Legal Preparedness for Obesity Prevention and Control: The Public Health Framework for Action

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The Centers for Disease Control and Prevention (CDC) has focused its obesity prevention and control efforts on improving population-level health. A recent Institute of Medicine report identified systems that affect population health, to include health care delivery systems, schools, businesses and employers, communities, and governmental public health infrastructure. CDC uses the public health model to engage these systems, and this process coordinates multiple settings, sectors, and jurisdictions to develop an integrated approach to identify, prevent, and control obesity. The public health approach goes beyond medical care to prioritize policy and environmental strategies that can be implemented across jurisdictional levels, in collaboration with traditional and nontraditional partners. The process ultimately produces tools, guidelines, and interventions that can be used to prevent and control obesity. In this manuscript, we provide an overview of the public health perspective on obesity, outline the public health framework for addressing obesity, and discuss the rationale for leveraging law-based efforts as a tool to accomplish the public health mission.

The Prevalence and Consequences of Obesity

Obesity is defined in adults as a body mass index (BMI) >30, and in children and adolescents (ages 2–19 years) as a BMI ≥95th percentile for age and gender. The BMI (weight in kg/height in meters²) provides a measure of weight that is adjusted for height. Obesity has become one of the most prevalent diseases in the United States. Over 34% of adults² and 16% of children and adolescents are obese.³ Numerous adverse effects of obesity occur in adults and children. Obesity increases the risk of several cancers, type 2 diabetes mellitus, and cardiovascular disease (CVD).⁵ Among obese 5–17-year-old children, over 70% have at least one additional risk factor for CVD, and almost 40% have two or more.¹⁰ Estimates suggest that obesity accounted for more than 25% of the increase in per capita medical costs between 1987 and 2001.¹¹ Obesity also appears to be associated with a variety of adverse social effects. Among women, for example, data show lower rates of marriage, reduced household income, and lower rates of graduation from college,¹² which are likely a consequence of our culture's stigmatization and the consequent discrimination directed at obese women.

Notwithstanding United States appears to be making progress in the prevention and control of obesity. In recent years, no significant increase in obesity prevalence occurred among women between 1999 through 2006,⁴ or among children and adolescents between 2003-2004 and 2005-2006.⁵ The plateau in prevalence for children and adolescents is supported by CDC’s Youth Risk Behavior Survey, which found no significant increase in obesity prevalence among high school students between 2005 and 2007.⁶ State data from Arkansas⁷ and Texas⁸ also support these findings.

The origin of the plateau in rates remains uncertain. However, CDC notes that greater public aware-
ness resulting from press and media attention to the problem likely contributed to the present leveling of obesity rates. Obesity-related media coverage more than tripled between 2000 and 2004. The effect of media coverage in decreasing risk behaviors was notably observed during the tobacco control movement. Similarly, it is plausible that increased awareness of the adverse health effects of obesity may have prompted changes in physical activity and dietary practices resulting in a plateau in rates among some population groups. As with efforts to control tobacco use, successful reduction in obesity prevalence will require environmental and policy changes that foster improved nutritional choices, reduced inactivity, and increased physical activity.

The Public Health Framework for Addressing Obesity
The CDC targets six areas that can contribute to the prevention and control of obesity. These areas are the focus of obesity prevention and control efforts because the best available evidence suggests that population-level changes in these areas may have a positive impact on adult and childhood obesity rates. In fact, promising legislative, regulatory, or policy strategies have already begun to address these areas. The six targets are:

- Increasing physical activity;
- Increasing breastfeeding;
- Increasing fruit and vegetable intake;
- Reducing consumption of high-energy density (kcal/gm) foods;
- Reducing consumption of sugar-sweetened beverages; and
- Reducing television time.

Increasing Physical Activity
Although the level of physical activity necessary to prevent obesity is uncertain, it is clear that physical activity improves a number of obesity-associated co-morbidities, such as glucose intolerance, hyperlipidemia, and elevated blood pressure. The U.S. Department of Health and Human Services (HHS) recently released the first Physical Activity Guidelines for Americans. These guidelines address the types and amounts of physical activity that provide substantial health benefits for Americans aged 6 years and older. For adults, the guidelines recommend engaging in 150 minutes of moderate-intensity physical activity or its equivalent each week. For children and adolescents aged 6–17 years, the guidelines recommend 1 hour of daily activity that is mostly aerobic, but should also include muscle-strengthening and bone-strengthening activities.

CDC's Task Force for Community Preventive Services also has recommended a number of evidence-based strategies that increase physical activity, such as point-of-decision prompts for stairwell use (versus taking an elevator), school-based physical education programs, and improvements in community design. Implementation of each of these strategies requires an environmental or policy change.

Increasing Breastfeeding
A report from the Agency for Healthcare Quality and Research has summarized research that demonstrated an association between breastfeeding and reduced risk of early childhood obesity. CDC's Guide to Breastfeeding Interventions, is designed to increase the rates and duration of breastfeeding. Among the strategies CDC recommends are changing hospital policies that reduce early and sustained contact between mothers and infants after delivery, provide infant formula rather than promote breastfeeding, or discharge mothers without lactation counseling or support.

Increasing Fresh Fruit and Vegetable Intake
A growing body of data suggests that energy density — i.e., the number of calories a food has per unit of volume or weight — may play a key role in weight regulation. Intake of low-energy-density foods, like fresh fruits and vegetables, which have fewer calories because of their high water content, increases satiety and may improve weight control. For example, 16 grapes may contain the same number of calories as 16 raisins, but are more filling because of their increased volume. Therefore, increased intake of fruits and vegetables may help prevent obesity.

One strategy to increase fruit and vegetable intake is to increase their availability. For example, the creation of farmers’ markets and community gardens in a low-income African-American neighborhood in Charlotte, North Carolina, was associated with an increase in fruit and vegetable intake. In 2003, an innovative program implemented by Kaiser Permanente in northern California led to the establishment of more than 25 local farmers’ markets at Kaiser clinics. Kaiser also began purchasing fresh fruits for use in its commissaries. As a result, this partnership supports local farmers and makes fresh fruits and vegetables available to patients and staff.

Reducing the Intake of High Energy Density Foods
The corollary of the observation that the reduction of low energy density foods are more filling and therefore less likely to lead to overconsumption is that the consumption of high energy density foods is more likely to lead to overconsumption of calories. One effort that
appears promising in the control of consumption of high energy density foods is menu labeling. A recent study found reduced intake of calories among consumers who bought food at a chain of stores that provided information on the caloric content of their products.\textsuperscript{23} To address the obesity epidemic, and to provide consumers with more information, the Board of Health of New York City adopted a regulation requiring certain restaurants to label menu items.\textsuperscript{24}

**Reducing Consumption of Sugar-Sweetened Beverages** Sugar-sweetened beverages account for a substantial proportion of caloric intake, especially among children and adolescents. For example, among 2–19-year-old youth who consume them, sugar-sweetened beverages account for 11%–16% of daily caloric intake.\textsuperscript{25} A recent agreement between the Alliance for a Healthier Generation (a partnership of the William J. Clinton Foundation and the American Heart Association) and soft drink companies limited the beverages available in vending machines in participating elementary schools to water, 8 oz of juice without added sweeteners, and fat-free and low-fat milks. The same standards applied to participating middle schools, but portion size was increased to 10 oz of juice without added sweeteners. In participating high schools, offerings were limited to no- and low-calorie drinks, light juices, and sports drinks, but the standards required that 50% of the drinks offered must be no- or low-calorie, with no more than 100 Kcal/container.\textsuperscript{26}

**Reducing Television Viewing** Television viewing has been associated with the consumption of foods advertised on television, which are generally foods of low nutritional value. Television programs in which children are at least 50% of the intended audience account for half of the food advertisement exposure for children ages 2 to 11.\textsuperscript{27} Estimates suggest that over 40% of children younger than 2 years watch TV daily, and 36% of all children 6 years and younger have a TV in their bedroom. The percentage of those with a TV in their bedroom increases with age.\textsuperscript{28} Research suggests that these factors may account for the association of television viewing with obesity in children and adolescents.\textsuperscript{29}

**Rationale for Leveraging Law-Based Efforts to Accomplish Public Health Goals**

**Approaches to Policy**

Enactment of any policy directed at a single target area is unlikely to have a major impact on obesity. For that reason, and to maximize impact on multiple population groups and across the lifespan, CDC urges the adoption of comprehensive policies that coordinate action across the target areas and can be implemented in a variety of settings. Below are examples of policy and environmental strategies that have been implemented in medical, child care, school, workplace, and community settings.

**Medical Care**

Several recent policies addressing target areas in the medical setting emphasize the potential impact that such policy and environmental strategies can have on the assessment and treatment of obesity. For example, lack of reimbursement for obesity care poses a major disincentive for medical providers to treat obesity or provide preventive counseling. Since 2004, treatment of obesity has been facilitated by the decision of the Centers for Medicare and Medicaid Services to remove from Medicare regulations any statements that obesity is not an illness.\textsuperscript{30} This change in language permits consideration, on a case-by-case basis, of reimbursement for obesity treatments that are supported by scientific evidence. In 2005, BlueCross BlueShield of North Carolina implemented policies that provide six nutrition visits per year as a standard benefit and authorize four medical visits per year for weight assessment and weight-loss care.\textsuperscript{31} In June, 2008, the National Center for Quality Assurance announced new reporting policies for the Healthcare Effectiveness Data and Information Set (HEDIS) that require medical plans to report annually the frequency with which BMI is recorded for adults and children, and the frequency with which nutrition and physical activity counseling is provided to children and adolescents.\textsuperscript{32}

**Child Care**\textsuperscript{33}

Obesity rates among children and adolescents have raised two questions: When is it appropriate to intervene to prevent or control childhood obesity? And through what mechanism and setting is this best done? In 2007, the New York City Department of Health and Mental Hygiene introduced a new regulation for group daycare centers. Because it incorporates many of the target areas, this regulation holds promise for addressing childhood obesity.\textsuperscript{34} The policy specifies that in group daycare, children younger than 2 years old should not watch television, and television viewing for children over the age of 2 years must be limited to 60 minutes/day of educational television or televised programs that promote physical activity. The policy also requires that group daycare centers provide 60 minutes/day of physical activity, eliminate sugar-sweetened beverages, and provide 1% or non-fat milk. Because the regulation addresses multiple behaviors in a setting where young children spend substantial time,
amounts of their waking hours, this regulation may contribute to the reduction or prevention of obesity.

**Schools**

According to CDC’s School Health Programs and Policies Survey data from 2000 and 2006, many school districts instituted a variety of policies affecting the sale of food products during and after school hours. These policies established standards for competitive foods sold during and after school hours, and called for increasing the provision of low-fat milks and reduced-fat yogurts, as well as reducing access to high-fat baked goods and snacks.

In Pinellas County, Florida, the licensing board overseeing daycare and after-school care programs set as a condition of licensure the provision of a minimum of 30 minutes of physical activity, 5 days/week. In 2008, the state of Florida passed a law requiring each school district to provide 150 minutes/week of physical education for students in grades K-5, and for students in the 6th grade when the school has one or more elementary grades. Beginning in 2009, school districts will have to expand the physical education requirement so that students in grades 6-8 receive 1 physical education class/day each semester. As a result, many children in Pinellas County now meet the national guideline of 60 minutes of daily physical activity.

**Workplace**

Several years ago, CDC recognized that it could serve as a model worksite by implementing and evaluating policy and environmental changes that improved nutrition and physical activity for its employees. These efforts included projects to increase stairwell usage, physical activity, and fruit and vegetable intake, promote breastfeeding, and provide healthy foods at meetings. Outcomes included the following:

- Demonstration that the promotion of stairwell use increased stair use led to a CDC policy that all new CDC buildings would have central and attractive stairwells.
- New fitness facilities and lactation rooms were built or provided at a number of CDC campuses.
- A General Services Administration contract for CDC’s main employee cafeterias was renegotiated to include healthier options.
- Weekly fruit and vegetable markets were provided on each of CDC’s major campuses.

**Community**

A growing number of communities around the country have initiated efforts to prevent or control obesity. For example, the city of Somerville, Massachusetts implemented the “Shape-Up Somerville” program that addressed multiple target areas in multiple settings. This program targeted public school students in grades 1–3 and included a variety of before, during, and after school-based interventions, and incorporated home- and community-based interventions, such as increases in low energy-density/high nutritional-value foods, reductions in high caloric-density foods, implementation of school wellness policies, and enhanced school food services. In addition, the program expanded pedestrian safety policies, instituted a walk-to-school campaign, and provided city employees with a fitness benefit. These efforts were accompanied by training in obesity prevention and control for local physicians. Although the program did not demonstrate a decrease in the prevalence of overweight among youth, significantly slower increases in BMI occurred in the targeted schools compared with control populations.

**Summary**

The activities outlined above represent early efforts to address policy and environmental change to prevent or control obesity. Many of these efforts are promising, but few have been subjected to careful evaluation to assess their impact. Legal and regulatory frameworks offer additional opportunities for sustainable policy and environmental changes to improve nutrition and physical activity, and thereby prevent and reduce obesity. The development of policies to address environments that promote obesity, and the evaluation of the impact of such policies, must become a high priority for building the evidence base for obesity prevention and control. Public health law — i.e., the laws and legal authorities that govern the assessment, application, and evaluation of law-based efforts to address a public health issue — is a useful framework to develop and implement policy and environmental strategies that will later contribute to the pool of evidence-based and promising best practices. The identification of best practices involves not only identifying the practice, but also assessing the effect of its implementation. As a noted authority on the design of interventions has stated, “To obtain more evidence-based practice, we need more practice-based evidence.”

**Note**

The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the CDC.

**References**


4. See Ogden et al., supra note 2.

5. See Ogden et al., supra note 3.


16. Id.


33. Some researchers and program officials discuss daycare and childcare activities within the schools, or alternatively, community-based settings. For purposes of this paper, we have separated the two issues.


