary quality but were not designed specifically for reducing energy density. However, energy density is affected by initiatives that reduce fat, sugar, and calories in the diet as well as those that increase fruits and vegetables. Therefore, inclusion of the specific environment and policy approaches described in this document are warranted as strategies to reduce energy density.

Strategies presented within the *Guide to Strategies for Reducing Energy Density* are described by setting (restaurants, retail food stores, schools, child care, and worksites). Each chapter includes the rationale for each strategy, a summary of the available evidence, key considerations, resources, and potential action steps for policy makers and program planners. The term, “healthier foods” will be used throughout this document to describe foods with low energy-density and low content of calories, sugar, fat, and sodium [30]. In general, healthier foods include food like fruits and vegetables, low-fat dairy products, whole grain products and lean meats, fish, and poultry. Although definitions (i.e., numeric ranges of kcal/g) for various categories of energy density have been proposed [31], these have not typically been used in intervention practices. For this document, foods should be considered as existing along a continuous spectrum of energy density; and efforts should be made to increase availability and consumption of foods at the lower end of the spectrum and to limit availability and consumption of foods at the higher end of the energy density spectrum.

## II. RESTAURANTS

Restaurants are broadly defined to include full-service restaurants, fast-food restaurants, food courts, lunch wagons, deli counters, and coffee shops that serve food [32]. In the past thirty years, the number of food establishments in the United States has doubled [33]. Compared to food prepared at home, the types of food sold in fast food and full service restaurants tend to be higher in calories and fat [34, 35]. Despite this fact, dining out has become popular and approximately half (48.5%) of all food dollars are spent on foods prepared away from home [36]. Adults and children now eat almost six meals and snacks per week at a restaurant [37], which accounts for 27% of all meals and 34% of total calories consumed [35].

## STRATEGY 1: PROMOTE MENU LABELING

### *Description/Definition*

Menu labeling involves providing the nutritional content of foods on menus, menu boards, and item tags at the point of purchase in restaurants and fast food establishments. Examples include the Common Sense Consumption Act or the Menu Labeling and Education Act (MEAL), both which have been introduced at the federal level. The state of California and local municipalities such as Philadelphia, New York City, Seattle, King County Washington, and Multnomah County Oregon have passed similar menu labeling legislation. Common features of these ordinances require that menu boards post calorie information adjacent to the food item in a font, format, and size that it is visible from the ordering line and as prominent as the name and price. New York City and Philadelphia require that nutrition information also be posted on drive through menu boards. In these regulations, exemptions are provided for self-serve condiments, daily specials that appear less than the time specified in the legislation, alcoholic beverages, and custom orders.

### *Rationale*

People who eat frequently at fast food and full service restaurants are more likely to consume large portion sizes and significantly underestimate the caloric content of the portions they eat, particularly for higher-caloric foods. In a study conducted by Burton and colleagues [38], the caloric level average for less healthful items (e.g. hamburger with fries, fettuccini alfredo, chicken fajitas, chef salad, patty melt and fries) was almost twice as high as consumers' estimates (1336 vs. 694 calories). Thus, clear, easy-to-use nutrition information at the point of ordering, can help consumers to make informed menu choices at restaurants.

### *Evidence of Effectiveness*

Data related to the effectiveness of menu labeling are limited. Prior to the mandate of menu labeling in New York City, one research study showed that Subway patrons who saw calorie information at the point of purchase ordered 52 fewer calories than patrons who did not see this information [39]. Additional evidence describing the positive effects of comprehensive menu labeling is seen in a recent review of six published studies by Harnack and French [40]. Five studies in this review showed that providing nutrient information impacted food choices among adults eating at worksite cafeterias and among youth (ages 11 to 18 years) eating at select chain restaurants, although effects were small in magnitude. However, Simon and colleagues [41] showed that small changes in purchasing habits of individuals as a result of menu labeling can have population-level effects. In their health impact assessment of Los Angeles County, it was estimated that nearly 39% of the 6.75 million pound average weight gain of county residents could be averted if only 10% of patrons of large chain restaurants ordered an average of 100 fewer calories per meal as a result of menu labeling [41]. Additional studies that examine the effect of menu labeling on food purchases at restaurants are needed.

## Key Considerations

Several legal challenges should be considered when proposing menu labeling requirements. Pomeranz, Kelly, and Brownell [42] outline some of the legal and public health considerations that impact the successful reach and implementation of menu labeling laws, and describe how laws can be written and defended to minimize legal challenges. Legal challenges include:

- Preemption of local and state laws by federal laws
- Industry claims that first amendment rights to commercial speech or equal protection rights are violated
- Industry claims that menu labeling laws overburden their interstate commerce, thus violating the Commerce Clause of the Constitution

In addition to legal challenges, there are other issues to consider when writing policy for menu labeling. These include:

- Reviewing the characteristics and language of proposed and/or implemented menu policies in other states and localities for examples of how menu labeling requirements might be written or adapted for a given locality.
- Defining terms such as “standard food item” and “restaurant” in the proposed legislation.
- Outlining display and methods of distribution for nutrition information.

## Action Steps

Develop educational materials for the public that outline the link between dining out, weight gain, and chronic disease.

Establish partnerships with the local and state restaurant associations, health promotion practitioners, nutrition advocates, and public health organizations to assist efforts that support menu labeling.

Provide information about the benefits of menu labeling to state officials.

## Program Example

Program	Description
New York Menu Legislation	The New York City Department of Health and Mental Hygiene (DOHMH) Physical Activity and Nutrition (PAN) Program has instituted a policy that requires all food service establishments (FSEs) in NYC that have 15 or more locations nationwide to post on their menus and menu boards the number of calories in each menu item.

	<p>Components</p> <ul style="list-style-type: none"> <li>- FSEs subject to this regulation must post calorie information on all menu boards and menus where there is a price, item tags, any other list or pictorial display of a food item or items and price(s) posted and visible within the FSE, and menu boards or adjacent stations at or prior to the point of ordering for drive-through windows.</li> <li>- Menu items include any individual food or beverage items, or combination of items that is listed or displayed that includes prices.</li> <li>- Calorie information must be posted to clearly label the number of calories for each menu item.</li> <li>- Calorie information must be clear and conspicuous in close proximity to the relevant menu item.</li> <li>- Calorie information must be printed in a font and format similar to the name or price of menu item.</li> <li>- Menu items with different flavors and varieties must show the calorie range for the item.</li> <li>- Menu items that come in different combinations (e.g. combos with choice of sides or drinks) but are listed as a single item must be displayed with the range of calorie content values for all combinations of the item.</li> <li>- FSEs will base the calorie content value on verifiable analysis (lab tests, nutrient database, etc.)</li> <li>- Calorie counts are rounded off to the nearest 10 calories for counts above 50 and to the nearest 5 calories for counts at or below 50.</li> <li>- Regulation does not apply to menu items listed for less than 30 days in a calendar year.</li> </ul>
<p>New York Menu Legislation</p>	<p>Resources</p> <ul style="list-style-type: none"> <li>- Five Spanish and English advertisements were posted in subways to market the initiative.</li> <li>- The DOHMH invested \$100,000 to develop the advertisements.</li> <li>- The DOHMH spent \$82,000 to run the advertisements in 20% of cars in the NYC subway system.</li> <li>- The amount of staff (PAN Director and two-person legal team) effort and time required to implement the regulation varied.</li> </ul> <p>Approach</p> <ul style="list-style-type: none"> <li>- September 2006: DOHMH proposed first calorie posting provision</li> <li>- December 2006: NYC Board of Health adopted calorie posting proposal</li> <li>- October 2007: DOHMH proposed second calorie posting provision</li> <li>- March 31, 2008: Calorie requirement became effective</li> <li>- May 5, 2008 : Calorie requirement enforced; delayed due to litigation</li> <li>- DOHMH began inspections and issuing citations (warnings) in May and fines in July.</li> </ul> <p>Challenge</p> <ul style="list-style-type: none"> <li>- Litigation: After submitting two calorie posting proposals in September 2006 and October 2007, and having each subsequently adopted by NYC Board of Health, New York State Restaurant Association (NYRSA) filed two lawsuits with the US District Court to overturn the proposals in October 2006 and February 2008, claiming the City's new ordinance was preempted by federal law. Although the NYSRA won the first lawsuit in September 2007, the NYSRA's second lawsuit was declined along with a request to block enforcement of the policy while they appealed the decision. The Second Circuit Court of Appeals also declined to stay the new measure. The calorie posting rule took effect on April 30, 2008.</li> <li>- Enforcement: Inspectors have subjective interpretations of "clear and conspicuous" and misunderstand the issue of "prominence". Inspectors have difficulty determining whether the color and size of the calorie labels is appropriate.</li> <li>- Enforcement: Inspectors check that calorie information is present but do not check the accuracy of calorie information regularly. Accuracy will be examined by the Health Department in spot checks or in response to allegations that posted calorie information is incorrect.</li> </ul> <p><i>Program example from RWJ/CDC Early Assessment of Programs and Policies to Prevent Childhood Obesity Program Summary Report</i></p>



## Resources

### Other Program Examples

- *Be Informed Be Healthy* (King County, WA) is a public education campaign used in Seattle and King County Washington aimed at getting chain restaurant customers to read menu labels and make healthier choices:  
<http://www.kingcounty.gov/healthservices/health/nutrition/healthyeating/menu/campaign.aspx>.

### Tool Kits & Informational Documents:

- The *Robert Wood Johnson Foundation* has a “Healthy Eating Research” paper on menu labeling that synthesizes the research on this topic:  
[http://www.healthyeatingresearch.org/images/stories/her\\_research\\_briefs/her\\_menu\\_labeling\\_brief\\_06\\_29\\_09\\_final.pdf](http://www.healthyeatingresearch.org/images/stories/her_research_briefs/her_menu_labeling_brief_06_29_09_final.pdf).
- The *Rudd Center for Food Policy & Obesity, Yale University*, provides a policy brief to inform decision-makers interested in implementing menu labeling requirements in their states or communities:  
[http://www.naco.org/Template.cfm?Section=New\\_Technical\\_Assistance&template=/ContentManagement/ContentDisplay.cfm&ContentID=27930](http://www.naco.org/Template.cfm?Section=New_Technical_Assistance&template=/ContentManagement/ContentDisplay.cfm&ContentID=27930).
- The *American Heart Association* has written a position statement on menu labeling:  
<http://www.americanheart.org/downloadable/heart/1223922075937Menu%20Labeling%20Position%20Statement-final%2010-08.pdf>.
- *The Keystone Forum on Away-From-Home Foods: Opportunities for Preventing Weight Gain and Obesity* (Food and Drug Administration, 2006) provides recommendations from experts in industry, government, civic sector organizations, and academia, for improving consumers' ability to manage calories. It addresses the following topics: 1) understanding and influencing consumer behavior; 2) increasing the availability of lower-calorie products, menu items, and meals; and 3) providing consumers with nutrition information from foods prepared and purchased away-from-home:  
[http://www.keystone.org/spp/documents/Forum\\_Report\\_FINAL\\_5-30-06.pdf](http://www.keystone.org/spp/documents/Forum_Report_FINAL_5-30-06.pdf).
- *Center for Science in Public Interest (CSPI)* website is consumer-advocacy organization that focuses on health and nutrition issues such as advocating healthier diets, obtaining comprehensive nutrition labeling of packaged foods, and exposing the nutrition content of restaurant foods: [Center for Science in Public Interest](#).
- The *California Center for Public Health Advocacy (CCPHA)* provides information and resources related to state and local public policies that promote healthy eating and physical activity. It addresses three main policy strategies: (1) physical education in public schools, (2) expanding access to healthy food in communities, and (3) assuring implementation of school nutrition standards. The following site provides information on menus labeling information and resources:  
[http://www.publichealthadvocacy.org/resources\\_menuslabeling.html](http://www.publichealthadvocacy.org/resources_menuslabeling.html).



## STRATEGY 2: PROMOTE RESTAURANT PROGRAMS

### *Description/Definition*

Restaurant programs are environmental and policy activities designed to improve the health of all people through better nutrition. Restaurant programs affect individuals by influencing availability, access, pricing, point-of-purchase (POP) information, and promotion and communication. Additionally, combination approaches can be utilized [32]. Descriptions of restaurant program activities [32] include the following:

- Increasing availability – Offering a greater variety of healthful foods to the consumer
- Increasing access – Making healthful food or meal items easier to locate on menu; serving healthier items in multi-location restaurants
- Reduced prices and coupons – Reducing menu item price or providing discount coupons for healthier menu items in restaurants
- POP information – Providing signage or labels on menus that identifies healthier menu options based on established criteria
- Promotion and communication – Using communication media (such as advertising or posters) to encourage consumption of healthier foods

### *Rationale*

According to the National Restaurant Association, restaurant sales in the United States typically reach \$1.5 billion per a day [43]. The percent of food dollars spent on the consumption of foods away from home has increased from 25% in 1955 to 48% spent at the time of publication in 2009 [43]. Away-from-home foods typically contain more calories [44] and lead to higher caloric intakes [34] compared to foods prepared and consumed at home. In addition, the portion sizes of foods offered at fast food and chain restaurants have increased over time and often exceed federal recommendations for serving sizes [45]. Thus, restaurant strategies that involve policy and environmental approaches may lead to better nutrition and health because of their reach into the population and because they are less costly than clinical or small group educational interventions [32].

### *Evidence of Effectiveness*

Restaurant program activities to increase and improve the nutrition and health of the general population have primarily used POP campaigns. These campaigns have used a range of approaches, including emphasizing healthful foods (yogurt, pretzels, whole fruit) on a college menu board [46], placing a red heart next to low fat, low cholesterol entrées on a family-style restaurant menu board [47], and labeling low-fat sandwiches, salads, pizzas, snacks, and desserts with a green check at retail store cafeterias [48]. Overall, providing POP information in the restaurant setting was associated with increased purchasing of targeted items [49]. Colby and

colleagues [50] promoted various lunch specials in a sit-down restaurant using messages that either stressed taste of the special, healthfulness of the special, or simply listed the item as a special. These investigators identified taste as being the most important message in determining people's choice. Further examination of POP approaches is needed to expand on current knowledge for assessing whether increased promotion, purchase, and consumption of healthier foods lead to improved health outcomes.

### ***Key Considerations***

When developing a restaurant program, it is important to consider the planning and implementation of the program, as well as the challenges that could arise through the application of the program. Although target audiences may vary, restaurant program strategies should consider these factors:

- Development of criteria for healthier menu items (e.g., food items cooked with less fat, prepared with less salt, prepared with low-fat/fat-free dairy)
- Resources to implement and sustain program strategies
- Formative research to facilitate program planning (including activities such as conducting a needs or gap analysis as well as conducting site visits to places with existing programs)
- Negotiation with restaurant owners over the placement of POP items, and navigation around any potential for profit losses

### ***Action Steps***

1. Convene meetings with all stakeholders to determine the most effective methods for implementing, monitoring, and evaluating the restaurant program interventions.
2. Determine what strategies will be included in the restaurant program.
3. Determine what nutritional criteria will be used.
4. Work iteratively with restaurant owners in order to gain their support and to reach resolution on how to overcome barriers to participation.

## Program Examples

Program	Description
<b>Bronx Healthy Hearts Restaurant</b> <a href="http://www.institute2000.org/bhr/work/nutrition_and_fitness/bronx_healthy_hearts">http://www.institute2000.org/bhr/work/nutrition_and_fitness/bronx_healthy_hearts</a>	<p>The program recruits and publicizes restaurants that are willing to modify recipes or cooking techniques, add healthier foods, and/or offer reduced portion sizes.</p> <p><b>Components</b></p> <ul style="list-style-type: none"> <li>- Criteria were developed to decide healthier menu items (cooked with less fat, prepared with less salt, contains fresh vegetables or whole grain, prepared with low-fat/fat-free dairy).</li> <li>- Promotional materials to display in/on window/wall were developed.</li> <li>- Collaborations were established with local coalitions and state health department.</li> <li>- Target audience consisted of small family owned neighborhood restaurants.</li> </ul> <p><b>Resources</b></p> <ul style="list-style-type: none"> <li>- Receives annual grant funding from state's Healthy Heart Initiative.</li> <li>- Program staff consisted of a project coordinator and a nutritionist.</li> </ul> <p><b>Approach</b></p> <ul style="list-style-type: none"> <li>- Community needs assessment that included literature review, survey, and data review was conducted.</li> <li>- Findings were used as a catalyst for program planning.</li> <li>- Program focused on increasing supply of neighborhood healthier foods.</li> <li>- The first year was spent planning activities.</li> <li>- Implementation began second year with 6 restaurants.</li> <li>- A Latino chef was hired as a consultant.</li> </ul> <p><b>Challenges</b></p> <ul style="list-style-type: none"> <li>- The offering of menu boards and table tents was discontinued because many owners reported having limited space and program staff noticed that the table tents were often missing.</li> <li>- Consumer demand for healthier options was not sufficiently high to motivate restaurant owners.</li> <li>- Consumers actively resisted some changes like smaller portion sizes, even when offered at a reduced cost.</li> <li>- Many small family businesses operate with low profit margins and have limited capacity for refrigeration and storage. The owners were wary of offering items such as fresh fruits or vegetables if not sold quickly.</li> </ul> <p><b>Lessons Learned</b></p> <ul style="list-style-type: none"> <li>- Program focus should be shifted from adding healthier options to highlighting items already on restaurants' menus that could be considered healthier options.</li> <li>- Partners value the program as a tangible example of their work in the community.</li> </ul> <p><i><b>Program example from RWJ/CDC Early Assessment of Programs and Policies to Prevent Childhood Obesity Program Summary Report</b></i></p>
<b>Colorado Smart Meal Seal</b>	<p>The Colorado Physical Activity and Physical Activity Program (COPAN) developed the Smart Meal™ Seal restaurant program that promotes healthier food options at single venue and/or family owned restaurants and national fast food chain restaurants.</p> <p><b>Components</b></p> <ul style="list-style-type: none"> <li>- The Smart Meal™ Seal is used to help restaurant patrons identify options that are deemed healthier.</li> <li>- Eligibility Criteria based on nutrition standards are established to participate in the Smart Meal™ Seal program.</li> <li>- Nutrition Analysis is conducted to determine if selected items meet the eligibility criteria</li> <li>- Training and materials to facilitate implementation and promotion of the program is provided to restaurant owners and organizations recruiting restaurants.</li> <li>- Restaurants must sign an agreement that they will comply with the Smart Meal™ Seal program requirements and evaluation protocol.</li> <li>- Marketing and promotion of the Smart Meal™ Seal program</li> </ul> <p><b>Resources</b></p> <ul style="list-style-type: none"> <li>- Oversight and funding for the Smart Meal™ Seal program at the Colorado Department of Public Health and Environment (CDPHE) is provided from the CDC funded Colorado Physical Activity and Physical Activity Program (COPAN). These funds are used to support a staff</li> </ul>

Program	Description
	<p>position and the printing of training materials.</p> <ul style="list-style-type: none"> <li>Country and local public health departments receive funding from LiveWell Colorado and Steps to a Healthier Colorado to support county-level implementation efforts.</li> <li>The McDonald's Corporation has contributed over \$600,000 to the marketing efforts of the Smart Meal™ Seal program in the Denver-metro area.</li> </ul> <p>Approach</p> <ul style="list-style-type: none"> <li>The eligibility criteria are based on a review of the literature and other practice-based restaurant programs as well as national nutrition standards.</li> <li>Focus groups were conducted with restaurant to discuss the feasibility of implementing the Smart Meal™ Seal program .</li> <li>The Smart Meal™ Seal program staff worked with the McDonald's Corporation to conduct a pilot test of the feasibility of creating a workable and mutually beneficial partnership between a state health department and a national fast food chain restaurant.</li> <li>The Smart Meal™ Seal program director is responsible for implementing the components of the program listed above.</li> </ul> <p>Challenges</p> <ul style="list-style-type: none"> <li>Most restaurants could not meet the sodium allowance established by other nutrition guidelines so the eligibility criteria for the Smart Meal™ Seal program allows for higher amounts of seasonings and salt. Despite initial concerns about the higher sodium allowance it has been endorsed by the Colorado Dietetic Association.</li> <li>Marketing and promotion of Smart Meal™ Seal program has been limited with the exception of McDonald's because many of the single venue and/or family owned restaurants have limited or no budget for out-of-store advertising efforts.</li> <li>In addition, single venue and/or family owned restaurants found it difficult to collect sales data with the specificity that was needed for evaluation of the program.</li> </ul> <p>Lessons Learned</p> <ul style="list-style-type: none"> <li>The Colorado Restaurant Association and the Colorado Dietetic Association have been key organizations for increasing awareness of the program and providing both in-kind and financial support.</li> <li>The LiveWell Colorado program and Steps to a Healthier Colorado provide funding to support local level activities.</li> <li>The McDonald's Corporation has been the Smart Meal™ Seal program's most cooperative and aggressive supporter.</li> </ul> <p><i>Program example from RWJ/CDC Early Assessment of Programs and Policies to Prevent Childhood Obesity Program Summary Report</i></p>
Shape up Somerville Initiative	<p>The Shape Up Somerville (SUS) program tested feasibility of a community restaurant initiative specifically targeted to families and young children.</p> <p>Components</p> <ul style="list-style-type: none"> <li>Restaurants were required to offer some entrees as half size portions, some fruits and/or vegetables as a side dish, and low fat milk or water (as an alternative to sugar sweetened beverages).</li> <li>Healthier options had to be highlighted in some manner.</li> <li>An SUS Seal of Approval was to be displayed in the restaurant window.</li> </ul> <p>Resources</p> <ul style="list-style-type: none"> <li>Funded by grant R06/CCR121519-01 from the CDC.</li> <li>Additional funding provided by the New Balance Foundation, John Hancock Financial Services, Inc., Blue Cross Blue Shield of Ma, United Way of Mass Bay, The Potato Board, Stonyfield Farm, Inc. and Dole Foods.</li> </ul> <p>Approach</p> <ul style="list-style-type: none"> <li>Formative research included site visits for brief one-on-one interviews with 15 restaurant owners/managers.</li> <li>Restaurants were prioritized based on type and feasibility for change. (Family-friendly sit-down restaurants were given highest priority, followed by delicatessens and sandwich shops.)</li> <li>Restaurant recruitment used a kit that initially included a Restaurant Information Guide, SUS contact information, a sample SUS newsletter, and a Letter of Agreement (augmented with</li> </ul>

Program	Description
	<p>media articles about the project and a list of participating restaurants).</p> <ul style="list-style-type: none"> <li>- Restaurants' adherence to criteria was monitored and evaluated through questionnaires.</li> <li>- An initiative was developed during the spring and summer of 2003, implemented as a component of the SUS intervention in 2003-2004 school year, and monitored for sustainability in 2004-2005.</li> </ul> <p>Challenges</p> <ul style="list-style-type: none"> <li>- Establishment of approval criteria for restaurants required several iterations and ongoing flexibility.</li> <li>- Barriers to participation included a lack of time and interest and concerns about potential profit losses.</li> <li>- Few menu changes occurred, since owners viewed alterations to the menu as a potential risk to profits.</li> <li>- Restaurants that were SUS approved were reluctant to make additional changes, and those that did not already meet the nutrition criteria were difficult to recruit.</li> <li>- About half of the approved restaurants failed to mark healthier items as specified by the criteria.</li> </ul> <p>Lessons Learned</p> <ul style="list-style-type: none"> <li>- Initial feedback from restaurant owners indicated that the first set of criteria (based on the National School Lunch Program regulations) were not feasible so second set had to be created.</li> <li>- Participation was facilitated by the existence of a strategy to publicize approved restaurants.</li> <li>- Despite limited feasibility, the initiative provided valuable visibility and branding of the intervention within the community as well as important lessons for working with restaurants. to improve health.</li> </ul> <p><i>Program example from Economos CD, Foltz SC, Goldberg J, Hudson D, Collins J, Baker Z, Lawson E, Nelson M. A community-based restaurant initiative to increase availability of healthy menu options in Somerville, Massachusetts: Shape Up Somerville. Prev Chronic Dis. 2009;6(3). <a href="http://www.cdc.gov/pcd/issues/2009/jul/08_0165.htm">http://www.cdc.gov/pcd/issues/2009/jul/08_0165.htm</a>. Accessed November 16, 2009.</i></p>

## Resources

### Other Program Examples:

- *Healthy Arkansas Restaurant Award* recognizes restaurants that have gone the extra mile to assist Arkansans in living a healthy lifestyle by meeting high standards in food safety, nutrition and smoke-free environment criteria:  
[http://www.arkansas.gov/ha/healthy\\_restaurant.html](http://www.arkansas.gov/ha/healthy_restaurant.html).
- Steps to a Healthier Rockland County's *Healthier Dining Restaurant Program* encourages restaurants to label healthier menu options for adults and children. Their *Menu on the Run* program is also described: <http://rocklandsteps.org/restaurant-program>.
- *The Smart Meal Program* assists restaurant customers in identifying menu items that meet nutritional requirements specifically designed for restaurant meals:  
<http://www.smartmealcolorado.com/home.aspx>.

## Informational Documents

- The Dietary Guidelines for Americans, 2005 provides dietary advice for health promotion and reduction of chronic disease risk:  
<http://www.health.gov/dietaryguidelines/dga2005/document/pdf/DGA2005.pdf>.

## III. RETAIL FOOD STORES

Food can be sold at a variety of retail venues in a community, including supermarkets, grocery stores, convenience stores, corner stores, specialty food stores and farmer's markets. To reduce energy intake and decrease the risk of obesity of the population, it is important to make lower energy dense foods available and affordable. These goals may be achieved in a variety of ways, including: 1) attracting new food stores to underserved areas through financial incentives; 2) improving public transportation to these venues and influencing business owners to provide transportation for customers; 3) upgrading the facilities at existing stores to enable them to carry all forms of fruits and vegetables and healthier foods; and 4) increasing the supply of and shelf space dedicated to high quality, affordable healthier foods at existing stores.

### STRATEGY 1: IMPROVE GEOGRAPHIC ACCESSIBILITY OF SUPERMARKETS IN UNDERSERVED AREAS

#### *Description/Definition*

Supermarkets are important in providing access to affordable healthier foods. Policy action and other intervention strategies to increase availability and affordability of healthier foods are needed to provide more equitable access to healthier foods across the U.S.

Supermarkets offer a large variety of healthier foods that are typically offered at a lower cost. Conventional supermarkets sell a full line of at least 15,000 products that include meat, produce, and dairy products as well as general merchandise. They may also include a deli and bakery, and generally range in size from 30,000 to 45,000 square feet [51].

#### *Rationale*

Studies have shown that residents with better access to supermarkets and limited access to convenience stores have lower levels or reduced risk of obesity, as well as healthier diets [52-55]. A recent review of retail food stores and access inequalities concluded that poor access to supermarkets and healthier foods primarily affected residents in rural, low-income, and minority

communities [53]. Only 75% as many chain supermarkets were found in low-income neighborhoods as in middle-income neighborhoods [56]. In predominantly African American neighborhoods, the availability of chain supermarkets was only 52% of those in white neighborhoods, and availability in Hispanic neighborhoods was 32% as many as non-Hispanic neighborhoods [56]. Rural areas had only 14% as many supermarkets as urban areas [56]. In addition, increased household use of fruits was significantly associated with better access to supermarkets among participants in the National Food Stamp program; the pattern of household vegetable use among this population was similar, although a significant association was not observed [57]. Therefore, improving access to supermarkets in underserved areas addresses the public health concern of poor access to healthier foods.

### *Evidence of Effectiveness*

Supermarket access is associated with reduced risk of obesity [53]. Studies in adolescents and adults have found that supermarket access is associated with a lower prevalence of overweight and obesity and that access to convenience stores is associated with a higher prevalence of these weight measures [52, 54, 55]. Several studies have used geographical mapping to examine associations between neighborhood access to food stores and in-store availability of healthier foods with dietary intake of fruits and vegetables, or overall diet quality [58-62]. One cross-sectional study found that supermarket access was associated with a 32% increase in fruit and vegetable intake among black Americans and an 11% increase among white Americans [59]. Other studies have investigated the association between distance to the closest supermarket and a composite measure of diet that includes: servings of grains, vegetables, fruits, percentage of calories from fat, and meal patterns [60, 61]. Although a variety of diet quality indexes were used as a composite measure of diet, the studies found that adults with better access to supermarkets had healthier diets.

Policy initiatives aimed at introducing supermarkets to underserved areas have been shown to improve food access and availability in communities. For example, the Pennsylvania Fresh Food Financing Initiative (FFFI), a public-private partnership created in 2004 by the state, helps create new supermarkets and helps existing ones to refurbish and replace old equipment [63]. Eligible stores must be located in low- to moderate-income areas that are currently underserved and must provide a full selection of fresh foods. In four years, FFFI has funded over 68 projects across Pennsylvania, including major national chains and smaller independently operated stores. The projects have resulted in the creation or retention of approximately 3,700 jobs and 1.4 million square feet of food retail space. A case study of The Reinvestment Fund, one of the partners in the FFFI, found that adding a supermarket to an underserved area resulted in improved availability of a variety of healthy foods in the community [64].

The Leeds retail-intervention in England consisted of provision of a major food supermarket to an area considered a “food desert” because access to healthy affordable food was poor. Evaluation of the Leeds intervention showed no overall impact on fruit and vegetable consumption among community members [65]. However, when use of the new food-retail store was considered, survey respondents who reported switching to the new store were found to have increased their consumption of fruits and vegetables, while those who did not switch to the new store showed no change in consumption. We were unable to find similar published evaluations



on food retail provision interventions in the United States to assess impact on fruit and vegetable consumption of community members.

### ***Key Considerations***

- The food environment can be assessed using community food assessment instruments to determine adequacy of healthy food accessibility, availability, and affordability.
- If assessment reveals a lack of food stores, community efforts are needed to encourage investment in food stores that provide affordable healthy foods. Efforts may include supporting policies that provide incentives to food retailers to locate in underserved areas and provide land for healthy food retail development.
- Successful efforts to bring supermarkets to underserved areas have had significant community and business involvement as well as support from political leaders. Thus, it is important to convene and obtain support from multiple stakeholders in the process. Such stakeholders could include: local and state departments of health; local and state governments; advocacy groups; trade associations; community based businesses, organizations and associations; grocery retailers; and local universities. The “Ten Steps of a Coordinated Strategy” included in the report, *“Grocery Store Attraction Strategies: A resource for community activists and local governments”*, published in 2007 by PolicyLink and the Bay Area Local Initiatives Support Corporation describes a coordinated effort to attract new stores in underserved areas and provides a wealth of resources to help underserved neighborhoods organize a coordinated strategy to attract or develop grocery stores.
- It is important to work with stakeholders who understand the retail market. Many factors should be considered when defining the market segment (customer type) that the proposed store will fill. The report *Neighborhood Groceries: New Access to Healthy Food in Low-income Communities* published by California Food Policy Advocates (available at: <http://www.cfpa.net/Grocery.PDF>) discusses key variables to use when evaluating potential food delivery models in low-income areas and defining the market segment.
- Communities may also work to recruit more retail food stores to locations that are centrally located or easily accessible by public transportation [65]. Additional options include working with transportation officials to plan public transit routes to food retail stores and working with developers to include healthy food retail stores in community plans.
- Zoning codes may present a barrier to bringing new food stores to a neighborhood. Understanding what barriers exist and working with partners to overcome these barriers will help in the process of moving forward to improve the food retail situation.

## Action Steps

1. Assess the food environment using community food assessment instruments to determine adequacy of healthy food accessibility, availability, and affordability.
2. Develop a report that states the public health need and demonstrates the relationship between health, income, and supermarket access at the community level. This can serve as a powerful tool for communication and advocacy with key stakeholder and political leaders.
3. Conduct community outreach to obtain buy-in and establish task forces for the neighborhood to take ownership of the effort. Bring together resources and leadership from a variety of partners, such as: universities and colleges; local and state departments of health; local governments; advocacy groups; trade associations; community based organizations; neighborhood associations; private-sector businesses and grocery retailers.
4. Work with a local or regional Food Policy Council on a Fresh Food Financing Initiative for your area. These initiatives can provide grants, low-interest loans, and training and technical assistance to improve or establish stores in underserved areas. See The Food Trust's *Fresh Food Financing Initiative* website for more information:  
<http://www.thefoodtrust.org/php/programs/fffi.php>
5. Support and promote policies and legislation at all levels that offer retailers incentives like a streamlined development process, tax exemptions and credits, and assistance in land acquisition. These benefits can be balanced by requirements to devote a certain amount of shelf space to healthier foods.
6. Sponsor a summit with urban and transportation planners and local officials to discuss and plan for transportation routes that offer better access to healthier food.
7. Work with community leaders to consider venues for healthier food retail when making general community plans and land use decisions.
8. Work with a community organization to help provide technical assistance and workforce development to store operators and sufficient job training (for example, in customer service) for potential employees who had never held a job.

## Program Examples

Program	Description
Fresh Food Financing Initiative (FFFI)	<p>The purpose of the Pennsylvania Fresh Food Financing Initiative (FFFI) [66], undertaken by the Food Trust, is to improve food access in underserved areas (both urban and rural) by bringing in supermarkets. The second goal of the FFFI program is to provide an economic stimulus for communities in need.</p> <p>Components</p> <ul style="list-style-type: none"><li>- Creation of reports for decision makers that provide the evidence base to support the supermarket program</li><li>- Task force to identify policies to support the program</li></ul>

Program	Description
	<ul style="list-style-type: none"> <li>- Community buy-in and support</li> <li>- Financing to support the supermarket</li> <li>- Manager of the funds</li> <li>- Technical Assistance to supermarket operators</li> <li>- Experienced operators matched with supportive communities</li> </ul> <p>Resources</p> <ul style="list-style-type: none"> <li>- Funded by the state.</li> <li>- Public-Private Partnerships (partnered with the Reinvestment Fund, a community investment group, who leveraged the program's initial \$8 million funding pool into \$30 million, now \$120 million)</li> </ul> <p>Approach</p> <ul style="list-style-type: none"> <li>- <i>The Need for More Supermarkets</i> (2001) Philadelphia report used GIS mapping to show the relationship between supermarket access and health.</li> <li>- The health benefits of supermarket construction were incorporated into an economic stimulus framework.</li> <li>- City Council directed the Food Trust to convene a task force to identify policy changes to increase the number of supermarkets (series of meetings held in 2003 – 2004). Recommendations for policy change were from the Food Marketing Task Force (<i>Stimulating Supermarket Development: A New Day for Philadelphia</i>, 2004).</li> <li>- Sustained public attention within the city of Philadelphia generated interest with 3 state legislators who worked to obtain funding for the FFFI</li> <li>- In 2004, legislation was passed resulting in 1) the establishment of an economic infrastructure to operate the FFFI loan/grant program and 2) an appropriation to build.</li> <li>- The three organizations are responsible for operating the FFFI loan/grant program include The Food Trust, The Reinvestment Fund (a community development bank), and the Greater Philadelphia Urban Affairs Coalition (a community-based organization).</li> <li>- FFFI administers grants and loans eligibility determination and application process matching willing operators to communities in need.</li> <li>- FFFI works with communities and operators to find and assemble the commercial real estate needed to establish a store.</li> <li>- FFFI provides technical assistance to operators and partners with a business-community that provides workforce development assistance.</li> </ul> <p>Challenges</p> <ul style="list-style-type: none"> <li>- A strong, sound business model (as determined by the Food Trust and The Reinvestment Fund staff) and an experienced supermarket operator are both necessary for an operator application to be approved. Over the course of FFFI's history, the few (&lt;5) supermarkets that have failed to thrive have all been those that were run by inexperienced operators, whether they were community groups or individuals interested in a start-up.</li> <li>- In order to provide grant or loan assistance to supermarket operators wishing to open new stores, the level of finances available must be very high. The initial amount allocated to the FFFI by the state of Pennsylvania was \$8 million .</li> </ul> <p>Lessons Learned</p> <ul style="list-style-type: none"> <li>- Operators that are most successful are those who work closely with community groups.</li> <li>- Communities help the operator understand their needs and overcome obstacles to build the supermarket. Often, community groups are the prime movers in a given area for a supermarket initiative.</li> </ul> <p><b><i>Program example from RWJ/CDC Early Assessment of Programs and Policies to Prevent Childhood Obesity Program Summary Report</i></b></p>
Shaw Supermarket	Shaw's Supermarket is a full service supermarket within a retail plaza (Dwight Place) in a low- and moderate-income neighborhood of New Haven, CT. Shaw's Supermarket is the result of an effort to revitalize a neighborhood's economic base; creating jobs and tax revenue, while increasing access to quality, healthy food.

Program	Description
	<p><b>Components</b></p> <ul style="list-style-type: none"> <li>- Creation of an income generating nonprofit organization (Greater Dwight Development Corporation-GDDC)</li> <li>- Community buy-in and support</li> <li>- Construction of the supermarket</li> <li>- Ongoing training and employment of local residents</li> <li>- Network of community partnerships to support economic and social goals</li> </ul> <p><b>Resources</b></p> <ul style="list-style-type: none"> <li>- The initial organizational funding came from a \$1.3 Million dollar grant secured by Yale University and the GDDC in the early 1990s.</li> <li>- Project funding for Dwight Place included \$2.35 Million in equity investments from Local Initiatives Support Corporation (LISC)/ The Retail Initiative (RTI), along with a recoverable grant of \$325,000. This leveraged a \$1 Million grant from the State of Connecticut and bank financing of \$12.5 Million.</li> </ul> <p><b>Approach</b></p> <ul style="list-style-type: none"> <li>- This neighborhood revitalization initiative grew out of a grass roots movement started by six women that lived in the neighborhoods. These women started the Greater Dwight Development Corporation (GDDC) that was incorporated in 1994.</li> <li>- GDDC has a 13-member board made up of people that live in the community, a member from Yale University, and other community stakeholders. It remains a hands-on, grass-roots organization that values and seeks collaboration and sustainability.</li> <li>- Other partners involved in building and/or maintaining Shaw's include members from Yale University, LISC, The Retail Initiative (TRI), Special Services District (a Community Development Corporation or CDC), Neighborhood Revitalization Zone, Police, Neighbors, CA White Company, and Shaw's Advisory Group.</li> <li>- Planning for the supermarket started in 1996 and the store was built in 1998. In the first phase of development, GDDC was in a partnership with a for-profit developer. After completion and initial operation, GDDC bought out the for-profit developer.</li> <li>- The store has been in business for 10 years. Among the chain of Shaw's supermarkets, the one in Dwight Place is one of the best performing stores in terms of sales, and was cited as being the most customer-friendly of all the Shaw's stores. In 2006, Shaw reported a sale/square foot ratio of \$471/SF.</li> <li>- The GDDC owns the property and leases it to Shaw's and the other retail tenants in the plaza. It provides hands-on management of Shaw's and other tenants to ensure a clean, inviting shopping environment that is welcoming and respectful of community shoppers.</li> <li>- GDDC is active on the Food Policy Council and in local committees in order to connect the Shaw's supermarket to community resources and needs.</li> </ul> <p><b>Challenges</b></p> <ul style="list-style-type: none"> <li>- Shaw's Supermarket has about 150 employees. About 80% of these are neighborhood residents and 40 have full-time positions with the store. Staff turnover was high initially but turnover has leveled off because the store has an ongoing training program and has a good nucleus of workers.</li> <li>- A slowing commercial real estate market has made refinancing and recapitalizing more difficult than initially expected.</li> </ul> <p><b>Lessons Learned</b></p> <ul style="list-style-type: none"> <li>- Planning for the supermarket involved door-to-door canvassing of households by Yale University School of Management students and staff to determine resident priorities, focus groups of neighborhood residents to determine ethnic and general food preferences, and community conversations and meetings between police, residents, the developer, and other stakeholders about how to build a safe and vibrant store. Information gathered from focus groups was key in creating a sense among community members that they had input in the process. The involvement of police, active in the community policing movement, was another unique piece to this initiative.</li> </ul>

Program	Description
	<ul style="list-style-type: none"> <li>- Community partnerships are a vital asset in carrying out such large-scale and comprehensive approaches.</li> <li>- The role of the non-profit with community roots is a key ingredient to connecting the retail development of Shaw's to the public health goals related to quality food access and supply.</li> </ul> <p><i>Program example from RWJ/CDC Early Assessment of Programs and Policies to Prevent Childhood Obesity Program Summary Report</i></p>

## Resources

### Other Program Examples:

- *Policy Link: Healthy Food Retailing* provides descriptions of the following supermarket programs: <http://www.policylink.org/EDTK/HealthyFoodRetailing/ToolInAction.html>.
  - West Fresno Food Maxx Supermarket
  - Rural America: Limited Food Access in a Land of Plenty
  - Harlem's Pathmark Supermarket
  - Project 5000: Reclaiming Land for Grocery Stores
  - The Food Trust and Pennsylvania's Legislation to Finance Fresh Food Markets in Underserved Communities
- *Supermarket Access in Cambridge* provides a program example of how to form a small resident committee to work with the store operator to receive complaints, monitor responses, and make suggestions: [www.ci.cambridge.ma.us/cdd/cp/zng/super/super.html](http://www.ci.cambridge.ma.us/cdd/cp/zng/super/super.html).

### Tool Kits & Informational Documents

- The food environment can be assessed using community food assessment instruments to determine adequacy of healthy food accessibility, availability, and affordability. Such instruments include: USDA's Community Food Assessment Toolkit (<http://www.ers.usda.gov/publications/efan02013/>); the Michigan Department of Community Health's Nutrition Environment Assessment Tool (<http://mihealthtools.org/neat/>); and Emory University's Nutrition Environments Measures Survey (<http://www.sph.emory.edu/NEMS>).
- *PolicyLink: Grocery Store Attraction Strategies: A resource for community activists and local governments* describes coordinated strategies that bring together resources and leadership of local government and local community-based organizations that have been successful in attracting new stores in a wide range of communities across the country  
PolicyLink and Local Initiatives Support Corporation:  
[http://www.policylink.org/documents/groceryattraction\\_final.pdf](http://www.policylink.org/documents/groceryattraction_final.pdf).

- *PolicyLink: Equitable Development Toolkit: Healthy Food Retailing* provides an online tool that focuses on increasing access to retail outlets that sell nutritious, affordable food in underserved communities through three strategies: developing new grocery stores, improving the selection and quality of food in existing stores, and starting and sustaining farmers' markets:  
[http://www.policylink.org/site/c.lkIXLbMNJrE/b.5137405/k.6042/Healthy\\_Food\\_Retailing.htm](http://www.policylink.org/site/c.lkIXLbMNJrE/b.5137405/k.6042/Healthy_Food_Retailing.htm).
- Flourney, R. & Treuhaft, S. (2005). *Healthy food, healthy communities: improving access and opportunities through food retailing* describes the ten steps of a coordinated effort to attract new stores in underserved areas that have been successful. Oakland, CA: Policy Link. Available online at: <http://www.policylink.org/Research/HealthyFood/>.
- *Food Trust's* mission is to ensure that everyone has access to affordable, nutritious food. The Food Trust works on initiatives to improve food access, education and marketing campaigns to help consumers improve their health, and public policies to advance these initiatives. See the Food Trust's *Fresh Food Financing Initiative* that provides grants, low-interest loans, and training and technical assistance to improve or establish stores in underserved areas: <http://www.thefoodtrust.org/php/about/index.php>.
- *Policy Institute: Strategic Alliance - ENACT* (Environmental Nutrition and Activity Community Tool) is a hands-on assessment and planning tool for organizations, coalitions, and communities interested in improving their food and physical activity environments. ENACT contains a menu of strategies that promote healthy eating and active living within each of its seven environments. The link for "Attracting grocery stores to underserved areas through financial and regulatory incentives" is:  
[http://www.preventioninstitute.org/sa/enact/neighborhood/supermarkets\\_underserved.php](http://www.preventioninstitute.org/sa/enact/neighborhood/supermarkets_underserved.php).

## STRATEGY 2: IMPROVE AVAILABILITY OF HEALTHIER FOODS IN EXISTING SMALL STORES IN UNDERSERVED AREAS

### *Description/Definition*

Most low income communities without supermarkets generally contain a base of smaller grocery stores, specialty stores, ethnic markets, corner stores and convenience stores. Of these, most interventions have been conducted at corner stores. These stores are often small (400 to 4000 square feet) and are frequently the only available food resource for residents with limited or no access to cars. Corner stores that have historically provided meat, produce, and dairy products have increasingly become liquor, cigarette and snack food outlets. These stores generally charge higher prices than supermarkets, because they are unable to get bulk rates due to their smaller volume of goods. In addition, it is more likely that corner store merchandise will become dated due to slower stock turnover. Store owners stock the items they know will sell in their neighborhoods instead of

buying a broad mix of products. The higher prices also may reflect that they have a captive market of customers unable to shop elsewhere [67].

Upgrading existing small stores to facilitate adequate space and storage for increasing healthier food options may be required. Other small store interventions to promote and increase the availability of healthier foods include the stocking of healthier foods, the use of in-store communication materials that direct people to healthier foods, and the implementation of cooking demonstrations and taste tests.

### ***Rationale***

Studies in adolescents and adults have found that supermarket access is associated with a lower prevalence of overweight and obesity and that access to convenience stores is associated with a higher prevalence of these measures of weight status [52, 54, 56]. Factors related to dietary intake of healthier foods include geographic accessibility of food stores (e.g., the distance to stores or store density) and in-store availability of healthier foods such as fruits and vegetables. For example, Bodor and colleagues [58] found a positive association of vegetable intake when geographic access of small stores was within 100 m of a residence, as well as a 0.35 serving increase of vegetable intake with each additional meter of in-store shelf space.

Interventions to increase the availability and affordability of healthier foods in low-income communities by improving supply and upgrading small store facilities are feasible to implement [68, 69] and result in increased sales of healthier foods [70]. Multi-component strategies such as increasing shelf space, prominently displaying healthier products, and promoting healthier foods were utilized in these small store-based intervention studies [68-70].

### ***Evidence of Effectiveness***

A review article of the epidemiologic evidence that examined the implications of neighborhood differences in access to food found that healthier diets and lower levels of obesity were associated with better neighborhood access to supermarkets and limited access to convenience stores [53]. While corner store-based nutrition interventions have emerged as a potential strategy to increase healthy food availability in low-income communities, few evaluation studies exist. The Baltimore Healthy Stores trial (which used in-store promotion and on-site education to encourage selection of healthier foods) resulted in an increase in the availability and sales of healthier food items; this increase was sustained six months post-intervention [69, 70].

In addition, unpublished evaluations of interventions to improve food retail have also shown promising results. Evaluation of an intervention to improve fruit and vegetable offerings and promote healthy foods at small ethnic stores (tiendas and bodegas) found that customers shopping at the intervention stores increased their consumption of fruits and vegetables compared to those shopping at the non-intervention stores [71]. New York City initiative designed to address the issues of quantity, quality, display, and distribution of fruits and vegetables at bodegas showed improvements in the sale of fruits and vegetables, an increase in



the variety of fresh produce offered, and an increase in the quantity of fresh produce offered [72].

### ***Key Considerations***

- Improving existing small stores takes far less time and money, and requires fewer steps than building a new store in the community.
- Improving existing small stores is an economic development strategy to support small businesses and it can help build relationships between local merchants and residents and contribute to community revitalization.
- The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) vendors are required by the new federal rules to stock their shelves with an array of products including fruits and vegetables, low-fat dairy products, whole grains, and soy foods. Thus, anyone shopping at a WIC-authorized store will have access to these healthy foods. This creates a strong incentive for stores in low-income areas to carry these healthier food items
- Conducting formative research (that includes assessment of community food sources, resident demographics, information about foods people eat and where foods are purchased, types of foods stocked at stores, and sales data) can help to understand the food consumption patterns of residents as well as store owners' perception of the demand for healthier foods [69].
- Store owners have small profit margins; therefore incentives to store owners are essential to support the initial stocking of healthier food items and reduce the concern that products will not sell.
- Providing taste tests give customers the opportunity to sample healthier food options despite the challenges of finding satisfactory time and space constraints [69].
- Store manager and employee support, as well as training related to marketing, customer service, and storage of perishable food items, is key to the success of the intervention.

### ***Action Steps***

1. Urge store owners to foster a healthier food environment by:
  - Stocking healthier foods such as low-fat milk and dairy products, fresh fruits and vegetables, and whole grain foods.
  - Promoting healthier foods in storefront ads, at the cash register, on shelves and cooler doors rather than less healthy products including sodas and other sugar sweetened beverages, alcoholic beverages, and cigarettes.
  - Encouraging customers to try healthier food through reduced-price campaigns and taste testing of products.
  - Collaborating with other neighborhood stores to leverage their collective buying power or linking with local farmers' markets to purchase produce directly.

2. Provide training to small store owners on how to select, store, and maintain fruits and vegetables. This training could also include information about equipment needs for stores to stock these perishable items.
3. Subsidize the purchase of new equipment and initial healthier foods while store owners test local demand for the food.
4. Provide training and technical assistance to small stores in underserved areas to become a WIC-authorized store that provides foods included in the new WIC food package such as fruits and vegetables, low-fat dairy products, whole grains, and soy foods. WIC food vouchers that list these foods create a strong incentive for stores in low-income areas to carry these healthier food items.
5. Identify program champions to help promote policies and legislation at all levels that offer retailers incentives like grants, low-interest loans, and tax exemptions and credits for the enhancement of existing stores to improve the availability and affordability of healthier foods in underserved communities.

### ***Program Example***

Program	Description
Baltimore Healthy Stores	<p>The Baltimore Healthy Stores (BHS) program promotes healthier food choices through store promotions and on-site education at point-of-purchase.</p> <p>Components</p> <ul style="list-style-type: none"> <li>- Availability of promoted foods</li> <li>- Print materials in stores (posters and shelf labels)</li> <li>- Coupons and incentive cards</li> <li>- Taste test and other interactive activities</li> </ul> <p>Resources</p> <ul style="list-style-type: none"> <li>- The BHS program was led by Johns Hopkins Bloomberg School of Public Health working in partnership with the Baltimore City Health Department and community organizations. The project was funded by the USDA, Food Assistance and Nutrition Research Program.</li> </ul> <p>Approach</p> <ul style="list-style-type: none"> <li>- The formative assessments were conducted in 11 of the 200 census tracts in East and West Baltimore. These assessments included: 1) selection of healthier foods to promote; 2) an assessment of food resources available in the community, 3) interviews with store owners regarding what foods are purchased in their stores, and 4) sometimes interviews with food suppliers related to food distributions systems for healthy foods such as fruits and vegetables. Results from the formative assessment were used to create the BHS program.</li> <li>- BHS was implemented in seven Korean American owned corner stores and two supermarkets representing the main type of food establishment in East Baltimore. East Baltimore is a low-income community with a large minority population. The feasibility study was over a ten month period from February to November 2006.</li> <li>- The selection of foods for promotion was based on a two step process. First, dietary recalls were conducted from community members to identify foods that contributed the most fat, sugar, and total calories to the diet. Then, community workshops were conducted to identify alternative healthy foods to replace the high energy dense foods.</li> <li>- Shelf labels, posters, fliers and other print materials were used to promote the healthy options in stores.</li> <li>- The intervention was divided into 5 phases that focused on specific foods and food behaviors that were of 2 months duration. The 5 phases included healthy breakfast, cooking at home, healthy snacks, carry-out, and healthy beverages. During selected phases, limited numbers of incentive cards and coupons were given to customers to increase the initial demand.</li> <li>- Store owners were provided nutrition education sessions to enable them to identify nutritious foods and were given incentives to stock the healthier foods.</li> </ul>

Program	Description
	<ul style="list-style-type: none"> <li>- Interventionist visited each store regularly to conduct taste tests, distributed food samples, fliers, and giveaways, and interacted with customers to explain the educational message for that phase.</li> </ul> <p>Challenges</p> <ul style="list-style-type: none"> <li>- Shelf labels were found to be incorrectly located on many occasions after external vendors had rearranged food stocks.</li> <li>- Coupons and incentive cards were weakly implemented and were used by few store customers.</li> </ul> <p>Lessons Learned</p> <ul style="list-style-type: none"> <li>- The interventionist working with Korean store owners was also Korean and developed a trust with store owners which may have resulted in their high level of cooperation with the intervention.</li> <li>- The small incentives to store owners to purchase the promoted foods were essential in terms of initiating the stocking the healthier food items.</li> <li>- Space constraints in stores can make it challenging to offer, taste test and interactive sessions on promoted foods, however they have high attendance and appear to led to increased sales.</li> <li>- Results indicate that a small food store-based intervention that promotes healthier food choices through store promotions and on-site education at point-of-purchase is feasible to implement and results in increased availability of healthier foods.</li> </ul> <p><b>Program example from Gittelsohn, J., et al., <i>Process Evaluation of Baltimore Healthy Stores: A Pilot Health Intervention Program With Supermarkets and Corner Stores in Baltimore City.</i> Health Promotion Practice 2009.</b></p>

## Resources

### Other Program Examples

- Healthy Stores website includes case studies for the Apache Healthy Stores, Baltimore Healthy Stores, and Marshall Islands Healthy Stores: [www.healthystores.org](http://www.healthystores.org).
- New York City Healthy Bodegas Initiative is a partnership between the New York City Department of Health and Mental Hygiene, Physical Activity and Nutrition program and local bodegas owners to expand the availability of healthier food choices in Harlem, South Bronx, and Central Brooklyn: [http://www.nyc.gov/html/doh/html/cdp/cdp\\_pan\\_hbi.shtml](http://www.nyc.gov/html/doh/html/cdp/cdp_pan_hbi.shtml).
- California Food Policy Advocates report “Neighborhood Groceries: New Access to Healthy Food in Low-Income Communities” includes a case study of the School Market corner store that was upgraded with facilities to enable them to carry fresh produce and a wider range on health foods: <http://www.cfpa.net/reports/link.html>.
- Hartford Food System administers the Healthy Food Retailer Initiative, a partnership with 40 corner markets and bodegas that have agreed to shift 5% of their junk food inventory to healthier groceries in exchange for grassroots outreach and technical assistance: <http://www.hartfordfood.org>.

## Tool Kits & Informational Documents

- *PolicyLink: Equitable Development Toolkit: Healthy Food Retailing* provides an online tool that focuses on increasing access to retail outlets that sell nutritious, affordable food in underserved communities through three strategies: developing new grocery stores, improving the selection and quality of food in existing stores, and starting and sustaining farmers' markets:  
[http://www.policylink.org/site/c.lkIXLbMNJrE/b.5137405/k.6042/Healthy\\_Food\\_Retailing.htm](http://www.policylink.org/site/c.lkIXLbMNJrE/b.5137405/k.6042/Healthy_Food_Retailing.htm).
- *The Good Neighbor* program of Literacy for Environmental Justice (LEJ), in San Francisco, CA, provides local merchants with concrete economic incentives to engage in health promoting practices. As a Good Neighbor participant, corner store owners agree to increase their stock of fresh fruits and vegetables and diminish advertising for alcohol and tobacco. Good Neighbor incentives for store owners include free advertising, business training, in-store healthy cooking demonstrations, and Good Neighbor branding. The LEJ Good Neighbor Best Practices Guide lays out the steps for a community to establish a corner store conversion program: <http://www.lejyouth.org/programs/food.html>.
- *Healthy Corner Stores Network* has compiled a list of resources that cover a range of topics related to improving access to healthier foods through work with small stores and corner stores: <http://www.healthycornerstores.org>. Click on "Resources."
- *The Healthy Corner Store Initiative*, a project of the Food Trust of Philadelphia, aims to improve the food environment in low-income Philadelphia communities through an integrated approach of assistance to corner store owners, social marketing, nutrition education, and research:  
<http://www.thefoodtrust.org/php/programs/corner.store.campaign.php>.
- *Policy Institute: Strategic Alliance -ENACT* (Environmental Nutrition and Activity Community Tool) is a hands-on assessment and planning tool for organizations, coalitions, and communities interested in improving their food and physical activity environments. ENACT contains a menu of strategies that promote healthy eating and active living within each of its seven environments.
  - The link for *Incentives for Store Owners* provides information about incentives to small storeowners in underserved areas on how to carry healthier food items, such as fresh produce:  
<http://www.preventioninstitute.org/sa/enact/neighborhood/shopkeepers.php.2>.
  - The link for *Store Displays* describes policies to encourage food stores to adopt family-friendly policies that promote healthy products and restrict unhealthy marketing:  
[http://www.preventioninstitute.org/sa/enact/neighborhood/store\\_displays.php](http://www.preventioninstitute.org/sa/enact/neighborhood/store_displays.php).
- *Changes in the WIC food packages: A Toolkit for partnering with Neighborhood Stores.* This new toolkit provides a range of tools and strategies for advocates to identify and work with prospective WIC vendors, and to help these retailers upgrade their offerings in accordance with the new, healthier WIC food packages:  
[http://healthyplanning.org/WIC\\_toolkit/WIC\\_Toolkit.pdf](http://healthyplanning.org/WIC_toolkit/WIC_Toolkit.pdf).

- *Healthy Corner Stores: The state of the movement* is a report by Public Health Law & Policy that describes success and challenges of early corner store interventions, and identifies steps for developing sustainable models:  
[http://healthyplanning.org/HealthyCornerStores\\_StrategicPlan.pdf](http://healthyplanning.org/HealthyCornerStores_StrategicPlan.pdf).

## IV. SCHOOL

Approximately 55 million school-aged children are enrolled in schools [73]; therefore schools have a unique opportunity to help students adopt healthier lifestyles through the provision of information, tools, and strategies; or through the restructuring of social and physical environments so that making healthier lifestyle choices is easier for the students. The Division of Adolescent and School Health (DASH) at CDC has reviewed scientific evidence of school-based policies and practices to determine which are most likely to improve health behaviors among the student population. DASH identified ten strategies to prevent obesity within the school setting [74]. One of those ten strategies has the potential to include a variety of policies or programmatic approaches that would help to diminish the availability or consumption of high energy dense food items within the school environment. This strategy is described in detail below.

### STRATEGY: ENSURE THAT STUDENTS HAVE ONLY APPEALING, HEALTHY CHOICES IN FOODS AND BEVERAGES OFFERED OUTSIDE OF THE SCHOOL MEALS PROGRAM

#### *Description/Definition*

Foods and beverages available to students that are not part of the National School Lunch Program (NSLP) or the School Breakfast Program (SBP) are referred to as *competitive foods*. Competitive foods are offered at schools via vending machines, a la carte lines, school stores, concession stands, after-school programs, fundraising campaigns, and class parties. Thus, these channels substantially increase student access to high energy dense foods. Establishing and implementing policies that limit high energy dense foods and that increase access and availability of low energy dense foods (such as fruits and vegetables) are being conducted at the state, district and school levels in an effort to prevent and reduce obesity of school-aged children [74].

#### *Rationale*

Studies evaluating the impact of competitive foods on nutritional intake of students have generally found that competitive foods are associated with less favorable eating practices [75-77]. For example, in one study, the number of a la carte foods available was negatively

correlated with the amounts of fruits and vegetables that students consumed [75], and another found that students buying competitive foods consumed more sugar-sweetened beverages and high fat vegetables (such as French fries and tater tots) than they had when they were in elementary school and only had access to school lunches [76].

In the 2004-05 school year, 40% of children consumed at least one food item per day sold outside the NSLP or SBP, and this was most commonly a high energy dense food [78]. Nearly half of all high schools, a quarter of all middle schools, and 12% of elementary schools allowed students to purchase high energy dense foods during the school lunch period [79]. Making fruits or vegetables available to students whenever food was offered or sold was only required by 4% of states and 7% of districts [79].

School nutrition policies provide a framework for coordinating the school environment so that making healthier eating choices can be easy for students [80, 81]. Federal legislation now requires that local educational agencies (that receive funds through USDA Child Nutrition Programs) establish local school wellness policies [82]. Minimum requirements for these policies include goals for nutrition education, nutrition guidelines for all foods available, guidelines for reimbursable school meals, evaluation of the school policy, and community involvement of parents, students, and school administrators [82].

### ***Evidence of Effectiveness***

In a recent review of 18 studies examining school food and nutrition policies, implementation of nutrition guidelines and price modifications impacted intake and availability of foods [83]. Specifically, nutrition guidelines resulted in decreases of fat of the school menu items and increased availability of fruits and vegetables. Price incentives that lowered the cost of low fat foods showed increased sales of low-fat snacks and fruits and vegetables [83]. Policies that restricted access to and availability of high energy dense snacks were inconclusive [83]. More recent studies, not included in this review, have also confirmed the positive effect of nutrition policies on food behaviors of students [84, 85].

Few studies have evaluated the effect of improving the school food environment on weight or weight status. Foster and colleagues [86] determined that a multiple component school-based intervention was effective for preventing *overweight* among school-aged children (grades 4 to 6). The incidence and prevalence of *obesity* was not different between intervention and control schools, however [86].

### ***Key Considerations***

- The manual “Making it Happen! School Nutrition Success Stories” [87] identifies a number of considerations for creating and implementing school nutrition.
- Tailoring policies to specific schools, districts or states will be most effective.
- School nutrition policies work best when aligned with physical activity policies as a part of a coordinated school health policy.

- Competitive foods affect revenue, i.e., schools that limit competitive foods get more money from federal school meals reimbursement.
- Groups interested in nutrition policy can assist efforts through their political influence and should be consulted throughout the policy creation and implementation process.
- Consider multiple ways to offer appealing fruits and vegetables to students, for example, establishing a farm to school program. Appealing produce can serve as a replacement for foods of high energy density.

### **Action Steps**

The approaches defined by “Making It Happen! School Nutrition Success Stories,” [87] provide steps to ensure that students have appealing, healthy choices in foods and beverages offered outside of the school meals program. These steps can be adapted specifically for energy density and include the following:

1. Establish strong nutrition standards for competitive foods such as those recommended by IOM [30].
2. Revise existing food and beverage contracts so that only healthier food options are available to students.
3. Make more healthful foods and beverages available.
4. Adopt marketing techniques to promote healthful choices.
5. Limit student access to competitive foods.
6. Use fundraising activities and rewards that support student health.

### **Program Examples**

Program	Description
Aptos Middle School	<p>The program removed foods of minimal nutritional value and high fat foods from cafeteria meals. High-fat/high sugar foods were also removed from the a la carte line and fresh, healthier foods of appropriate portion sizes were substituted.</p> <p>Components</p> <ul style="list-style-type: none"> <li>- Make more healthful foods and beverages available.</li> <li>- Establish nutrition standards for competitive foods.</li> </ul> <p>Resources</p> <ul style="list-style-type: none"> <li>- Dedicated parent and teacher volunteers</li> <li>- Support from the superintendent of schools</li> </ul> <p>Approach</p> <ul style="list-style-type: none"> <li>- A committee that included teachers and parents was formed to reach consensus on appropriate food changes for Aptos Middle School.</li> <li>- A student survey was conducted to determine children’s food preferences for the a la carte lines.</li> <li>- In collaboration with a cafeteria supervisor, the committee researched ways to make</li> </ul>



	<p>healthier versions of the foods that students wanted in the a la carte lines.</p> <ul style="list-style-type: none"> <li>- Fruit options were expanded.</li> <li>- The pilot plan of Aptos Middle School has now been implemented at the district level.</li> <li>- A district-wide student nutrition and physical activity committee was formed to develop a plan to improve school foods.</li> </ul> <p>Challenges</p> <ul style="list-style-type: none"> <li>- Finding food suppliers and manufacturers that would adapt products to meet the nutrition committee's standards</li> <li>- Finding affordable, healthier options</li> </ul> <p>Lessons Learned</p> <ul style="list-style-type: none"> <li>- A la carte sales are similar to what they were before the implementation of changes, however, net revenues have increased.</li> <li>- It is important to educate students on what changes are realistic with regards to budget, space and personnel. For example, students indicated in the survey that they would like to have smoothies, but staff members were not able to purchase the ingredients for smoothies at an affordable price.</li> <li>- In a pre-planning survey, students identified nutritious foods they want to buy, such as more fresh foods.</li> <li>- Cafeteria staff will work hard to make changes.</li> <li>- Electronic meetings made reaching consensus quick and easy.</li> </ul> <p><b><i>Program example from Wojcicki JM and Heyman MB. Healthier choices and increased participation in a middle school lunch program: Effects of nutrition policy changes in San Francisco, American Journal of Public Health, 2006;96:1542-1547; and FNS/USDA/CDC. Making It Happen! School Nutrition Success Stories. United States Department of Health and Human Services and United States Department of Education, 2005: Alexandria, VA.</i></b></p>
Texas Public School Nutrition Policy	<p>The statewide policy was designed to promote a healthful school environment for Texas students. The policy sets caloric limits for high fat and sugar snacks (200 kcal per package), sets guidelines for fat content of foods served (including limiting the fat content of milk to 1%), and limits the frequency of high fat vegetables (e.g., French fries).</p> <p>Components</p> <ul style="list-style-type: none"> <li>- Make more healthful foods and beverages available.</li> <li>- Establish nutrition standards for competitive foods.</li> </ul> <p>Resources</p> <ul style="list-style-type: none"> <li>- Unfunded mandate</li> </ul> <p>Approach</p> <ul style="list-style-type: none"> <li>- A statewide nutrition policy was mandated in 2004.</li> <li>- Districts were notified by the Texas Department of Agriculture.</li> <li>- Periodic food service reviews are conducted to monitor implementation.</li> </ul> <p>Challenges</p> <ul style="list-style-type: none"> <li>• Need for consistent policy and environmental conditions across all school levels, for example, middle school students who gained access to school snack bars consumed fewer healthy foods compared with the previous school year, when they were in elementary schools and only had access to lunch meals served at school.</li> <li>• Need for clear communication to and support from key stakeholders (e.g., parents, school staff, students)</li> <li>• Smaller districts may have more barriers associated with the bidding and food contract process and availability of alternative products that meet policy standards.</li> </ul> <p>Lessons Learned</p> <ul style="list-style-type: none"> <li>- After policy implementation, fewer high fat vegetable foods were served by cafeterias.</li> <li>- Sales of baked chips increased after policy implementation and sales of large bags of chips decreased.</li> </ul> <p><b><i>Program example from Cullen KW and Watson KB. The impact of the Texas public school nutrition policy on student food selection and sales in Texas. American Journal of Public Health, 2009;99:706-712. Doi:10.2105/AJPH.2007.129387.</i></b></p>

## Resources

### Other Program Examples

- *Making it Happen! School Nutrition Success Stories* provides a collection of success stories describes approaches that schools, districts, or states have used to improve the nutritional quality of foods offered at school: [www.cdc.gov/HealthyYouth/MIH](http://www.cdc.gov/HealthyYouth/MIH).
- *The Fresh Fruit & Vegetable Program*, USDA provides funding for free fruits and vegetables to low-income schools in all 50 states and some territories: <http://www.fns.usda.gov/cnd/FFVP/FFVPdefault.htm>.

### Tool Kits & Informational Documents

- *Nutrition Standards for Food in Schools: Leading the Way Toward Healthier Youth* recommends nutritional standards for the availability, sale and consumption of foods at school: [www.IOM.edu/CMS/](http://www.IOM.edu/CMS/).
- *Nutrition Standards for Foods in Schools Fact Sheets* provides information for students, school staff, and parents to use to support strong nutrition standards consistent with the Institute of Medicine's recommendations: <http://www.cdc.gov/Healthyyouth/nutrition/standards.htm>.
- *Fit, Healthy and Ready to Learn: A School Health Policy Guide* helps schools and districts develop and implement policies on nutrition, physical activity and health: [www.nasbe.org/HealthySchools/fithealthy.mgi](http://www.nasbe.org/HealthySchools/fithealthy.mgi).
- *School Health Index* is a self-assessment and planning tool for schools to use to determine strengths and weaknesses of school health policies, curricula, and services: [www.cdc.gov/HealthyYouth/SHI](http://www.cdc.gov/HealthyYouth/SHI).
- *Changing the Scene: Improving the School Nutrition Environments* provides a tool kit that focuses on multiple facets of the nutrition environment of schools, such as school meals, competitive foods, nutritional education and nutrition marketing: [www.fns.usda.gov/TN/resources/changing.html](http://www.fns.usda.gov/TN/resources/changing.html).
- The *Dietary Guidelines for Americans, 2005* provides dietary advice for health promotion and reduction of chronic disease risk: <http://www.health.gov/dietaryguidelines/dga2005/document/pdf/DGA2005.pdf>.

## V. CHILDCARE

Approximately 1 of every 4 children (26.2 %) aged 2 to 5 years in the United States are either overweight or obese [88]. About thirty-three percent of preschool children under the age of 6 years are enrolled in child care centers for at least one day and an average of 25 hours per week [89].

A recent study that examined diet quality trends among preschool children aged 2 to 5 years found that although dietary quality improved slightly between 1977 and 1998, the total energy intake increased, as did added sugars and excess juice consumption. Consumption of grains, fruits, and vegetables improved but were still well below recommended levels [90]. Child care centers are ideally positioned to improve young children's nutrition by providing healthier foods and by educating children, parents, and teachers about the importance of healthier eating habits. Child care centers can introduce children to a variety of healthier foods including fruits and vegetables. These eating experiences early in life shape dietary preferences and may affect the quality of nutrition throughout childhood [91].

Strategies used in child care centers include curriculum-based strategies to improve knowledge and skills, strategies to implement policies and enhance state regulations that support child care environments to foster healthier eating, and strategies that combine both curriculum and environmental change.

### STRATEGY 1: EXPAND CURRICULUM-BASED STRATEGIES THAT SUPPORT NUTRITION STANDARDS

#### *Description/Definition*

Curriculum-based interventions can be used to support implementation of policies and regulations to improve nutrition standards in child care facilities. Curriculum-based interventions that help increase children's recognition of fruits and vegetables and increase their willingness to try healthier foods such as fruits and vegetables are most effective when policies and regulations are also implemented to increase the availability of these foods in the child care facility. Curriculum-based interventions in child care that improve knowledge and a child's willingness to try healthier foods may include:

- Activities that provide children with “hands on” learning opportunities, including preparing and sampling healthy foods
- Parent component including newsletters and homework assignments for parents
- Parent education with a focus on interactive cooking lessons and recipes that fit the topic of the lesson such as fruits and vegetables, low-fat foods, caloric intake, and portion size of foods
- Staff training on the importance of healthier eating for young children as well as for staff

## ***Rationale***

Eating experiences early in life shape dietary preferences and may affect the quality of nutrition throughout childhood [91]. Because children develop food and nutrition-related attitudes during the preschool years, the child care setting is an important setting in which to teach nutrition, offer nutritious foods, and opportunities to try new foods. Curriculum-based interventions can be used to support the implementation of policies and regulations to improve nutrition standards in child care facilities. Examples of curriculum that support a larger policy or environmental change effort include *Color Me Healthy* (part of the North Carolina statewide Eat Smart, Move More program), *New Eat Well Play Hard* (part of Article 47 of the New York City Code) and *Healthy Habits for Life* (part of the Nemours Health and Prevention Services 5-2-1- Almost None program).

## ***Evidence of Effectiveness***

A review of interventions for prevention of heart disease found that multi-component preschool interventions that combine curriculum and environmental change were effective in the promotion of heart healthy behaviors and in the improvement of nutrition and health knowledge [92]. In addition, one study showed that children's knowledge about healthier eating was improved with the use of the *Color Me Healthy* curriculum by child care providers in North Carolina. Seventy-nine percent of participating child care providers reported an increased willingness of children to taste new foods, and 82.0% reported that fruit and vegetable recognition had improved [93].

## ***Key Considerations***

- Nutrition education experiences provided to young children should be fun and provide for multiple and varied attempts to present children with new food items.
- Staff in child care centers may need training prior to implementation of a healthy food curriculum.
- It is important to involve parents in the decisions made around curriculum at the center. Parents can strengthen the messages being conveyed, and they may influence the foods being served at home.

## ***Action Steps***

1. Identify and modify (as needed) a curriculum that is integrated with nutrition standards in schools.
2. Provide training for child-care providers related to curriculum that support nutrition standards.

3. Provide support and tools for the assessment of education and availability healthier foods in child-care centers.
4. Engage parents in the nutrition curriculum taught at child care facilities so that they can reinforce healthy eating practices when children are not in child care. Activities can include providing adequate information on what their child is learning and offering recipe ideas.
5. Incorporate curriculum and environmental change concepts that promote healthier foods into existing state-wide child-care conferences or meetings.
6. Partner with business, government, and community organizations to finance activities including partnering with local distributors to provide healthier foods including fresh fruits and vegetables to child-care centers.

### *Program Examples*

Program	Description
Eat Well Play Hard	<p>Eat Well Play Hard in Child Care Settings (EWPHCCS) is a multi-component intervention in low-income, CACFP-participating child-care settings throughout the state of New York. This intervention focuses on improving the nutrition and physical activity behaviors of 3–4 year old children and their parents/caregivers and influencing the food and activity environment in child care settings.</p> <p>Components</p> <ul style="list-style-type: none"> <li>- Training for RDs to implement the intervention</li> <li>- Training for childcare center teachers, administrators, and staff (NAP SACC modules)</li> <li>- Child curriculum</li> <li>- Parent/primary caregiver classes</li> <li>- Center assessment (NAP SACC tool)</li> <li>- Technical assistance to child care providers</li> <li>- Consistent nutrition messages that include increase consumption of fruits and vegetables, increase consumption of low-fat or fat free milk and increase physical activity</li> <li>- Partnerships with Child Care Resource and Referral Agencies (CCR&amp;Rs), the New York City Department of Health and Mental Hygiene, USDA Supplemental Nutrition Assistance Program Education (SNAP-Ed), NY Child Care Licensing Agency, NYS Child Care Coordinating Council, and academic institutions</li> </ul> <p>Resources</p> <ul style="list-style-type: none"> <li>- The EWPHCCS intervention was developed by nutritionists in the New York State Child and Adult Care Food Program (NYS CACFP) in 2005 with funding from the United States Department of Agriculture (USDA).</li> <li>- Primary funding for EWPHCCS is provided by SNAP-Ed. In addition, NYSDOH provides the program with match money, some of which directly funds EWPHCCS.</li> <li>- At the community level, EWPHCCS is implemented by Child Care Resource and Referral Agencies (CCR&amp;Rs) and the New York City Department of Health and Mental Hygiene (NYCDOHMH). They provide resources, training and support to child care centers.</li> </ul> <p>Approach</p> <ul style="list-style-type: none"> <li>- The EWPHCCS project provides funding to six CCR&amp;Rs and NYCDOHMH who hire Registered Dietitians (RDs) to implement a curriculum designed for pre-school aged children and their families.</li> <li>- RDs attend an interactive two and a half day training session conducted by CACFP, after which they are ready to implement the intervention in low-income child care centers.</li> </ul>

Program	Description
	<ul style="list-style-type: none"> <li>- Child care centers eligible to receive the intervention are those in which 50% or more of families served are eligible for free or reduced-price meals.</li> <li>- Child lessons include ten curriculum modules designed to last 20-30 minutes. The activities provide children with “hands on” learning opportunities, including preparing and sampling healthy foods and age-appropriate physical activities. At the end of each lesson, children take home a newsletter which introduces their families to the lesson of the day, and includes a recipe, activities, and suggestions for extending the lesson to the home.</li> <li>- In parent/primary caregiver classes, the RDs utilize the EWPHCCS curriculum to teach the families of preschool children corresponding lessons about nutrition and physical activity; each lasts about 30-60 minutes.</li> </ul> <p>Challenges</p> <ul style="list-style-type: none"> <li>- It can be a challenge to identify state local match funding,</li> <li>- Parents often find it difficult to make the time to attend classes and they do not see an added benefit to attending the workshops,</li> <li>- Child care centers are hard to schedule. For some RDs, it can take several attempts to reach a center to schedule a good time to implement,</li> <li>- Each child care center environment is different and some have more space for lessons and activities than others.</li> </ul> <p>Lessons Learned</p> <ul style="list-style-type: none"> <li>- Keys to success include <ul style="list-style-type: none"> <li>o Childcare organizational leadership and commitment for this intervention at the federal (USDA), state, and community levels</li> <li>o Formative work to better understand the target audience’s needs</li> <li>o Systems in place to monitor the fidelity of program implementation</li> <li>o Ongoing, quarterly trainings for RDs on EWPHCCS and ways to enhance the program’s delivery and their services</li> <li>o Starting parent sessions after children’s sessions have already begun at centers because children are good advertisers</li> <li>o Flexible and client-centered lessons</li> <li>o Always provide food, whether it’s prepared during the lesson or not, because it is a good incentive,</li> <li>o Going to child care centers in advance of program implementation to advertise what EWPHCCS is and encourage parents to attend.</li> </ul> </li> </ul> <p><i>Program example from RWJ/CDC Early Assessment of Programs and Policies to Prevent Childhood Obesity Program Summary Report.</i></p>

## Resources

### Other Program Examples

- *Eat Well Play Hard in Child Care Settings* (EWPHCCS) is a multi-component intervention in low-income, CACFP-participating child care settings throughout the state of New York: [http://www.health.state.ny.us/prevention/nutrition/cacfp/ewphccs\\_curriculum/index.htm](http://www.health.state.ny.us/prevention/nutrition/cacfp/ewphccs_curriculum/index.htm). Also, see the University of North Carolina Center of Excellence for Training and Research Translation (Center TRT) website for a description of the Eat Well Play Hard intervention: <http://www.center-trt.org/index.cfm?fa=opinterventions.intervention&intervention=eatwell&page=overview>.

- *Color Me Healthy* is a curriculum to improve physical activity and fruit and vegetable intake among preschoolers. Training and technical assistance materials can be found here: <http://www.colormehealthy.com/professional/index.html>. Also, see the University of North Carolina Center of Excellence for Training and Research Translation (Center TRT) website for a description of the Color Me Healthy intervention (<http://www.center-trt.org/index.cfm?fa=opinterventions.intervention&intervention=cmh&page=intent>).

### Tool Kits & Informational Documents

- *Healthy Habits for Life* is a resource kit for pre-kindergarten teachers that promotes healthier eating and guidance for nutrition and physical education practices: <http://static.nemours.org/www-filebox/nhps/hhfl-eng.pdf>.
- *Fruits & Vegetables Galore* is a tool for school foodservice professionals containing tips on planning, purchasing, protecting, preparing, presenting and promoting fruits and vegetables: [http://www.fns.usda.gov/tn/Resources/fv\\_galore.html](http://www.fns.usda.gov/tn/Resources/fv_galore.html).
- *USDA Fruit and Vegetable Resources* contains information, activities and recipes for child care providers to promote more fruits and vegetables in the diets of children: [http://healthymeals.nal.usda.gov/nal\\_display/index.php?info\\_center=14&tax\\_level=3&tax\\_ssubject=264&topic\\_id=1363&level3\\_id=5164](http://healthymeals.nal.usda.gov/nal_display/index.php?info_center=14&tax_level=3&tax_ssubject=264&topic_id=1363&level3_id=5164).
- *USDA Food and Nutrition Service Resources for Childcare Providers* contains tips, activities and materials to increase children's fruit and vegetable consumption: <http://www.fns.usda.gov/tn/childcare.html>.

## STRATEGY 2: ENSURE THAT REGULATIONS, POLICIES AND LEGISLATION AT ALL LEVELS PROMOTE HEALTHIER FOODS

### *Description/Definition*

Each state develops and enforces its own child care licensing requirements. Most states license two classes of child care facilities: child care centers and family child care homes. Child care centers care serve more children and typically have more employees than family child care homes. Family child care homes are located in the residence of the owner and operator of the child care facility, who is often the provider of care. Many states further divide family care homes into small family child care homes typically for six or fewer children, and large family or group child care homes typically for seven to twelve children cared for by two providers in the provider's home. States usually have separate regulations for each type of child care setting. In addition, local jurisdictions may have the power to regulate child care facilities and expand policies and practices that exceed state minimum requirements. The Head Start programs that



provide child care are not covered by state licensing because they are subject to the federal Head Start Program Performance Standards [94].

### ***Rationale***

Eating experiences early in life shape dietary preferences and may affect the quality of nutrition throughout childhood [91]. Child care centers are well-positioned to provide the opportunity for children to develop healthier eating behaviors [94]. A comprehensive review of state licensing regulations in all 50 states and the District of Columbia conducted in 2006 found that nutrition regulations varied from state to state, within each state, and by the type of child care setting [94]. Overall the child care centers were the most heavily regulated and had the most specific regulations, followed by large family homes and then by small family homes. The most common nutrition regulation (occurring in 29 states) was for child care providers to follow the requirements established in the federal Child and Adult Care Food Program (CACFP) or similar meal program [94]. In addition, foods of low nutritional value are prohibited or limited in twelve states, but only Michigan and West Virginia require child care center menus to be consistent with the *Dietary Guidelines for Americans* [94].

Many child care facilities depend on CACFP to defray their food expenses, and many parents, especially low-income working families depend on these settings for a substantial portion of their children's nutritional intake [95]. The CACFP has meal pattern requirements modeled on those established for the National School Lunch Program and School Breakfast Program [96]. The types of foods that can be offered at each meal and snack period are specified, as well as the appropriate portion sizes for various age groups. The CACFP meal pattern does not include specific nutrient standards. However, the Food and Nutrition Service (FNS) is currently having the Institute of Medicine review the CACFP meal patterns to make recommendations based on the current science and the *Dietary Guidelines for Americans*. These recommendations will be made to FNS by the end of 2010 and will then be used by FNS to update the meal pattern regulations to improve nutrition standards and to ensure that all children are eating healthy foods during the time they are in child care.

Some states and local jurisdictions are actively improving the nutrition standards specified in their child care licensing requirements. Some actions can be done more easily without increasing costs, while others will require additional funding and effort. Reviews of current regulations can determine where cost effective and feasible improvements can be made. The Delaware CACFP and Nemours Health and Prevention Services collaborated to adopt new best practice standards and policies to improve food and beverage offerings by all licensed child care providers [97], and some local jurisdictions such as New York City have used their regulatory power to regulate child care facilities under their jurisdiction.

### ***Evidence of Effectiveness***

Research to assess the nutrition quality of foods in child care settings is limited, and most studies have examined providers using CACFP [96]. A nationally representative study of child care facilities found that meals and snacks offered by CACFP potentially provided children with more than one-half of the recommended dietary allowance (RDA) for energy and more than two-thirds

of the RDA for key nutrients [98]. In a review that also examined smaller studies, menus in child care settings often had a high fat content and recommended vegetable servings were provided rarely [96]. The only published study that has evaluated the impact of a nutrition policy and environmental change intervention in child care centers is the Nutrition and Physical Activity Self-Assessment for Child Care (NAP SACC) intervention [99]. NAP SACC is an environment and policy intervention that uses self-assessment by childcare centers and technical support provided by local health consultants to effect changes in the policies, practices, and environment for healthier eating and regular physical activity of children in childcare. Child care centers that received the NAP SACC intervention improved their nutrition and physical activity policies and practices more than comparison facilities. Improvements from baseline for the nutrition score were statistically significant [99]. An evaluation study of the Nemours multi-component intervention that coupled improved nutrition and physical activity standard with provider education resulted in improvement of these practices in 81% of the child care centers included in the study [100].

### ***Key Considerations***

- Except for the federal Head Start program, child care program policies differ considerably from state to state. More uniform and stronger performance standards would help to ensure that all children are eating healthy foods during the time they are in care.
- Improvements in child care nutrition and physical activity standards may occur through legislative or regulatory action at the appropriate state or local level. Some local jurisdictions such as New York City and Pinellas County Florida have used this regulatory power to regulate child care facilities under their jurisdiction.
- Providing training to child care providers on best practice nutrition standards such as the Delaware Best Practices for Healthy Eating: A Guide to Help Children Grow Up Healthy may provide the buy-in from staff that is needed to successfully implement the policy.
- Providing information and training to parents on nutrition policy may prove useful and necessary to obtain parental buy-in. Trainings for parents can be held and/or fliers can be distributed on the nutrition policy to gain their support.
- Conducting a self-assessment of the child care center or home using tools such as NAP SACC can effect changes in policies, practices, and the environment of the center or home.

### ***Action Steps***

1. States should review and revise child care regulations on a regular basis to ensure that regulations reflect healthier food and beverage standards that are consistent with the Dietary Guidelines for Americans.
2. Encourage child care providers to conduct self-assessments of their center or home to identify improvements that they can make in their policies, practices, and/or environment.

3. Include nutrition and feeding policies and practices in the orientation for new employees in child care settings and in certification education requirements for child care providers.
4. Partner with business, government, and other community organizations to support child care policy changes that may require additional funds or more cost effective strategies such as partnering with a local distributor to offer fresh fruit or vegetables.
5. Encourage child care providers to determine if they are eligible for the USDA Child and Adult Care Food Program (CACFP) to help with food costs and menu planning.
6. Encourage child care providers to provide information to parents on the nutrition policies and practices and include a policy about foods brought from home.

### Program Examples

Program	Description
Nemours Health and Prevention Services (NHPS) and Delaware Child and Adult Care Food Program (CACFP) and Office of Child Care Licensing (OCCL) –Nutrition Policy	<p>Multi-level approach to implementing policies and practice changes that will support young children in licensed child care settings to eat healthier meals and participate in moderate to vigorous physical activity.</p> <p>Components</p> <ul style="list-style-type: none"> <li>- Training for all CACFP sponsors on the <i>Best Practices for Healthy Eating</i> guide.</li> <li>- Developed and implemented new child care policy regulations based on the Best Practices Guidelines.</li> <li>- Learning collaborative model to support long term sustainable policy and practice changes was used.</li> <li>- Development of tools for teachers to use with infants, toddlers, and preschoolers on healthy eating habits, reduced screen time, and physical activity in the classroom.</li> </ul> <p>Approach</p> <ul style="list-style-type: none"> <li>- NHPS and the Delaware CACFP collaborated in a year-long process to adopt new best practice standards and policies for the state of Delaware. <ul style="list-style-type: none"> <li>• In the first step towards policy change, NHPS and CACFP co-authored <i>Best Practices for Healthy Eating: A Guide to Help Children Grow Up Healthy</i>, which was disseminated through NHPS training with all of the CACFP sponsors in August 2007, and again in March 2008.</li> <li>• Using feedback information, the CACFP and NHPS were able to create new policy regulations based on the <i>Best Practices Guidelines</i>.</li> </ul> </li> <li>- As of July 1, 2008, the CACFP has implemented new policies that include the following: <ul style="list-style-type: none"> <li>• Only 100% fruit juice may be served, and only one serving per day is allowed. No juice is allowed for infants under one year of age.</li> <li>• Only low-fat (1% or non-fat) milk may be served to children over two years of age.</li> <li>• Calories from fat are limited to no more than 35% of total calories.</li> <li>• Calories from sugar are limited to no more than 35% of total calories.</li> <li>• In Delaware, OCCL regulations governing nutrition abide by the CACFP regulations; therefore, all child care programs must follow the CACFP standards.</li> </ul> </li> <li>- CACFP has implemented these new policies with a six-month grace period before enforcement.</li> </ul> <p>Resources</p> <ul style="list-style-type: none"> <li>- NHPS provided two trainings to all of the CACFP sponsors as well as development and dissemination of the <i>Best Practices for Healthy Eating: A Guide to Help Children Grow Up Healthy</i> and additional training materials.</li> </ul> <p>Lessons Learned</p>

Program	Description
	<ul style="list-style-type: none"> <li>- After obtaining feedback, child care programs found that many of the “Best Practices” were not difficult to implement and generally were cost neutral. Using this information, the CACFP and NHPS were able to create new policy regulations based on the <i>Best Practices Guidelines</i>.</li> </ul> <p><i>Program example from <a href="http://static.nemours.org/www-filebox/nhps/grow-up-healthy/child-care-progress-report-2008.pdf">http://static.nemours.org/www-filebox/nhps/grow-up-healthy/child-care-progress-report-2008.pdf</a></i></p>
Nutrition and Physical Activity Self-Assessment for Child Care (NAP SACC)	<p>The program targets child care policy, practice and environmental influences on nutrition and physical activity behaviors in young children [99].</p> <p>Components</p> <ul style="list-style-type: none"> <li>- Organizational Self-assessment</li> <li>- Goal Setting and Action Planning</li> <li>- Continuing Education for Child Care Providers</li> <li>- Skill Building Activities</li> <li>- Technical Assistance and Consultation</li> </ul> <p>Approach</p> <ul style="list-style-type: none"> <li>- Extensive formative work with stakeholder groups (child care providers, parents, and experts in the field) informed the development of the intervention.</li> <li>- Child care directors or other lead staff assess the strengths and weaknesses of healthy eating practices and regular physical activity in the child care facility using an organizational assessment of 14 areas of nutrition and physical activity policy, practices and environments to identify the strengths and limitations of the child care facility.</li> <li>- Each participating facility sets goals for organizational change and develops a plan for improving areas in greatest need and/or in areas where staff are most ready and willing to make such changes.</li> <li>- A series of five workshops are provided to child care providers aimed at increasing their knowledge of the relationship between nutrition, physical activity and the development of healthy weight in children, and guidelines and strategies for overcoming barriers to organizational change.</li> <li>- The intervention imbeds skill-building activities in each continuing education workshop to allow staff to increase their confidence (self-efficacy) to make both personal lifestyle changes and organizational changes.</li> <li>- NAP SACC Consultants promote problem solving, link child care facilities to community resources, assist staff as needed, and support organizational change.</li> <li>- Consultants follow-up with child care facilities by phone, email, or in-person to assess progress and document/reinforce positive changes and develop plans for continuous quality improvement.</li> </ul> <p>Resources</p> <ul style="list-style-type: none"> <li>- Based on the NC experience, approximately .0375 FTE of healthcare professional time over a 6-month period (1.5 hours/week) is required to address (or accommodate) each participating child care facility.</li> <li>- Training on implementation of NAP SACC is available in a web-based format free of charge. It takes approximately four hours to complete training (see Resource section below for website).</li> <li>- The cost of materials depends on the number of consultants and facilities that participate in the intervention.</li> </ul> <p>Lessons Learned</p> <ul style="list-style-type: none"> <li>- NAP SACC relies on trained consultants, familiar with child care facilities, to implement the intervention. Consultants who will be working with child care facilities should complete four-hours of web-based training on implementation of the intervention, nutrition, physical activity and healthy weight in young children.</li> <li>- Training is highly recommended to increase the confidence of the consultants and to promote implementation of the core elements of the intervention.</li> <li>- Consultants can recruit child care facilities to participate in the intervention by letter, phone, or in-person.</li> <li>- The intervention can be fully implemented in about six months; however, child care</li> </ul>

Program	Description
	<p>facilities may continue to use NAP SACC as part of quality improvement.</p> <p><i>Program example from University of North Carolina Center of Excellence for Training and Research Translation (Center TRT) website for a description of the NAP SACC intervention (<a href="http://www.center-trt.org/index.cfm?fa=opinterventions.intervention&amp;intervention=napsacc&amp;page=intent">http://www.center-trt.org/index.cfm?fa=opinterventions.intervention&amp;intervention=napsacc&amp;page=intent</a>)</i></p>

## Resources

### Other Program Examples

- New York City Amendments to the NYC Health Code. In 2006, the NYC Department of Health and Mental Hygiene requested that the Board of Health amend various provisions relating to operations of day care services regulated by Article 47 of the Health Code. Section 47.37 (b) updated in order to address the current environment of obesity and the need for guidance on appropriate kinds of foods and portion sizes for children: [http://www.frac.org/pdf/nyc\\_cacfp\\_childcare\\_nutrphysact\\_law.pdf](http://www.frac.org/pdf/nyc_cacfp_childcare_nutrphysact_law.pdf).
- Best Practices for Healthy Eating Nemours Health and Prevention Services and Delaware's Child and Adult Care Food Program have developed a best practice nutrition guide to help young children in DE child care develop healthier eating habits early in life <http://www.nemours.org/departments/nhps/child-care/healthy-habit.html>.
- NAPACC is an environment and policy intervention that uses self-assessment by childcare centers. The NAP SACC website includes training and technical assistance materials (<http://www.napsacc.org/>). Also, see the University of North Carolina Center of Excellence for Training and Research Translation (Center TRT) website for a description of the NAP SACC intervention (<http://www.center-trt.org/index.cfm?fa=opinterventions.intervention&intervention=napsacc&page=intent>). and online training module (<http://www.center-trt.org/index.cfm?fa=webtraining.napsacc>).

### Tool Kits & Informational Documents

- National Network for Childcare contains nutrition and diet resources ranging from best practices, to meals and snacks and mealtime behavior: [http://cyfernet.ces.ncsu.edu/cyfdb/browse\\_2pageAnncc.php?subcat=Nutrition+and+Diet&search=NNCC&search\\_type=browse](http://cyfernet.ces.ncsu.edu/cyfdb/browse_2pageAnncc.php?subcat=Nutrition+and+Diet&search=NNCC&search_type=browse).
- Issue briefs published by the University of Washington Center for Public Health Nutrition highlight the importance of child care in obesity prevention efforts. The briefs offer practical strategies and policy recommendations developed with input from child care professionals, child care health consultants, national experts, and others: <http://depts.washington.edu/uwcpnh/work/child/childcare.html>.

- *Creating a Comprehensive State Early Childhood Advisory Council* provides information on how to develop these councils to improve the coordination of programs and services for young children and their families: <http://www.nga.org/Files/pdf/0905ECACFAQ.PDF>.
- *Technical Assistance – Toolkits* published by the Robert Wood Johnson Foundation Center to Prevent Childhood Obesity includes a Childcare Settings and Childhood Obesity Prevention Toolkit. The toolkit includes a list of resources related to policy and environmental changes in childcare settings: <http://www.reversechildhoodobesity.org/content/technical-assistance-toolkits>.

## VI. WORKPLACES

Sixty-five percent of adults and teens (16 years and older) are employed in the United States [101]. Thus, the workplace provides an opportunity for implementing healthier behaviors and preventing chronic diseases in this large segment of the population. Obesity is a significant issue in the workplace with 39 million lost workdays and 239 million restricted activity workdays due to obesity [102]. Realizing the economic and human toll of obesity and other health problems, many employers encourage physical activity, healthier eating, and improved health management through various health promotion and disease prevention programs. In addition, healthful changes in the workplace environment can result in positive changes in social norms surrounding dietary choice [103, 104]. These strategies create opportunities for action and remove barriers to following a healthier diet, thereby encouraging positive nutritional behaviors. Such strategies include increasing availability and promotion of healthier foods in the on-site cafeterias and vending machines as well as price reduction of healthier foods at these locations. The input of individuals from all levels of the organizational hierarchy, including senior management and employees, as well as those involved in foodservice is essential in the success of these environmental interventions [105].

### STRATEGY: PROMOTE HEALTHFUL FOODS AT WORKPLACE CAFETERIAS, IN WORKPLACE VENDING MACHINES, AND AT MEETINGS AND CONFERENCES

#### *Description/Definition*

There are often various places to purchase or consume food in the workplace setting, such as workplace cafeterias, vending machines, break rooms, and at meetings or conferences. Therefore, a number of opportunities exist within the workplace to implement policy and environmental strategies that promote healthier eating for employees. In addition to serving as a convenient place to purchase food, the workplace cafeteria serves as a place where employees can take short breaks away from the office to rest and relieve stress [106]. Some foods can also be conveniently purchased from workplace vending machines. However, the proximity and



convenience of vending machines can be a problem in the workplace because these are usually stocked with high-calorie, high-fat snacks. Nutrition should also be considered when planning meals or snacks for meetings and other work place events. The Working Well Trial showed that only 14% of workplaces have catering policies which consider healthier foods at meetings and other company events [105]. Consumption of healthier foods at the workplace can be encouraged by:

- establishing procurement policies that increase the availability of healthier foods
- providing nutritional information or healthier product labeling
- reducing the price of healthier foods
- establishing policies that guide foods served at meetings and conferences

### ***Rationale***

The Working Well Trial showed that approximately 32% of U.S. workplaces have cafeterias within the premises and more than one third of workers feel that workplace cafeterias are conducive to healthier eating habits [105]. A lack of access to healthier foods was cited as the most common barrier to healthy eating at work [107]. In a survey among nurses, 53% of respondents thought that healthier eating was not supported at their workplace [108].

Approximately half of the American workforce purchases lunch at least twice a week, and a quarter of the employees usually visits workplace cafeterias and sandwich shops [109]. Thus, on-site eating establishments within the workplace pose significant opportunities for the promotion of healthier eating. Workers in many industries spend as much as 60% of their waking hours at work and the food options available to them at the workplace have a great impact on their health [110]. Healthy food options are limited at many worksites, especially for those who work nightshifts as most cafeterias are closed through the night [108, 111, 112]. Thus, vending machines are often the only source of readily available food for these workers. When surveyed, workers often cite convenience as the most important factor in determining lunchtime food purchase followed by taste, cost and health [109]. Close to 50% of workers always or often choose low-fat and healthier foods when options are available, and women and college graduates are more likely to make healthier food choices [109].

Approximately three-quarters of all U.S. workplaces have vending machines within the premises [105] and approximately 85% of the items in vending machines are less healthy consisting of high-fat and high-calorie choices [113]. A survey of nurses indicated that 74% of these individuals regularly purchase foods from vending machines in their workplace [108] and it has been estimated that close to 5% of workers regularly purchased lunch from vending machines [109] and only 13% of vending machine representatives post nutritional labels [105].

Increasing the number of healthier food choices in vending machines and labeling the healthier food items, has been shown to promote the sales of these items [105, 114, 115]. Because convenience is often the determining factor in food purchases, refrigerated vending machines with a variety of high quality nutritional foods such as fruits, vegetables and yogurt could have a



great impact on the eating habits in workplaces. These vending machines can be especially helpful in work settings where there are no other avenues to purchase food, such as during the nightshift and at workplaces where cafeterias and other food outlets are not proximally located.

### *Evidence of Effectiveness*

Studies have shown that combined environmental and individual/family worksite interventions are effective for improving healthier eating behaviors [116, 117]. Additionally, availability and promotion of healthier foods often results in an improvement in customers' perceptions of the quality of the food establishment [118].

It is unclear whether selective (e.g., only low calorie or healthier meal selections) labeling of specific foods or meals in cafeterias results in increased selection of healthier foods. Approximately 35% of cafeterias label healthier food choices [105] and food labeling has been shown to influence choice of low-calorie salads and vegetables, but not entrees [105, 119]. A study at the Kansas Farm Bureau and Affiliated Services (KFB) employee cafeteria showed that customers are more accepting of modified sodium and fat entrees when these entrees are labeled and accompanied by a marketing campaign which informs them of the health benefits of these changes [120]. However, sales data did not change over a 7-month time period. Other studies have also shown that even though a majority of the cafeteria customers report noticing the labels, there is no effect of nutritional labeling on food selection, even when combined with increased availability of healthier foods and nutrition education [121, 122]. In the FoodSteps Intervention, information sheets listing the number of minutes that a task needs to be performed to burn the calories from various foods were placed near foods in a workplace cafeteria. Even though there was an increase in social support towards eating less fat, self reported consumption of fruits, vegetables and fat did not change [104].

Price reduction by 20%-50% of healthier foods in the workplace cafeteria has been shown to positively influence the selection of these food items especially when combined with nutrition education and increased availability of healthier food options [123, 124]. This is often accompanied by a reduction in consumption of less healthy foods.

Increasing the number of healthier food choices in vending machines and labeling the healthier food items, has been shown to promote the sales of these items [114]. This is often accompanied by the placement of posters and signs on the vending machines which encourage the selection of the labeled items. When price is not modified, total revenue from sales do not change with the replacement of some less healthy foods with low-fat foods [115]. However, price reduction of healthier food items by 25%-50% is an effective way to promote low-fat foods in vending machines, resulting in up to a 93% increase in the sales of these items [125, 126].

## ***Key Considerations***

- Cafeteria programs can encourage healthier eating by making it more convenient and economical while maintaining or improving the taste and appearance of healthier foods.
- Product placement should be considered in cafeteria programs. Healthier items should be placed in high traffic areas and should also replace the unhealthy items that are typically placed at cafeteria checkout lanes to entice impulse buying.
- Price reduction programs should consider the implication of revenues and profits that are generated by the cafeteria. In order to sustain price reduction programs, alternate sources of revenue can be created such as finding sources of external funding or increasing the price of less healthy foods.
- The cost of purchasing, maintaining and frequently stocking refrigerated vending machines must be considered.
- Healthier foods should be strategically placed at eye-level within vending machines. However, in refrigerated machines this can sometimes be a challenge. Healthier items such as yogurt and fresh fruits which need refrigeration are often placed on shelves in the lower levels of these machines as this area is usually at a cooler temperature than the higher shelves.
- If promoted well, vending machines which carry healthier snacks can attract health conscious customers who normally do not consider purchasing from vending machines.
- Lowering the prices of healthier items in vending machines can result in increased sales volumes and any loss of revenue due to price reduction can potentially be off set by increasing the price of less healthy food items (as long as a minimal volume of less healthy foods are still sold).

## ***Action Steps***

1. Develop sample nutritional guidelines that employers can readily adopt for use in workplace cafeterias or vending machines. The policy could include nutrition criteria, pricing strategies, percentages of healthy foods required in vending machines, and promotion strategies.
2. Train food service personnel on procurement of healthier foods (such as fruits and vegetables as part of a farm-to-work program).
3. Train food service personnel to adapt recipes to alter the nutritional quality of foods served, i.e., to lower the energy content of recipes and to increase the nutritional content by adding fruits and vegetables (which will also lower the energy density of foods).
4. Develop and disseminate a list of locally available vending suppliers who carry healthier vending items. The list can also note items meeting the criteria for a healthy vending program and also vendors' willingness to replace traditional vending machines with refrigerated vending machines so that selections such as yogurt, fresh fruits and healthier sandwiches (e.g., turkey on whole wheat bread) can be included.
5. Create point of sale icons, including nutrition labels, to identify healthier options in workplace cafeterias and vending machines.

## Program Example

Program	Description
Healthy Food in Hospitals program of NC Prevention Partners	<p>The purpose of this program is to increase availability, visibility and affordability of healthy foods in the hospital cafeteria for employees and visitors. The program reached approximately 10,000 customers per week. Overall sales increased by 4.4%, with significant increases for sales of healthy items, although the number of customers decreased by 2.5%.</p> <p>Components</p> <ul style="list-style-type: none"> <li>- Increase access to healthy foods by defining 'healthy' and using contract negotiations to ensure healthy foods are provided.</li> <li>- Label items with nutrition information and icons.</li> <li>- Use pricing to promote healthy items.</li> <li>- Use benefits and employee education channels to prepare staff for changes and encourage lifestyle change.</li> </ul> <p>Approach</p> <ul style="list-style-type: none"> <li>- Focus groups consisting of hospital employees were invited to discuss their opinion about the hospital cafeteria and availability of healthy choices at the cafeteria.</li> <li>- Participants pointed out that there was a lack of healthy options at the cafeteria and that healthier foods cost more than less-healthy foods.</li> <li>- These comments were utilized by the FirstFit committee to implement policy changes. The food service management team worked with FirstFit and NCPP to develop the criteria for "healthy" foods.</li> <li>- Healthier foods were made more available and prices for healthier foods were lowered while prices of less healthy foods were raised.</li> <li>- Sales data from the quarter prior to the policy implementation as well as four quarters after the implementation of the policy were collected.</li> </ul> <p>Resources</p> <ul style="list-style-type: none"> <li>- The Healthy Food Environments Team of NC Prevention Partners developed this program in collaboration with FirstHealth of the Carolinas, with support from The Duke Foundation and partnership with the NC Hospital Association. The project will be rolled out to more than 130 acute care hospitals in NC.</li> <li>- FirstHealth Moore Regional Hospital volunteered to serve as the Center of Excellence and the intervention site.</li> <li>- A special contract was negotiated with the food service provider whereby any loss in revenue would be reimbursed to the food service management company by the health system. No reimbursement was necessary due to the overall increase in revenue.</li> </ul> <p>Lessons Learned</p> <ul style="list-style-type: none"> <li>- Gaining executive-level support is critical to environmental policy change.</li> <li>- Working through a cross-setting multi-level collaborative wellness team ensures effective communication and greater employee buy-in.</li> <li>- Developing an action plan gives the wellness team short and long-term goals and clear steps to achieving those goals.</li> <li>- Mapping success and publicly sharing hospital policies creates positive peer pressure for policy adoption.</li> </ul> <p><i>Program example from Susanne Schmal, University of North Carolina – Chapel Hill, Center for Health Promotion and Disease Prevention (personal correspondence, 2009).</i></p>
Vending Intervention for University of Virginia Health System	<p>This program designated calorie and saturated fat standards for vending machine products within the University of Virginia (UVA) Health System.</p> <p>Components</p> <ul style="list-style-type: none"> <li>- Snacks and beverages were color-coded according to the following criteria: <ul style="list-style-type: none"> <li>o Items were labeled with red stickers if they contained more than 200 calories or had a saturated fat content of 10.1%.</li> <li>o Items were labeled with yellow stickers if they contained 141 to 200 calories or had a saturated fat content of 5.1% to 10.0%.</li> <li>o Items were labeled with green stickers if they contained 140 calories or less or had</li> </ul> </li> </ul>

Program	Description
	<p>a saturated fat content that was less than 5.0%.</p> <ul style="list-style-type: none"> <li>- Red items were “taxed” at 5 cents and proceeds of the “tax” were donated to the UVa Children’s Fitness Program.</li> </ul> <p>Approach</p> <ul style="list-style-type: none"> <li>- “Warning labels” were created for 120 vending machines within the UVa Health System.</li> <li>- Dieticians were consulted to determine the calorie and saturated fat standards for vending items.</li> <li>- Vending snacks and beverages were color-coded with red, yellow, or green stickers according to the nutrition standards associated with each.</li> <li>- Prices of snacks and beverages at the highest level (red) of caloric and saturated fat content were raised by 5 cents (approximately 8%) and this was donated to the UVa Children’s Fitness Program.</li> <li>- Signs describing the vending program were placed by all of the vending machines.</li> <li>- Changes in sales after one year were determined.</li> </ul> <p>Lessons Learned</p> <ul style="list-style-type: none"> <li>- Sales decreased 5.3% for red items.</li> <li>- Sales of yellow items increased 30.7% and those of green items increased 16.5%.</li> <li>- Total vending sales increased 8.3%.</li> <li>- \$6,700.00 was collected from the 5 cent “tax.”</li> </ul> <p><i>Program example from Garson A Jr and Engelhard CL. Attacking Obesity: Lessons from smoking. Journal of the American College of Cardiology, 2007;49:1673-1675.</i></p>

## Resources

### Other Program Examples

- *California 5 a Day- Be Active! Worksite Program* is designed to assist employers in implementing healthy dining menu standards. This program uses a check mark system to identify healthier food choices: <http://www.cdph.ca.gov/programs/cpns/Documents/CPNS-HealthyDiningMenuGuidelines.pdf>.
- *Healthier Worksite Initiative* of the Centers for Disease Control provides information for federal and state government workplace planners. It contains information, resources and toolkits for workplace health promotion: <http://www.cdc.gov/hwi>.

### Tool Kits & Informational Documents

- CDC’s *Lean Works!* (<http://www.cdc.gov/leanworks/index.html>) offers interactive tools and resources to design effective worksite obesity prevention and control programs.
- *NC Prevention Partners* (<http://www.ncpreventionpartners.org/dnn/>) offers a healthy workplace assessment to businesses to evaluate policy and environmental supports that improve health.
- *Center of Excellence for Training and Research Translation* offers information on creating a healthy food environment within the workplace using pricing incentives: <http://www.center-trt.org/index.cfm?fa=opinterventions.intervention&intervention=hfe&page=overview>.

- *New Hampshire Department of Health and Human Services Healthier Cafeteria Toolkit* provides guidelines to implement healthier options in workplace cafeterias and vending machines:  
[http://www.dhhs.state.nh.us/NR/ronlyres/eyrxyt3cyh7kh5eq2wj36wnzh7cgpn2zutkadladizzc2hahdr7mrjdtwfdunjkqojzupuoz5lwhrxka7fus2gwtmh/nhp\\_cafvending.pdf](http://www.dhhs.state.nh.us/NR/ronlyres/eyrxyt3cyh7kh5eq2wj36wnzh7cgpn2zutkadladizzc2hahdr7mrjdtwfdunjkqojzupuoz5lwhrxka7fus2gwtmh/nhp_cafvending.pdf).
- *California Fit Business Kit Tools* is a resource for workplaces to implement vending machine food and beverage standards: [http://www.takeactionca.com/docs/fit-business-kit-tools/BRO-155\\_FEB\\_2008FINAL.pdf](http://www.takeactionca.com/docs/fit-business-kit-tools/BRO-155_FEB_2008FINAL.pdf).
- *Washington Wellness Healthy Vending Machine Initiative* has tools for workplaces based on a successful and profitable vending machine program:  
[http://www.washingtonwellness.gov/resource/initiatives/nutrition\\_vending.shtml](http://www.washingtonwellness.gov/resource/initiatives/nutrition_vending.shtml).
- *Healthy Vending Guidelines Fit City*, San Antonio, Texas provides a list of healthy vending machine choices as well as the rationale behind these choices:  
<http://www.healthcollaborative.net/assets/pdf/vendingcriteria.pdf>.
- CDC's *Choosing Foods and Beverages for Healthy Meetings, Conferences and Events* ([http://www.cdc.gov/NCCDPHP/dnpa/hwi/policies/Healthy\\_Worksite\\_Food.pdf](http://www.cdc.gov/NCCDPHP/dnpa/hwi/policies/Healthy_Worksite_Food.pdf)) provides guidelines for selecting foods and beverages for breaks or meals at meetings, conferences, and other work-related events.
- University of Minnesota, School of Public Health, *Guidelines for Offering Healthy Foods at Meetings, Seminars and Catered Events* facilitate the selection of lower fat and lower calorie food and beverage options for workplace meetings and seminars:  
[http://www.ahc.umn.edu/ahc\\_content/colleges/sph/sph\\_news/Nutrition.pdf](http://www.ahc.umn.edu/ahc_content/colleges/sph/sph_news/Nutrition.pdf).
- American Cancer Society's *Meeting Well* provides guidelines for making it easy to choose healthy foods and activities at the workplace:  
[http://www.cancer.org/docroot/PED/content/PED\\_1\\_5X\\_Meeting\\_Well.asp](http://www.cancer.org/docroot/PED/content/PED_1_5X_Meeting_Well.asp).

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