Obesity and Public Policy:
A Framework for Intervention

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> The central moral importance, for the purposes of justice, of preventing and treating disease and disability with effective health care services (construed broadly to include public health and environmental measures, as well as personal medical services) derives from the way in which protecting normal functioning contributes to protecting opportunity. Specifically, by keeping people close to normal functioning, health care preserves for people the ability to participate in the political, social, and economic life of their society. It sustains them as fully participating citizens—normal collaborators and competitors—in all spheres of social life.
>
> —Norman Daniels, 2001

INTRODUCTION

Obesity is certainly a public health problem—but has it also become a public policy problem that demands the attention of policymakers? Some argue that public health problems by definition are public policy problems because they affect the welfare of the entire population. Others claim that the aggregate of individual behavior that does not affect the health of others is not sufficient to raise a public health problem to the level of a public policy problem. On the other hand, sexually transmitted diseases and diseases caused or exacerbated by secondhand smoke became public policy issues when policymakers perceived that the prevalence of the behaviors was so great that they became a danger to the public. Because obesity is not a communicable disease and its impact on the health of others is limited, some policymakers claim that the "obesity epidemic" requires no public policy intervention.

The current opinions of policymakers in regard to obesity reflect their individual experiences and the social values and culture of their communities. While they may be deeply rooted, the opinions are not immutable. New information on the causes of obesity and its effect on others has the potential to change the minds of policymakers. A better understanding of the issue may result in a greater inclination among policymakers to add obesity prevention and treatment to the policy agenda.

OBESITY AS A PUBLIC POLICY ISSUE

What makes an issue a public policy problem? In answering that question, American philosopher John Dewey (1927) sought to distinguish between "the private and the public." All human acts, he said, have consequences for others. When these consequences are perceived by others, they lead to efforts to control future actions so as to secure some consequences and avoid others. Two kinds of consequences are perceived: 1) those that affect only the persons engaged in the transaction—i.e., ones that are private in nature, and 2) those that affect others beyond those immediately concerned—i.e., ones that are public. Dewey went on to say that "the public consists of all those who are affected by the indirect consequences of transactions to such an extent that it is deemed necessary to have those consequences systematically cared for." In other words, when others perceive the indirect consequences of a transaction to be significant enough to be controlled, a public problem has emerged—at least among the group that shares the perception. Public problems are typically solved by collective effort. In many cases, but not all, the vehicle for collective action is popular government.

Given this framework, obesity prevention and treatment clearly fall into the realm of public policy. While obesity is not a communicable disease threatening the health of others, it does have other consequences that society generally wishes to avoid. The next sections attempt to make the case that specific *consequences of obesity* need to be controlled. Specifically, we argue that:

- Some of the health care costs of obesity are shifted from obese individuals to non-obese individuals participating in the same health insurance pool and to society in general.
- As quasi-governmental entities, public schools have a duty to protect children in their custody from injury and illness, a duty (in regard to childhood obesity) that schools are not successfully discharging.
- Bias and discrimination against overweight individuals in health care and education create systematic disadvantages that affect these individuals' life course trajectories, resulting in their inability to compete equally.
- Racial and ethnic disparities in obesity may be the result of genetics, environment and culture. Holding minority individuals accountable for factors beyond their control—or worse yet, discriminating against them because of their obesity—is inherently unfair and contrary to the notion of equal opportunity.

The Cost of Health Care

Approximately six percent of all adult health care expenditures in the U.S. are attributable to obesity (Finkelstein, Fiebelkorn and Wang, 2004). If current obesity prevalence trends continue, by 2020 one of every four dollars spent on health care will pay for obesity-related treatment (Mokdad, Marks, Stroup and Gerberding, 2004). Approximately one-half of all obesity-related medical expenditures are attributable to Medicare and Medicaid patients.

Commercial Insurance

Non-elderly obese adults have 36 percent higher average medical expenditures and 77 percent greater average medication costs than do those of normal weight (Sturm, 2002). In most commercial health plans, the costs of insured obese subscribers who use more health services or more expensive services are subsidized by other plan members. In some cases, the price of health insurance premiums is determined, in part, by body weight status. In the group and small group markets, the additional actuarial costs of obesity are shared by other members of the covered group. Measuring height and weight to assess overweight and obesity was practiced by insurance companies long before the development of the body mass index, or BMI. Insurance companies developed the first height and weight tables in 1908 to help determine life insurance rates based on life expectancy studies (Kuchler and Ballenger, 2002).

Approximately eleven percent of Kansans are uninsured. The obesity prevalence rate among the uninsured in Kansas is not known. Because most of the uninsured have incomes below 200 percent of the federal poverty guidelines and because income is negatively associated with obesity, we may assume that the obesity rate for the uninsured is somewhat higher than that of those who have health insurance. People who are not insured still seek out and consume health care services, albeit in smaller numbers than those with insurance. When uninsured people use services and do not pay the full cost of care, the uncompensated portion of the cost is shifted to those who can pay—commercial insurers. Uncompensated care (e.g., charity care and bad debts) contributes to the high cost of commercial health insurance because commercial insurance premiums include an implicit subsidy to compensate providers who care for the uninsured.

Medicare and Medicaid

Table 1 presents an estimate in 2003 dollars of annual obesity-attributable medical expenditures for Kansas and the United States. Medicaid spending on obesity-related illnesses is approximately 22 percent of all obesity-related medical expenditures in Kansas, an estimate which may be somewhat low due to methodological and data problems with the study.

Table 1. **Estimated Adult Obesity-Attributed Medical Expenditures, 1998–2000 (Millions of Dollars)**

	Kansas		United States	
	Dollars	Percent of total	Dollars	Percent of total
Total population	$657	100	$75,051	100
Medicare population	$138	21	$17,701	24
Medicaid population	$143	22	$21,329	28

Source: Finkelstein, Fiebelkorn and Wang, 2004

The future costs related to obesity for Medicare and Medicaid can be expected to rise substantially. Researchers from the Rand Corporation examined data from 36,000 households from 1984 to 1996 and found increases in the rate of disability[1] of 54 percent among people in their 30s, 31 percent among people in their 40s, and 13 percent among people in their 50s (Lakdawalla, Bhattacharya and Goldman, 2004). The study determined that obesity was the chief cause of the increase. The authors predicted that the rise in disability among younger people could lead to future nursing home populations that are 10 to 25 percent larger and Medicare expenditures that are 10 to 15 percent higher than they would have been without the increase in disability. Because state Medicaid programs pay a substantial proportion of nursing home cost, the obesity-related costs to the program are expected to rise sharply (Hellmich, 2004).

The Cost of Obesity to U.S. Business

The effect of chronic, preventable diseases caused by obesity on the profitability, productivity and competitiveness of U.S. businesses is great. Obesity-related health problems cost U.S. businesses an estimated $13 billion in 1994, including approximately $8 billion in health insurance costs, $2.4 billion for sick leave, $1.8 billion for life insurance and nearly $1

[1] People were considered "disabled" if they could not perform activities of daily living, such as dressing themselves, or if they had limited ability to perform routines tasks such as shopping.

billion for disability insurance (DHHS, 2003). Note that this cost estimate uses data that are almost a decade old. Between that time and the present, the number of overweight and obese people has grown greatly *at the same time* that the costs of medical services and health insurance increased at startling rates. Not only is the number of overweight and obese people in the workforce greater today than in 1994, but the cost to treat each one is greater. These two forces compound the cost impact of obesity on the profitability of American businesses.

Discussion

While many economic and non-economic costs of obesity are born by overweight individuals themselves, much of the economic costs of health care related to obesity are shifted to others. People who are not obese pay higher health insurance premiums to subsidize care provided to obese members in their health plan and those without health insurance. Medicaid expenditures, financed by tax revenues, are greater than they would have been if the obesity rate of beneficiaries was lower. Obesity affects business in several ways, including lowering profitability, hampering productivity and diminishing employee pay raises and benefit expansions.

Chronic disease health risks related to obesity are preventable. The cost-shifting born by co-workers and taxpayers relative to obesity need not occur at present or more elevated levels. The marked upward trend in obesity prevalence can be reversed, but it will not be easy. "Unlike the straightforward 'don't smoke' advice," one nutrition expert has written, "the dietary message can never be 'don't eat.' Instead, it has to be the more complicated and ambiguous 'eat this instead of that,' 'eat this more often than that,' and the overall prescription 'eat less'" (Nestle, 2002). These complicated and ambiguous messages must be delivered by a variety of private and public actors, including friends and family, health professionals, educators, schools administrators, employers, community planners, food industry leaders and government officials at the federal, state and local levels. The burden of reducing the prevalence of obesity in Kansas does not fall exclusively on policymakers, but inasmuch as state and local governments benefit from reductions in obesity, they too should participate in lowering the rate.

Public Schools: Learning Environments, Food Environments

Obesity among children is a major public health problem, particularly among African American girls and Hispanic and Native American children. Former U.S. Surgeon General David Satcher said, "Today, we see a nation of young people seriously at risk of starting out obese and dooming themselves to the difficult task of overcoming a tough illness" (Squires, 1998). Seventy percent of children who are overweight at ages 10 to 13 will be obese or overweight as adults; the rate increases to 80 percent if one or more parents is overweight or obese (DHHS, n.d.). One approach for reversing the obesity epidemic is to concentrate on obesity prevention in children. Learning healthy behaviors at a young age will accrue benefits throughout the life-course of an individual. Although children learn in many different ways and in many different settings, few can doubt the power of public schools in teaching life-long lessons.

Strong associations exist between learning and health. Children with social, emotional or physical health problems are at risk for poor school performance. Social discrimination is the most immediate consequence of obesity perceived by overweight children themselves. Perceptions of social discrimination and ostracism are associated with poor self-esteem and depression (DHHS, n.d.). Children with "serious emotional disturbances" fail more classes, miss more days of school, have lower grades and have higher drop-out rates than students without such problems (Woodruff et al., 1999). To help "level the playing field" for children with weight problems and to foster good health habits for others, schools should help students develop the knowledge, attitudes and skills they need to adopt and maintain healthy lifestyles. Nutrition education from preschool through secondary school as part of a comprehensive school health program would promote better eating and better health.

Learning About Nutrition

Many U.S. school children receive nutrition education, but in very small dosages. The U.S. Department of Education reported in 2000 that 88 percent of kindergarten through fifth graders received instruction in nutrition. The average time teachers devoted to nutrition education was approximately 13 hours per school year. The same year, CDC reported that most schools at all levels required some nutrition education, but found that the time spent on nutrition lessons was much lower than the findings of the Department of Education. According to CDC, the *median* amount of time per year spent on nutrition education in elementary schools was five hours. Four

hours per year in middle school and five hours per year in high school were dedicated to nutrition education (CDC, 2001). Research suggests that longer durations of instruction, more learning components, parental involvement and changes in school meal programs improve the outcomes of nutrition instruction (Contento, Balch, Bronner, et al., 1995).

School administrators say that nutrition education is squeezed out of the curriculum by other more pressing concerns such as meeting state academic standards. Despite the limited time available to teach nutrition, some innovative schools are integrating nutrition education with reading and math curricula and displaying nutrition information on school bulletin boards.

Physical Education

Between 1991 and 1999, the percentage of high school students attending daily physical education classes declined from 42 percent to 29 percent. Like good nutrition, physical activity is linked to positive academic performance. Increased physical activity leads to higher test scores in math, reading and writing, increased concentration in class and a decrease in disruptive behavior (Action for Healthy Kids, 2003). Weight loss and maintenance relies on the balance between caloric intake and energy expended by physical activity. Providing physical activity through organized physical education classes not only improves academic performance but helps manage the weight of increasingly inactive children. The CDC (1997) recommends that daily physical education programs be made available to all students in grades kindergarten through 12 based on a written curriculum consistent with national physical education standards. The physical education program should also meet the needs of special populations of children. Yet, physical education and nutrition education classes are often the first to be cut in the face of budget reductions or increased attention to subjects that are tested in statewide and national student performance tests.

School Food Environments

Children spend the majority of their time away from home at school. During the hours they are in public schools, children are under government supervision. In this custodial role, administrators and educators are obligated to provide a safe and healthful environment. That environment extends to the foods that are provided to students.

The National School Lunch Program (NSLP) provides 28 million students daily with lunches in 99,000 schools and related organizations. As participants in this federal program, schools are required to comply with nutrition guidelines established by the U.S. Department of Agriculture (USDA). USDA estimates that over a week's time, 86 percent of basic school lunches meet the federal nutritional guidelines, at least on paper. However, the average proportion of calories from fat in school lunches exceeds the recommended level of 30 percent in more than three-fourths of schools (the national average is 34 percent) (GAO, 2003). Schools are accorded flexibility in operating their lunch programs. As a result, many school food programs have introduced "competitive foods"—foods that compete with lunches served under the program during lunch periods. Competitive foods include items such as carbonated soft drinks, candy, gum and cookies. In 2000, 43 percent of elementary schools, 74 percent of middle schools, and 98 percent of high schools had vending machines, schools stores, canteens or snack bars, and the food and beverages offered in them were often high in fat, sodium or added sugars (CDC, 2000).

The General Accounting Office conducted a study of 22 schools in preparing a 2003 report to Congress on the School Lunch Program. According to the report, "many [school] officials cited a barrier [to nutritional quality of lunches] that was more financial than dietary" (GAO, 2003). Because of children's food preferences, students will not select healthier foods and will buy fewer school lunches. The *New York Times* (Becker and Burros, 2003) reported that only one half of children choose a nutritious meal when provided options, and many of them do not eat all of it, particularly vegetables. School food services are encouraged to break even, and student meal payments make up the bulk of their revenue.[2] To keep revenue up and costs down (i.e., foods that are not nutritious are often cheaper than foods that are nutritious), school food services cater to the tastes of their patrons.

The financial implications extend beyond the lunch room. Profits from competitive foods sold in schools are a source of discretionary income that can be used to finance a variety of school and extracurricular activities. Some schools expand this source of income by granting exclusive "pouring rights" to soft drink vendors and allowing soft drink and snack food vendors exclusive rights to advertise at school athletic events. Channel One, a television network

[2] A cost-saving measure employed by school food services and encouraged by USDA is the use of surplus agricultural commodities, many of which are high in saturated fat, including beef and cheese.

especially for schools, broadcasts commercials by McDonald's, Hershey, PepsiCo, Coca-Cola and Frito-Lay.

Competitive foods in most cases have diet-related risks when they replace school meals. Additionally, they may stigmatize participation in school meal programs. The only children purchasing competitive foods are those with the money to do so. Children may perceive that school meals are primarily for poor children rather than all children and avoid them accordingly. Competitive foods also carry a mixed message: on the one hand, children are taught the value of healthy choices, but they are surrounded in the school itself by unhealthy options. The message children may be receiving is that nutrition is simply an academic exercise, and one not rooted solidly in reality. It is clear that the search for additional income by school administrators has put many children at unintended risk (USDA, 2001).

Some schools have begun to take steps to reduce these risks. They have developed recipes that lower the fat and sodium content of popular foods such as pizza and enchiladas without sacrificing taste. Some schools focus on the packaging of foods to improve their appeal. More nutritious foods are presented in ways that are similar to those of fast food restaurants. Other schools limit the items that can be sold in vending machines or when items can be purchased from vending machines. Some schools have eliminated vending machines altogether. These individual efforts to improve the school food environment have been joined by state governments. Nineteen states—Kansas is not among them—have more stringent competitive food policies than the federal (USDA) requirements (USDA, 2002).

Discussion

Since the turn of the 20th century, schools have played an implicit role, if not an explicit one, in public health. Starting in 1902, many school districts began to hire nurses "to reduce absenteeism by intervening with students and families regarding health care needs related to communicable disease" (National Association of School Nurses, 2002). This concern with prevention continues today. Before being allowed to attend, schools require that students be immunized against communicable diseases. Teachers are taught to be alert for signs of illness in their students, and state laws and school district policies across the country grant school principals the authority to send home ill children. All of these activities seek to safeguard the

school community from the spread of communicable disease—an essential public health function.

As quasi-governmental, quasi-public health organizations, public schools have a duty to protect the health and safety of the children in their charge. As learning institutions, schools have a duty to remove barriers to performance within their control that allow children to optimize their potential. In regard to obesity, offering training in good health habits and reinforcing the lesson with an environment that supports healthy eating and physical activity fulfills both duties.

Bias, Discrimination and Obesity

Clear evidence shows a pervasive bias against overweight people in several key social sectors including employment, education, health care and housing (Puhl and Brownell, 2001). The power of the bias, in some cases, may produce discrimination. No federal laws have been passed to protect obese individuals from discrimination. Michigan is alone among states in prohibiting employment discrimination on the basis of weight. A handful of cities have adopted ordinances that include weight in their definitions of unlawful discrimination (Puhl and Brownell, 2001).

The important role of health care and education in the prevention and treatment of obesity is obvious. Weight bias among health care providers and educators, therefore, is pernicious. The next two sections explore the effect of weight bias in health care and education on obese individuals.

Weight Bias in Health Care

Two studies of weight bias are particularly noteworthy. In one, 389 health professionals specializing in obesity who attended an international obesity conference were administered the Implicit Associations Tests (IAT) and a self-report questionnaire assessing explicit attitudes and personal experiences with obesity. These health professionals exhibited significant "pro-thin, anti-fat bias" and significantly endorsed implicit stereotypes of obese individuals as lazy, stupid and worthless (Schwartz, Chambliss, Brownell, Blair and Billington, 2003). In the other study, exercise science students completed a series of questionnaires to assess their attitudes toward obese individuals. The results suggested that the students possessed negative associations and

bias toward obese individuals (Chambliss, Finley and Blair, 2004). The researchers concluded, "Anti-fat bias and weight discrimination among exercise professionals may serve as barriers for physical activity participation for some obese individuals" (p. 473).

Several studies report on weight bias among health professionals more generally. In one study, physicians were asked to specify five diagnostic categories and social characteristics of patients to which they responded negatively. Obesity was the fourth most common category listed (listed by one-third of respondents), ranked below drug addiction, alcoholism and mental illness. Physicians associated obesity and other negatively perceived conditions with poor hygiene, noncompliance, hostility and dishonesty (Klien, Najman, Kohrman and Munro, 1982). A study investigating the beliefs of nurses about obesity found that noncompliance was rated as the most likely reason why obese patients did not lose weight and ineffectiveness of weight-loss programs as the least likely reason. Forty-eight percent of nurses felt uncomfortable caring for obese patients, and 31 percent said they would prefer not to treat obese patients at all. Twenty-four percent of nurses reported that caring for obese patients "repulsed" them (Hoppe and Ogden, 1997). Current evidence of weight bias among dieticians is conflicting and requires additional study (Puhl and Brownell, 2001).

In discussing implicit weight bias among health professionals, one study remarked:

> What is striking is the finding that these attitudes seem to be directed toward obese persons rather than being limited to the concept of obesity, and are evident in a population committed to the care and treatment of obese people (Teachman and Brownell, 2001).

How frequently do these feelings interfere with clinical judgment? In one study, the majority of physicians was "ambivalent" about how to manage obese patients and was unlikely to refer obese patients to weight loss programs. Only 18 percent reported they would discuss weight management with overweight patients (Kristeller and Hoerr, 1997). Forty-seven percent of physicians in another study said counseling patients about weight loss was "inconvenient" (Price, Desmond, Krol, Snyder and O'Connell, 1987). In addition to negative attitudes about obesity, physicians cite lack of time, insufficient medical training and problems with reimbursement as difficulties in effectively managing obesity (Pratt, Nosiri and Pratt, 1997).

The negative attitudes and reluctance among health professionals to treat overweight and obese patients may affect the care-seeking behavior of individuals. Obese women may be particularly susceptible. Obese women are significantly more likely than non-obese women to delay obtaining breast and pelvic examinations and Pap smears, even though women with higher BMIs visit their doctors more frequently (Fontaine, Faith, Allison and Cheskin, 1998). Obese patients may delay or cancel medical appointments for a number of reasons, such as anxiety about being weighed or disrobing, even if health professionals are supportive. If health professionals are not supportive, "obese individuals can be reluctant to seek medical care, especially for their obesity, because they believe that they will be scolded and even humiliated, hence screening and treatment for diseases may be delayed" (Puhl, and Brownell, 2001).

Weight Bias in Education

Overweight children are apt to feel the sting of peer rejection first in elementary school. Obese preschool children have similar levels of self-esteem as non-obese preschoolers, but by the time they begin elementary school, the self-esteem of obese children has fallen dramatically (Klesges, Haddock, Stein, Klesges, Eck and Hanson, 1992). Peer rejection is the primary reason for their declining self-esteem. Attitudes about weight are formed by eight years of age (Counts, Jones, Frame, Jarvie and Staus, 1986), and some recent research shows weight bias occurring as early as three years of age (Cramer and Steinwert, 1998).

Children seldom "grow out" of these biases.[3] In high school and college, negative stereotypes of obese individuals as lazy, self-indulgent and sexually unskilled are often more overtly expressed (Tiggerman and Rothblum, 1988; Regan, 1996). In a number of studies of college admission rates, obese individuals are significantly less likely to be admitted to colleges despite having roughly equivalent application rates and academic performance as their non-obese peers. Obese women are accepted to colleges less frequently than obese males (Canning and Mayer, 1966; Crandall, 1991; and Crandall, 1995).

Loss of self-esteem is the predictable result of these widely-held attitudes. Overweight children 9 to 11 years of age have significantly lower self-esteem than non-overweight children

[3] One explanation of why weight bias tends to worsen as children age is that these negative perceptions are linked to children's dissatisfaction with their own bodies (Schwartz and Puhl, 2003).

of the same age. Ninety-one percent of the overweight children in one study said they felt ashamed about their weight (Pierce and Wardle, 1997). Adolescent girls are most acutely aware of stigmatization. Ninety-six percent of overweight adolescent girls in one study[4] reported negative experiences because of their weight, the most frequent being hurtful comments, teasing, jokes and name calling (Neumark-Sztainer, Story and Faibisch, 1998). Several studies have found an increased risk of depression among obese children (Schwartz and Puhl, 2003).

Teachers also contribute to the poor self-image overweight children have of themselves. "Many fat kids exist on a diet of shame and self-hatred fed to them by their teachers," wrote one critic (Solovay, 2000). One study reported that teachers believed obese students were more untidy (20 percent), more emotional (19 percent), less likely to succeed at work (17.5 percent) and more likely to have family problems (27 percent) than children of normal weight. Forty-six percent of teachers said that obese individuals make undesirable marriage partners for non-obese people, and 28 percent said that becoming obese is the worst thing that could happen to a person (Neumark-Sztainer, Story and Harris, 1999).

Other Sectors of Weight Bias

Weight bias is so prevalent throughout society that an enumeration of the sectors in which it is found may be considered unnecessary. Let us, therefore, confine our observation to those additional sectors where weight bias has been proven to exist. Perhaps the largest amount of research on the topic has occurred in employment settings. Bias has been shown to exist in hiring, wage inequality, promotions and terminations (see Puhl and Brownell, 2001, for a review of articles). A more recent study (Cawley, 2004) explored the relationship between body weight and wages. The study focused on the relationship of wages to weight of people who are two standard deviations heavier than the norm, by gender and race/ethnicity. The study found that while an increase in weight of two standard deviations above the mean for White males had no effect on wages and was associated with *higher* wages for African American males, all other categories considered in the study lost income as they gained weight (See Table 2).

[4] This study did not note differences in self-esteem among racial groups. Some evidence suggests that cultural attitudes about overweight individuals vary substantially among African Americans and Hispanics. For example, big women and big girls may be viewed more favorably than Whites view people of similar BMI. Nevertheless, it is difficult to imagine that most adolescent and younger girls would not be affected by relentless taunting.

Table 2. **Impact on Wages of Individuals Who Weigh Two Standard Deviations More than the Mean Weight, by Gender and Race/Ethnicity**

	Percent impact on wages
White male	0.0
White female	- 9.0
African American male	+ 4.2
African American female	- 4.7
Hispanic male	- 8.1
Hispanic female	- 6.8

For White females, an increase of two standard deviations from mean weight (64 pounds) was associated with a decrease in wages of 9 percent, which is equivalent to the difference associated with 1.5 years less education or 3 years less experience. Likewise, the same two standard deviation increase for African American women (79 pounds) and Hispanic women (62 pounds) was associated with reductions in wages of 4.7 percent and 6.8 percent, respectively. Hispanic men, in contrast to White and African American men, lost wages as weight increased. An increase in weight of two standard deviations above the mean weight among Hispanic males (73.5 pounds) was associated with a decrease in wages of 8.1 percent, similar in magnitude to the effect on wages of 2.5 years less education and 4.5 years less work experience.

Discussion

Not every act of one person toward another that is unfair or unreasonable is discriminatory. Discrimination occurs when one person is treated differently than another because of a particular characteristic. Typically, "discrimination" is defined as unfavorable treatment of a person based on a category, class or group rather than on objective criteria based on merit. Federal laws, most notably the Equal Employment Opportunities Act of 1972 and the Civil Rights Act of 1964, prohibit intentional or unintentional discrimination on the basis of race, color, national origin, sex, age, religion or disability.

The act of discrimination is personal, but not individual—the individual acting in a discriminatory fashion would likely act the same way to all people in the category. Therefore, the transaction which results in discrimination has consequences not only for a particular obese

individual, but for all those who may follow him. It is, consequently, a problem for a population of people with a single characteristic and, therefore, is a public problem.

Several high-profile cases of possible discrimination against obese individuals in public accommodation have made their way into the courts.[5] Obese people have sued restaurants, movie theaters, bus lines and airlines for inadequate seating, charging for two seats instead of the admission of one person or refusing services, with mixed results. Although these cases may have merit, they also may divert attention away from more pervasive and insidious forms of discrimination against obese individuals. The extent to which discrimination against overweight and obese individuals in education, employment and health care affects their ability to freely compete in society is not known. However, current knowledge of pervasive weight bias in education, employment and health care suggests that overweight and particularly obese people may be seriously disadvantaged socially by these attitudes.

Overweight and obesity are associated with lower incomes[6] and lower levels of educational attainment, but association is not the same as causation. How much of the association results from overweight people being denied opportunities at school, at work and at the doctor's office? To what extent is being overweight a cause of lower incomes and lower education? Certainly, other explanations exist for the relationship between obesity, income and education, but we would be mistaken to think that the explanations flow in one direction only.

Racial and Ethnic Disparities

African Americans and Hispanics living in the U.S. have a higher prevalence of overweight and obesity than White Americans. Table 3 shows the differences in the prevalence of

[5] See *Sellick v. Denny's, Inc.,* 884 F. Suppl. 388 (D. Or. 1995); *Birdwell v. Carmike Cinemas,* No. 940014 (M.D. Tenn. 1994); *Hollowich v. Southwest Airlines,* No. BC035389 (Ca. 1991); and *Green v. Greyhound,* No. 92VS55226H (N.D. Ga. 1992).

[6] The lack of money can contribute to both hunger and obesity. See *Obesity and Public Policy: Legislation Passed by States, 1999 to 2003* (Wellever, Reichard and Velasco, 2004) for a discussion of the association between food insecurity and obesity.

overweight and obesity in Kansas by race and ethnicity from 1993 to 2000.[7] Note that the prevalence of both overweight and obesity is greater for African Americans than either Hispanics or Whites in Kansas. The percentage of African Americans with sedentary lifestyles also is greater. Both White and Hispanic populations have the same level of sedentary lifestyles, but the median age of Hispanics in Kansas is 23 compared to 35 years of age for the state as a whole (U.S. Census Bureau, 2000). One would expect a younger population to be more active and vigorous.

National data (National Center for Health Statistics, 2003) show that White and Hispanic women have a lower prevalence of overweight than White and Hispanic men, but they have higher rates of obesity. African American women have a higher prevalence for being both overweight and obese than African American men.

Table 3. **Percent of Kansans 18 Years of Age and Older Who Are Overweight, Obese or Have a Sedentary Lifestyle by Race and Hispanic Origin 1993–2000**

	Percent overweight	Percent obese	Percent sedentary lifestyle
White	53%	17%	56%
African American	63%	22%	61%
Hispanic	59%	19%	56%
Total	53%	17%	56%

Source: KDHE/Behavioral Risk Factor Surveillance Survey, 2003

Why are African Americans, Latinos, and Native Americans *as a group* more susceptible to overweight and obesity than the White population? Several explanations have been suggested. One is that minorities are subject to environmental and cultural factors that differ from those of most Whites:

> Obesity in minority groups in the United States is best understood as a variation on a larger cultural theme, the creation of an environment in which highly palatable foods are

[7] To improve the quality of these estimates, we combined BRFSS data from 1993 to 2000. While this improved the estimate *for the period,* it may not reflect the current prevalence of overweight and obesity. Nationally, the prevalence of overweight and obesity is increasing rapidly. If these trends are similar in Kansas, the current prevalence of overweight and obesity would be greater than those we report here. The Sunflower Foundation has funded a project by the Kansas Health Institute and the Kansas Department of Health and Environment to over-sample African American and Hispanic households in an obesity-related special survey based upon Behavioral Risk Factor Surveillance Survey methodology. With these data, a better estimate of the prevalence of overweight and obesity by race, ethnicity and gender can be made. The survey will go to the field in the fall of 2004.

> accessible to all at low cost and physical activity is not required. Inequalities in access to health education, treatment services, and environmental opportunities are probably responsible for the exacerbation of obesity and its attendant health conditions in some minority groups (Jeffery, 1991).

Certainly, not all members of a particular minority group are overweight. The fact that some families seem to have more obese members than others suggests that there may be a genetic component to obesity susceptibility. One study purports that familial morphological resemblance is not caused by genetic influence alone, but also by lifestyle, environmental and cultural factors characteristic of the family. This study suggests that heredity accounts for up to 50 percent of "family effect" of obesity transmission (Bouchard, 1996).

More recent research concludes that genetics play a large part in susceptibility to obesity (Shuldiner and Munir, 2003). This stream of research suggests that a number of genes, each with a small effect, contribute to an individual's susceptibility to obesity (Damcott, Sack, and Shuldiner, 2003; Shuldiner and Munir, 2003). Obesity, like many other health conditions, is caused by the *interaction* of genetics and environmental conditions.

Genetics, the environment and obesity meet at a crossroad called "thrifty genotype" theory. First postulated in 1962 by population geneticist James Neel, this theory helps to explain why some populations (the Pima Indians, in the case of Neel's study) are overweight.[8] Indigenous people in pre-modern societies developed a biological adaptation that allowed them to cope with alternating periods of feast and famine. They developed a "thrifty genotype" that allowed them to store fat when food is plentiful as protection against starvation in times of famine. At one time, this response was important to survival, but now, with food readily available year around, the response no longer serves an adaptive function. In fact, it has become harmful because fat, originally stored for famine situations, is not used and remains stored. As indigenous peoples abandoned their traditional ways of life, they not only came into routine contact with foods high in processed carbohydrates and low in fiber, but they also traded a more active lifestyle for one that is more sedentary.

[8] In 1999, Canadian researchers claimed to have identified the thrifty gene in a population of Indians residing on an Ojibwa-Cree reservation in northern Ontario (Hegele, Harris and Zinma, 1999).

Although the metabolic syndrome related to the "thrifty genotype" is normally associated with Native Americans and Pacific Islanders, it might apply also to people of certain areas of Africa and Central Europe, whose food sources historically were unpredictable. Many Hispanic people share both Native American and European heritage. Does this affect some Hispanics' predisposition to obesity? Nutritional anthropologists suggest that biological adaptation to the ways food is procured, processed and used takes place slowly. After five to ten generations (approximately 100 to 200 years), changes may have just begun to show their positive or negative effects (Ritenbaugh, 1978). Immigration from less developed areas of North America and the legacy of slavery may have resulted in a large (and growing) population of Americans who have a genetic predisposition to obesity.

Discussion

Although obesity affects male and female minorities across all socio-economic levels, its impact nationally and in Kansas is great among minority women with low incomes. Among Mexican American women ages 20 to 74, for example, the rate of overweight is approximately 13 percent higher for women living below poverty versus those living above poverty (American Obesity Association, 2002). The recognition of the effect of genetics and environment on weight gain among U.S. minority populations should not diminish the role that culture plays in influencing dietary and exercise behaviors. Cultural factors contribute substantially to excess weight in minority populations (AOA, 2002). Culture influences the choice of foods, preparation techniques, frequency of meals, snacking behavior and attitudes about body image. Food also has social significance beyond its nutritive value. It can be used as a way for families to express affection or as a method for meting out praise or giving rewards. Withholding food or "treats" also is frequently used to punish individuals for minor violations of cultural or social behavior. For example, parents might give the same a child a cookie in recognition of "good" behavior and refuse to take the child to his or her favorite fast-food restaurant as punishment for "bad" behavior.

Body weight is determined ultimately by individual behavior, but the same behaviors can affect individuals differently. Many minorities are disproportionately disadvantaged by their genetic heritage and their environments. The fact that some racial and ethnic minorities are

genetically predisposed to obesity (i.e., by events outside of their control) argues for a role for public policy in obesity prevention and treatment for this class of citizens.

The Case for Public Policy Intervention

In the preceding sections, we have argued that obesity is both a public health problem and a public policy problem. We suggested that some of the medical costs of obesity are borne by society at large due to cost-shifting. Because some of the factors that influence obesity, such as genetics, metabolism, culture and environment, are beyond the control of the individual, holding the individual accountable for the full cost of his or her medical treatment is unfair. Nevertheless, the increase in the prevalence of obesity is a factor in the rising cost of health care. Because approximately 40 percent of all health services are financed by public moneys, the cost of health care is a public policy issue. Additionally, the cost of health care in the private sector affects profitability, employment, taxation, productivity and international competition. On this factor alone, obesity rises to a public policy problem.

We also suggested that schools have largely abdicated their responsibility for protecting the health and safety of children under their supervision by providing and encouraging the consumption of an array of non-nutritional food and beverages and by failing to require minimal levels of physical activity. The reasons why competitive foods are offered and physical education programs have been cut, many say, is because schools are inadequately financed. School financing is clearly within the realm of public policy.

The American ethos—and American law—is based on equal opportunity. All Americans are free to compete equally with their fellow citizens for the things of value they desire. If, however, opportunities are limited by discrimination, the exercise of free competition is circumscribed. It is the duty of government to correct this imbalance. Traditionally, questions of discrimination are handled in the courts. In the case of obesity, however, other options may be available. Unlike race, gender or national origin, obesity is a condition that can be modified or influenced. If attitudes toward obesity cannot be changed, one way to reduce discrimination (and improve equality of opportunity) is to lower the rate of obesity through public policy strategies and interventions.

Finally, the prevalence of obesity and overweight among Americans is overwhelming, but they are not uniformly overweight. Some sub-groups are more prone to obesity than others. We suggested that genetics, culture and environment play significant roles in the development of obesity in some minority populations. If, as we have argued, genetics and the environment are beyond the control of individuals in these populations, and if obesity results in discrimination (which in the case of minorities may be additive), then these individuals form a sub-class of people who are denied equal opportunity because of their weight. Obesity among minorities may account for lower incomes as well as poorer health status.

All policy problems do not result in public policy interventions. Making public policy requires first that the identified problem appears on the policy agenda. Some topics, such as bioterrorism prevention, are so obviously important and relatively free of partisanship that they appear reflexively on the policy agenda. To make it to a policy agenda, however, other problems must penetrate filters of philosophy, ideology and personal experience held by individual policymakers. This often requires concerned citizens to help policymakers better understand the problem and its consequences for the public. The next section discusses how individuals and groups can take actions to help place a problem on the policy agenda.

GETTING OBESITY ON THE STATE PUBLIC POLICY AGENDA

State policy is made in all three branches of government. The executive branch, through various administrative departments such as Health and Environment, Education and Transportation, can create programs and seek grants targeted at obesity prevention and treatment. The Office of the Governor can use the "bully pulpit" to raise awareness of the effect of obesity on health and can promote physical activity and other healthful behaviors. The state legislature holds the power of the purse in that it appropriates all state and federal expenditures.[9] The legislature can also create obesity prevention programs and commissions and direct administrative agencies to take more concerted action. Through its regulatory authority, the legislature can require individuals, businesses and local governments to take certain actions or refrain from certain actions.[10] Because the courts must wait until a case is filed, the judicial branch of government has a more restricted role to play in obesity prevention and treatment. The most visible target of litigation has been the fast-food industry, an intended analogy to "big tobacco." Congress has begun to take action to protect restaurants from being sued by patrons on the grounds that their food makes customers fat in its consideration of the Personal Responsibility in Food Consumption Act. So far, the bill has passed the U.S. House of Representatives and has been endorsed by the White House. If the bill passes, the role of the courts in regard to obesity will be substantially diminished. Colorado passed similar legislation at the state level in 2004, and its impact is not yet known.

In the KHI interim report, *Obesity and Public Policy: Legislation Passed by States, 1999 to 2003,* we discussed public opinion research that showed ambivalence about the role of government in helping to control the prevalence of obesity. While most Americans support programs that prevent obesity in children, they are decidedly against tax increases and new regulations intended to influence or affect the behavior of businesses and individuals. It is impossible to separate public opinion from public policy, as one always informs the other. But, before government will intervene in a citizen's private behavior (e.g., in regard to tobacco, alcohol and drug use), a set of political conditions must exist in the private sector. Kersh and

[9] It is useful to note that only 14 percent of KDHE funding actually comes from the State General Fund. Eighty-six percent of KDHE's total budget is funded by federal funds (including grants) and fee funds (S. Kannarr, personal communication, 2004).

[10] See *Obesity and Public Policy: Legislation Passed by States, 1999 to 2003* (Wellever, Reichard and Velasco, 2004) for examples of state regulations.

Morone (2002), writing about the politics of obesity, identified seven steps that historically have preceded government interference in citizens' private habits. Each of the seven steps is listed in bold letters below. The comments that follow each step explain or assess the step or both.

- **Social disapproval:** Given the pervasive evidence of anti-weight bias in the United States, it seems clear that this first step has been achieved.
- **Medical science:** To be successful, public health crusades must be based on good science. In the case of obesity, the science linking obesity to an array of diseases is strong, but there is much additional work that needs to be done to more fully understand the causes and cures of obesity. Kersh and Morone write: "Medical knowledge in itself is rarely enough to stimulate a political response. Rather, the key to its impact lies in the policy entrepreneurs who spread the medical findings" (p. 144).
- **Self-help:** Self-help organizations have traditionally followed the appearance of social disapproval and medical science. These self-help organizations urge individuals to face their problems and pledge to live more healthful lives. If the self-help organizations were fully successful, there would be no need for public policy. The perceived recalcitrance of the wrongdoer to help himself is what stimulates the public to ask government to regulate personal behavior.
- **Demonize the user:** "There is nothing quite like the fear of sinister others to overcome the stalemate of American policymaking," Kersh and Marone write (p. 145). Despite long-standing bias against obese people, it may be a stretch of the imagination to suggest that overweight people are demonized by the public at large, especially when over half of American adults are themselves overweight. Nevertheless, a case could be made that the morbidly obese (those with a BMI of 40 or greater) have been singled out for ridicule, if not demonization.
- **Demonize an industry:** Suppliers and producers are singled out for special scorn, as the purveyors of harmful products for commercial gain. Industries that market to children are particularly vulnerable. When an industry is characterized as inflicting intentional harm to the public, perceptions tend to shift from the private to the political. It is not clear whether opposition to Ronald McDonald will provide the same kind of rallying point as Joe Camel. If the Personal Responsibility in Food Consumption Act is signed into law, he likely will not. Nevertheless, demonizing the fast-food industry may produce some policy changes outside of the courts as the industry responds to consumer pressure and begins to

offer more healthful choices. Obesity is a more complex condition than tobacco addiction. Focusing on a single component, such as the role of convenience foods, may divert attention away from other equally or more important causes of obesity. Also, besting the fast-food industry might be a false victory if policymakers conclude that the actions they have taken already have solved the problem of obesity.

- **Mass movement:** Once a demon is identified, a movement to control or eliminate its pernicious effects will usually follow. Whether a mass movement can be created without a demonized entity is not known.
- **Interest group action:** Interest groups translate the energy of mass movements into specific policy proposals that decision-makers can act on. Interest groups hire lobbyists and public relations firms and attempt to mobilize constituents to move the policy process forward.

Approximately half of the seven steps necessary to prompt political action to interfere with private behavior are in place in the case of obesity. However, Kersh and Morone's analysis is based upon historical experience in similar realms of private behavior. The seven steps presented are sequential in nature, but it might be possible to eliminate some steps and leap-frog to others. For example, an interest group might be able to promote a mass movement building upon existing social disapproval, medical science and frustration with the "failure" of the self-help movement to achieve substantial results.

Whether following the tobacco-alcohol-drug model for placing obesity on the policy agenda will be successful is highly speculative. While the past is certainly an important factor in considering any future state, it is not necessarily predictive. Furthermore, the addiction model may not be appropriate in all cases for obesity treatment or prevention. Fortunately, other methods are available. Political science text books and advocacy group fact sheets abound with examples of how to put an issue on the policy agenda. A typical list would include the following: 1) develop organized and active support; 2) define the issue; 3) set an advocacy agenda; and 4) concentrate on the level of government most likely to achieve your goals (Jones, 1984).

MAKING OBESITY POLICY

Placing a problem on the policy agenda is not synonymous with solving the problem. Many different fates await an agenda item. For example, it can be ignored. In the competition for finite and scarce resources, it can lose to other problems considered more important or easier or less expensive to solve. It can be solved satisfactorily, or the problem can be worsened by the unintended consequences of policy actions taken. Consider for a moment possible policy solutions to the problems posed earlier. To reduce cost-shifting, a policy might be adopted that requires obese people to pay their "fair share" of health costs. The likely consequences of such an action would be to further impoverish low-income obese individuals and exacerbate their chronic co-morbid illnesses, frequently forcing them into earlier disability, medical indigence and premature death. To combat discrimination, obesity can be added to current anti-discrimination legislation. While eliminating obesity bias is a worthy goal, clogging the court system with discrimination suits may not be the best way to accomplish it. Even if litigation were successful, it likely would make no contribution to reducing the prevalence of obesity.

The solution for all of the problems of obesity, from medical cost-shifting to discrimination, is to eliminate the root cause: public policy solutions must target reducing the prevalence of obesity among children and adults. Unlike the issue of tobacco, however, the physical and behavioral science of obesity do not point us to unambiguous policy interventions. We still have much to learn. Most of the obesity prevention programs attempted to date have not undergone rigorous evaluations: we do not know if they work or how well they work compared to other interventions. The lack of competent evaluation research, however, is not an argument for doing nothing. The prevalence of obesity can only be expected to grow in the absence of intentionally rational action. Tobacco prevention and cessation evaluations have found that integrated approaches have higher success rates than interventions focusing on a single theory or program. The complexity of obesity—even in the absence of scientific evaluation—would seem to argue also for an integrative approach to reducing the prevalence of obesity. In this section, three heuristic devices for thinking about combining obesity intervention approaches are presented.

A Framework

Given the number of factors that go into determining the weight of an individual, it may be useful to develop a framework for thinking about obesity policy. We believe that weight gain results from the consumption of too much food, too much of the wrong kinds of foods, or a combination of the two, and too little physical activity. The science of weight loss and maintenance tells us that nutrition and fitness are equally important.[11] Therefore, an intervention strategy should not stress food alone or physical activity alone, but food *and* physical activity. Public policy will have little effect on changing an individual's genetics, metabolism or culture, but it can influence individual behavior and change the environments in which people live. Behavior can be changed by widening opportunities for treatment and by establishing incentives for preferred behaviors. Environments can be changed to encourage the consumption of healthy foods and physically active recreation. Once again, an obesity strategy should focus on behavior *and* environment simultaneously.

These two dimensions, food *and* exercise and behavior *and* environment can be combined in a simple four-cell matrix (see Table 4). The examples that populate each of the cells in the matrix are illustrative only. The matrix suggests that a well-rounded strategy will contain programming in each of the cells. Nutrition counseling of individuals is not likely to be successful if they cannot buy fresh fruits and vegetables or if they are constantly forced to choose from a limited menu of bad options. An individual may understand the benefits of exercise but not be able to participate because he or she does not feel safe in the neighborhood after dark. The focus on behavior is an attempt to change people's knowledge and attitudes about nutrition and fitness. The focus on environment is on those factors that enable individuals to change their behaviors.

[11] Research suggests that lowering the number of calories consumed is essential to weight loss and that increased physical activity is essential to maintaining weight once it is lost (National Institutes of Health, 1998).

Table 4. **Framework for Policies (With Examples)**

	Nutrition	Physical activity
Behavior	• Improve nutrition education of physicians • "Sin taxes" on snacks and beverages • Lower taxes on vegetables • Family diet counseling	• Communicate the advantages of physical activity • Tax breaks for purchase of exercise equipment or membership in health clubs
Environment	• Improve the availability of healthful foods in schools and workplaces • Encourage supermarkets to open in disadvantaged areas • Limit sales of soft drinks in schools	• Mandatory K–12 physical education • Creation of bike paths and walking trails • Incentives for development of workplace fitness programs

Principles of Action

In his 2001 *Call to Action to Prevent and Decrease Overweight and Obesity,* former Surgeon General David Satcher asked for commitment to five overarching principles (DHHS, 2001):

- Promote the recognition of overweight and obesity as major public health problems.
- Assist Americans in balancing healthful eating with regular physical activity to achieve and maintain a healthy or healthier body weight.
- Identify effective and culturally appropriate interventions to prevent and treat overweight and obesity.
- Encourage environmental changes that help prevent overweight and obesity.
- Develop and enhance public-private partnerships to help implement this vision.

Under these five principles, a number of specific activities and interventions can be taken in the private sector as well as at various levels of government. These activities and interventions include *communication* of information and tools that enable governments, communities, organizations, families, providers and individuals to take action to decrease the prevalence of obesity; *actions* and targeted population-level interventions by decision-makers to reduce obesity; and *research and evaluation* to better understand the causes of overweight and obesity and to evaluate the effectiveness of obesity prevention programs and interventions (DHHS, 2001).

The communications/action/research and evaluation framework proposed by the surgeon general indicates the current state of knowledge in regard to obesity. In many ways, we are at the

front end of an iterative process employing scientific research, policy development and community mobilization. Doctor Satcher indicated that a public health approach to obesity reduction would use a six-step, iterative process:

- Define the problem
- Identify its causes and protective factors
- Develop and test intervention strategies
- Implement interventions
- Evaluate the impact of interventions and surveillance monitoring
- Redefine the problem, re-evaluating its causes and refining interventions (DHHS, 2001).

The problem of obesity has been clearly defined. While scientific research on causes and cures of obesity has made great strides, there is still much we do not know. As a consequence of our limited knowledge and the speed with which the "epidemic" overtook us, we have become somewhat bogged down in the third and fourth stages of the process—developing, testing and implementing intervention strategies. To some, this is the most creative and dynamic part of the process. Still, many interventions will take time, vision, commitment, agreement and money to implement. A suitable time and number of people served must also pass before an evaluation of effectiveness of interventions can be made. Given the urgency of the situation, we need to expedite the development of a menu of interventions, some of which, on subsequent examination, may prove to be instrumental in reversing the prevalence of obesity in America.

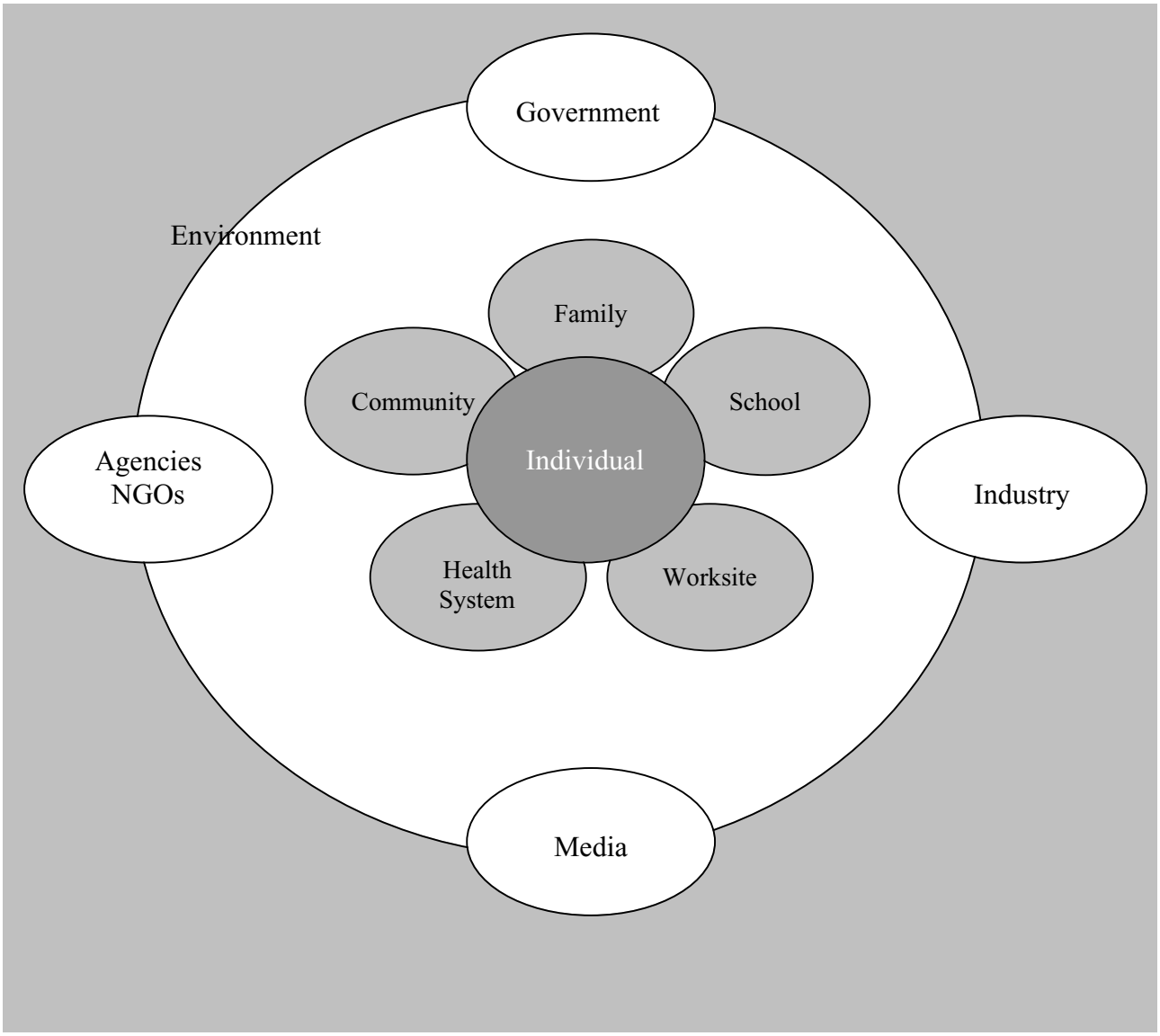
A Public Health Model for Obesity Prevention

On August 14 and 15, 2003, the Robert Wood Johnson Foundation, Kaiser Permanente, the Centers for Disease Control and Prevention, the American Association of Health Plans and the Washington Business Group on Health co-sponsored a roundtable attended by 47 public and private sector professionals. The goals of the roundtable were to summarize the current evidence on effective obesity prevention and treatment and "to identify short- and long-term public policy interventions and/or other actions necessary to improve the prevention and treatment of overweight and obesity" (Raymond and Moon, 2003). Two products of the roundtable were a public health model for obesity prevention and a list of suggested policies and actions.

The public health model for obesity prevention is reproduced in Figure 1. The participants were interested in a model similar to a chronic care model, but one that was not limited to unhealthy individuals who are connected to the health care delivery system by virtue of a diagnosed disease. The participants designed a "population-based approach that leverages community resources to reach even those individuals who infrequently access health care systems" (Raymond and Moon, 2003, p. 6). The model places the individual at the core of an integrated system of environmental and community supports that encourage healthy eating behaviors and a more active lifestyle. The elements of environment are government, private agencies and other non-governmental organizations (including philanthropies), the food industry (including meal retailers, food retailers, food manufacturers and food producers) and the media. Elements in the environment influence the behaviors of individuals, groups and institutions surrounding the core individual—the community, schools, worksites, the health care system and families. Although the model is the same for both, the prevention population and the treatment population are different, and the messages communicated to them by the environment and the community need to reflect those differences.

"Policy" means "a plan or a course of action…intended to influence and determine decisions, actions" (American Heritage Dictionary, 1992). Each of the elements of the model is a policy domain in which actions can be taken to reduce the prevalence of obesity. The roundtable participants suggested a number of policies and actions that could be taken to reduce obesity. The suggestions are grouped by policy domain in Table 5.

Figure 1. **Public Health Model for Obesity Prevention**



Source: Raymond and Moon, 2003

Table 5. **Policy Suggestions and Actions**

Schools and youth-serving organizations
- Offer incentives for schools to adopt healthy school nutrition policies
- Mandate daily physical activity for all grades K–12
- Provide physical education with resources on a par with the academic curriculum
- Incorporate nutritional and physical activity standards in before- and after-school programs
- Establish nutritional and physical activity standards for preschools

Work sites and employer programs
- Develop a HEDIS measure on BMI measurement
- Contract with health plans that offer weight management services, tools and resources
- Sponsor health risk appraisals for employees
- Encourage and facilitate programs like "Weight Watchers at Work"
- Encourage work-site food vendors to provide healthy food choices.

Community support programs, services and policies
- Establish food standards for public venues and buildings
- Conduct special events to educate and involve community members and groups in nutrition and physical activity efforts
- Create alternatives to sedentary behaviors
- Offer community-based exercise, nutrition and cooking classes, with an emphasis on cultural competence

Community design for healthy eating and active living
- Mandate "health impact" studies for new construction projects
- Increase access to healthy food, active recreation and neighborhood resources through incentives, regulations and public sector involvement
- Encourage strategic revitalization of neighborhoods
- Conduct community needs assessments to help set priorities and target resources

The food industry and food marketing
- Provide funding for research to gain an in-depth understanding of the behavioral factors that influence food consumption patterns
- Use marketing expertise to 1) promote concepts of balance, variety, moderation and physical activity; 2) teach portion control; and 3) eliminate confusion about nutrition requirements and goals
- Encourage restaurants to provide healthy, low-calorie choices, appropriate portion sizes and nutritional information
- Encourage development of shops and restaurants that are more accessible by walking or bicycling
- Increase federal funding for research on nutrition messaging and techniques, e.g., food labels and food pyramid information

Health care system
- Provide funding for research and demonstration projects to determine the effectiveness of prevention and treatment interventions
- Provide adequate reimbursement for effective services, including incentives to encourage positive outcomes and good performance
- Establish support structures and tools to enable providers to deliver weight management services, such as information systems, training and access to community resources

Communication and public advocacy
- Provide funding for a coordinated national media campaign
- Link media campaigns to the work of coalitions conducting community programs
- Link media campaigns to public policy advocacy
- Focus messages on the science base, the need for prevention (particularly among children) and collaboration
- Priority areas for public advocacy include: 1) reduce soda consumption in schools; 2) reduce advertising of unhealthy food to children; 3) increase availability and quality of physical education in schools; and 4) improved community infrastructure

Source: Raymond and Moon, 2003

Using the direct influences on behavior proposed in the model, we list examples of specific programs in each of the policy environments below. In each case, we provide examples of programs or activities targeted at nutrition and ones targeted at physical activity.

Community Programs

Nutrition

- With prompting from the Cardiovascular Health program, Lowe's grocery stores in Surry County, North Carolina, created a bilingual shelf-tagging system that highlights health nutrition choices, designed to guide shoppers to healthy foods in 24 categories. The stores also made available bilingual brochures about nutrition.
- Originally conceived of as a cancer prevention and control program of the National Cancer Institute, 5 A Day expanded in January 2001 to the National 5 A Day Partnership of health-oriented government agencies, businesses and non-profit organizations. The partnership's vision is to increase consumption of fruits and vegetables to at least five servings a day for 75 percent of Americans by 2010. To achieve the vision, the partnership works with local communities and states using a variety of strategies including communications, industry (agriculture and food processing) programs, policy changes, environmental changes and unique community efforts. (www.5aday.com)

Physical Activity

- Based upon the evidence of program evaluations, the CDC "strongly recommends communitywide campaigns to promote physical activity. These campaigns are large-scale, highly visible, multipcomponent campaigns that target their messages to audience using a variety of communications media" (Task Force on Community Preventive Services, 2002).
- The Robert Wood Johnson Foundation sponsored a program in five communities called "Designing Activity into Our Daily Lives." Examples from two of the sites are
    - Boulder, Colorado, invested in making improvements that encouraged walking and bicycling. Chief among them were creating more sidewalks and bike and multi-use paths, improving bicycle and pedestrian safety, creation of bike and walking maps and promoting use by outreach.

    - Davis, California, integrated its bicycle system into its roadways, successfully lobbying the state legislature to change the vehicle code. The change allowed Davis to use European-style bicycle-emblem traffic lights at selected high-traffic intersections to better coordinate bicycle and motor vehicle flow.
- America Walks is a national coalition of local advocacy groups that promote walkable communities. The coalition offers advice about how to get started and how to work with public officials and engineering professionals. (www.americawalks.org)
- America on the Move is a nonprofit organization that helps communities and individuals to become more active and to eat more healthfully. America on the Move sponsors National Walk to Work Day.
- Walkable Communities, Inc. offers a variety of services to communities to promote walking. (www.walkable.org).
- Active for Life is a Robert Wood Johnson Foundation-funded program that encourages regular physical activity—at least 30 minutes per day, at least five days per week—in people over 50 years of age. The project began in May 2002 in Richmond, Virginia, and Madison, Wisconsin.
- Moving More, Eating Healthier is a program of the Consumer Health Foundation (Washington, D.C.) that targets low-income, Spanish-speaking women in Alexandria, Virginia, with a multifaceted approach to increasing physical activity and good nutrition.

School Programs

Nutrition

- The Los Angeles Unified School District school board voted unanimously to ban the sale of soft drinks in all schools in the district effective January 1, 2004.
- North Community High School in Minneapolis worked with a vending company to provide healthier drink choices in school vending machines. Water vending machines were added throughout the school, and students were allowed to bring bottled water to class.
- The cafeteria manger of the school system in Durham County, North Carolina (serving 2,500 students) changed the way the cafeterias prepare and present their foods, including among others:

- Use less butter and salt.
- Batch-cook vegetables to improve freshness and appeal.
- Have five vegetable choices daily.
- Vegetable selections are placed first in the serving line.
- Students may sample foods that are new to them.

Physical Activity

- Maine Move and Improve is a project of the Eastern Maine Medical Center. It provides school-aged children with a 12-week, free physical activity program to reduce the risk of disease associated with physical inactivity. Originally a worksite program, this program has grown to include schools, senior groups and community organizations. Participants commit to 30 minutes of physical activity per day for 10 of the 12 weeks of the program.
- JumpSTART (a product of the National Heart, Lung and Blood Institute) is an elementary school program that offers teachers a series of fun, field-tested activities to promote active, healthy lifestyles for children in grades three to five. (nhlbl.gov/health/prof/heart/other/jumpstrt.htm)
- Several walk-to-school initiatives provide ideas and support schools and communities to promote physical activity among children. Innovations include:
    - Starting a "walking bus" (small groups of children who walk to school together accompanied by an adult).
    - Teaching safe walking.
    - Changing driver behavior (not only improving safety but encouraging drop-off zones a block away from school to encourage walking and to reduce automobile congestion around the school).
    - Numerous resources exist including: www.walktoschool.org; www.cdc.gov/nccdphp/dnpa/kidswalk; www.walkingschoolbus.org; www.pedbikeinfo.org.
- Many school districts have begun to expand school-based physical education. The Task Force on Community Preventive Services (2002) reported that a positive cost-benefit relationship of school-based physical education had yet to be demonstrated by economic

evaluations. The lack of data showing a positive relationship, however, does not mean that there is not one.

Workplace Programs

Nutrition

- In its occupational health practice (Regional Health Education), Kaiser Permanente encourages workplace cafeteria modifications that include:
    - Food nutrition labeling
    - Food pricing strategies that favor healthier alternatives
    - Healthy food choices in vending machines.
- The Craven County Health Department (North Carolina) created a snack bar in the break room with an inventory of staff-selected healthful snacks. The snack bar runs on the honor system, and profits are used for other health promotion activities.
- *Business and Health* magazine (Leopold, 2004) suggests that employers consider addressing their obesity workforce problems by:
    - Making on-site programs, like Weight Watchers, available at work
    - Working with insurers to help develop programs, such as diet and nutrition counseling, that target obese populations
    - Implement companywide healthy eating campaigns, which include changes to cafeterias and vending machines.

Physical Activity

- Human resource consultants (Jern, 2004) recommend improving employee fitness by offering discounts to fitness centers and allowing flexible time that permits employees to exercise regularly. Other suggestions include encouraging lunchtime walking groups and reminding employees of national health observances by posters and other notices.
- City County Insurance Services (CIS), an Oregon firm, partnered with Creative Walking, Inc. to create the "Million Footstep Challenge," a "turnkey" activity program CIS made available to employers. The program provides employees with pedometers, training and employee scorecards and encourages employers to offer employees small incentive gifts for achieving various levels of accomplishment (e.g., walking between 100 and 400 miles—400 miles is roughly equivalent to 1,000,000 steps).

- A life insurance company in North Carolina encouraged employees to use the stairs rather than the elevators by painting and carpeting stairwells (employees, by floor, were allowed to vote on wall colors), decorating stairwells with pictures and posting health promotion signs at elevators encouraging the use of the stairs. To measure results of the campaign, the company installed a counting device on each floor to measure pre- and post-implementation use of the stairs. The results of the measurement were not available, but Division of Nutrition and Physical Activity of the CDC recommends point-of-decision prompts that encourage people to use the stairs, citing six studies that found more people use the stairs when signs are posted (Task Force on Community Preventive Services, 2002).
- America on the Move (AOTM) developed a three-year pilot program in Larimer County, Colorado, called Health District on the Move. Funding was provided by local organizations to encourage residents to embrace more healthy styles of living. Approximately 1,150 employees across 40 worksites participated in a 15-week program in which they agreed to make three lifestyle changes suggested by AOTM. To help employees meet their goals, some employers implemented walking meetings. (www.americaonthemove.org)

Health System Programs

Nutrition

- Kaiser Permanente, Northern California, implemented an office-based initiative to reduce the prevalence of overweight children among its subscribers. The initiative, based on a thorough review of the evidence, contained several parts including 1) use of clinical practice guidelines for treating overweight children; 2) recruitment of local medical opinion leaders to serve as a vanguard; 3) implementation of office systems to improve diagnosis of overweight children and to promote weight loss; 4) providing on-site, multi-session training to physicians and practice staff; and 5) providing feedback on recorded BMIs to track systemwide progress. Among the messages to be conveyed were to "eat five helpings of fruits and vegetables a day" and to "cut down on sodas and juice drinks." Children were also asked to rate their willingness to make change by use of a "readiness

to change tool." To date, 500 pediatricians caring for 800,000 children have received training.

Physical Activity

- For weight interventions for overweight children of subscribers, Kaiser Permanente, Northern California, used licensed programs from the KidShape Foundation. The KidShape Foundation has two curricula—KinderShape designed for children ages 3–5 and KidShape designed for children ages 6–14. A program for teens that will be called TeenShape is under development and trial and was not licensed by Kaiser Permanente. KidShape programs emphasize both physical activity and good nutrition. The products were developed by a team of physicians, dieticians, mental health professionals and physical activity instructors. (www.kidshape.com)

Individual Actions

Nutrition

- Numerous organizations exist that support individual weight loss through diet, including Weight Watchers, Take Off Pounds Sensibly (TOPS) and Overeaters Anonymous. Also, numerous books and infomercials tout the virtues of one weight loss plan over another. There is no shortage of information available to the motivated person who wants to lose weight. Rather, the problem is making sense of the competing claims. One source of information on popular diets and nutrition is Diet Information (www.diet-i.com), which explains each diet, reviews the claims made by proponents, cites some of the drawbacks of the approach and offers its opinion on the diet.
- Sisters Together began as an organization of women of color in the Boston area to encourage personal change to improve the health of the community. Sisters Together believed that real change takes place in the company of friends and family. Sisters Together worked with local restaurants to promote healthy eating, successfully inducing restaurateurs to alter popular soul food items. In turn, Sisters Together promoted the restaurants, their chefs and menu items such as collard greens cooked with smoked turkey. Participants developed a free calendar with eating tips (e.g., "Be adventurous. Every month try one fruit and one vegetable you have never tried.") and a monthly

recipe. Sisters Together was a pilot project of the Weight-Control Information Network and was first supported by the National Institute of Diabetes and Digestive and Kidney Disease. (www.hsph.harvard.edu/sisterstogether)

Physical Activity

- Like nutrition, motivated individuals will find numerous books upon which to base an exercise program and repeated print and electronic advertisements for exercise equipment. These sources of physical activity may be augmented with personal consultation by trainers at health clubs and YMCAs. Simple exercises like walking typically do not require training, but walking guides and trail information are provided by many community park departments and state parks and recreation departments.
- Sisters Together of Boston also focuses on physical activity and has developed a variety of "community walk routes," ranging in length from 1.4 to 3 miles, which are "safe and pretty walks" in the neighborhood. "The key to a good route," they say, "is that it is simple to do on a regular basis." Sisters Together developed a walking brochure that 1) explains the benefits of walking; 2) discusses the health risks of walking and suggests checking with a physician before beginning a walking program if any of a number of conditions are present; 3) explains how to begin a walking program; 4) discusses safety tips, and 5) demonstrates how to warm up before walking.

Discussion

The forgoing examples of programs and activities are not intended to be exhaustive; many other programs and activities exist to help reduce the burden of overweight and obesity. There are disagreements across disciplines and within disciplines about the "best" approaches to take. They all share the following characteristics, however: they are aimed at reducing the number of calories consumed by an individual relative to his or her level of physical activity, or increasing the amount of individual physical activity, or both. Organizational approaches—those of communities, schools, worksites and the health system—seem to focus on physical activity more than nutrition. The reasons for this are not clear. Perhaps nutrition interventions are more difficult to make than physical activity interventions. Perhaps some organizations believe that

eating choices are more personal and that adequate resources already exist to support individuals with dietary choices.

Programs that focus on children—even those outside of the school setting—are more numerous than those for adults. The rate of increase in overweight and obesity for children in America is greater than that for adults, and overweight children tend to become overweight adults at an alarmingly high rate. Many view children as the appropriate place to halt the obesity epidemic. This strategy might succeed in the long-term, but in the short-term it will not make a major contribution to the prevalence of obesity in adults, and the costs of obesity in dollars, disease and disability will continue to grow.

The programmatic interventions listed above focus on individual communities or high-risk segments of particular communities. Because of the lack of good evaluative evidence on many community interventions, most funders appear to have taken a somewhat cautious approach. Their forays into obesity prevention are more in the nature of experiments or pilot projects than full-blown social change models. Consider that even something as fundamental as the 5 A Day program did not mutate from a cancer prevention program to a weight control program until 2001.

CONCLUSION

Obesity is a public policy problem because its costs are borne, in part, by society and because the public's perception of obesity negatively affects the ability of obese individuals to compete equally. The best corrective for these problems is neither to require obese individuals to pay the full amount for their costs of medical care and public services nor to crowd the courts with discrimination suits. The best corrective to the problem—from a public policy *and* a public health perspective—is to prevent and treat obesity. Because of the dimension of the problem, aggressive action is needed.

Obesity is a complex condition. Contributions to obesity come from many different sources, some scientific, others social. Because of its multifactorial nature, obesity can be prevented in many different policy domains. Common sense, supported by science, suggests that integrated approaches to obesity prevention and treatment are most effective. Sustained action by all parts of the environment and the community that target nutrition *and* physical activity and individual behavior *and* the individual's environment will produce results.

Two populations and two policy domains deserve special mention. Children should be a primary target population for all prevention activities. Establishing good health habits early will likely have a positive effect on an individual's life-course trajectory. Additionally, because the family plays an integral role in obesity prevention, establishing healthy attitudes in one generation may have a multigenerational effect on health as parents pass on their good habits to their children. Second, immigrants and citizens with language barriers may need to be the focus of special prevention efforts. To be received effectively, messages must be phrased in a language that is understood and in a manner that is culturally appropriate.

Because schools play such an important role in determining a child's knowledge and values, and because they, more than families, are subject to public governance, they should be a focal point for reform. Efforts should be made to improve the nutritive value of foods sold in schools, increase the level of students' physical activity and provide better instruction on nutrition and the health consequences of obesity.

Finally, the fact that a wholly preventable condition that is a leading cause of death and disability would grow to epidemic proportions suggests a failure in the health care system. Medical schools need to focus greater attention on nutrition education and obesity prevention and treatment. Medical societies and continuing medical education vendors need to offer courses on nutrition, counseling and weight management. And insurers need to recognize the clinical value of such efforts and pay providers accordingly.

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