Reframing
Obesity Prevention

The obesity epidemic signals shifts in the economic, social, and physical environments that shape our lives. It demands a new approach in public health obesity prevention efforts.

Guest Editors
Laura C. Streichert
Donna B. Johnson
Adam Drewnowski

In the Northwest states, more than one in five adults is now considered obese—and the rates are rising. Racial and ethnic minorities and groups with lower education and incomes are most likely to be obese. Looking at obesity through the lens of health disparities sheds light on how factors outside of individual control interact to promote, or prevent, health.

Obesity has significant, long-lasting health consequences. It contributes to a host of chronic illnesses, including diabetes, heart disease, cancer, mental illness, and even Alzheimer's. Disproportionate increases in obesity across groups further widen health gaps. Left unchecked, escalating obesity rates in children threaten to reduce the life expectancy of the next generation.

The financial toll of obesity is enormous. According to the Centers for Disease Control and Prevention, obesity costs the Pacific Northwest region an estimated $4.87 billion a year in direct medical costs and untold amounts through illness-related absenteeism and lost productivity. In Washington State, 10 percent of all Medicaid costs are obesity-related. With compelling health needs and taxpayers' interests at stake, reducing obesity has become a top priority for health and economic policy agendas.

This overview highlights some of the emerging areas of focus and action for obesity prevention.

Policies to support and strengthen families and community networks provide a foundation for obesity prevention efforts.

Population health focus

Obesity has long been viewed as a medical and behavioral problem to be treated and prevented at the individual level. The notion that we each can choose what to eat and whether to be active is entrenched in America's concept of personal freedom. Obesity prevention has traditionally been based on this idea. Yet strategies to reduce obesity using surgery, pills, and public health messages exhorting personal behavior change have failed to stop rates from climbing. A broader view is needed that recognizes the factors that influence health at a population level.

Glaring socioeconomic disparities in health outcomes point to the role of upstream forces and systemic inequity in options for healthy decision making. These factors are reflected in an unequal distribution of and access to resources, especially those that influence dietary choices and opportunities to be physically active.

In a population health context, obesity can be seen not as something we do to ourselves, but as a result of living in our society. In Washington State, for example, adults with annual household incomes under $20,000 are 40 percent more likely to be obese than those in households with annual incomes of $50,000 or more. The question for public health is: How does living in poverty translate to increased risk for obesity?

The challenge for obesity prevention is to understand how advantage is conferred to some groups, to pinpoint modifiable environmental factors, and to develop strategies for changing current norms. This requires examination of both structural influences, such as the multilevel effects of poverty, and the intermediary factors, such as access to healthy food, through which the broader social determinants get expressed. Actual change will require community engagement, support, and collaboration across sectors.

Although public health practitioners may lack authority to evoke change in some areas, they play a crucial role by collaborating with decision makers in zoning, economic policy, transportation, food systems, and other areas in which policy has newly recognized health implications.

Place matters

The built environment shapes behavior. Disparities in the availability and quality of food markets, restaurants, parks, community centers, walking trails, and other amenities mirror socioeconomic indicators. Lower-income neighborhoods, for example, tend to have fewer supermarkets, more convenience stores, and a higher density of fast-food restaurants. High-poverty areas also have more safety issues that discourage physical activity. Unsafe parks, for example, are less likely to be used, even if nearby.

The convergence of epidemiology and spatial analysis is revolutionizing our conception of the social determinants of health and providing novel

© 2008 University of Washington School of Public Health & Community Medicine

insights into how poverty, wealth, wellness, and disease are spatially clustered. A recent University of Washington study, for example, showed six-fold disparities in obesity rates between higher- and lower-income zip code areas.

Identifying areas of deprivation and modifying the environment to increase the availability of food and recreation resources are, therefore, important focuses for intervention and policy. New York City, for example, has issued permits for mobile produce carts to increase the availability of fresh produce in low-income neighborhoods. Tax breaks and other incentives are being used to attract supermarkets to low-income areas. Community design, zoning, and land-use policies that consider health effects are transcending traditional health policy borders.

High cost of eating healthy

Cost and convenience are primary drivers of consumer choice. Food costs connect nutrition, health, economics, and consumer behavior and are, therefore, an effective point of intervention and area for further research. The small stores typical in low-income neighborhoods often have a limited selection of fresh fruits and vegetables that are more expensive than high-calorie, less nutritious foods. The higher price of nutritious food is a major obstacle for adopting healthier diets, especially among low-income consumers. Higher food costs also fuel recession, which pushes even more households into poverty.

Hunger, a symptom of poverty and long associated with undereating, is now also tied to overconsumption of a poor-quality diet. The staples commonly disbursed through assistance programs are often unhealthy foods. Efforts to overcome barriers to access to higher-quality foods include building food banks' capacity for providing fresh produce to low-income clients. Financial policies, such as rebates to food stamp participants for purchases of fruits and vegetables, have also been shown to increase consumption of healthy foods.

With skyrocketing food prices, escalating global demand for alternative fuel sources, rising transportation costs, shrinking farmland, and other concerns, a healthy diet may become more difficult for everyone and even further out of reach for low-income populations.

Time poverty

Time is a limited resource for everyone and yet an often overlooked dimension of health disparities. Sleep deprivation and chronic stress, both linked to obesity, can be a function of time availability. Having limited control over time use and scheduling can significantly influence eating and physical activity.

Why Help Moms? Critical Periods for Nutrition

Elizabeth Adams and Susan Bagby

Events at the earliest stages of life can have long-term effects. Obesity, heart disease, diabetes, cancer, hypertension, and other adverse health outcomes in adulthood have been linked to exposure to poor nutrition before birth. When small size at birth and in infancy is followed by rapid growth and being overweight in early childhood, risk of developing chronic diseases later in life is further increased. Similarly, when slow linear growth in utero is followed by failure to thrive during infancy and childhood, risk is increased for coronary disease and stroke.

How does this effect work? When the body's organs and regulatory systems are forming, poor nutrition and too few or too many calories can permanently alter their structure and function. These changes are possible because, for each organ or system, a period of plasticity occurs during critical windows of development, making it possible for environmental influences to permanently affect gene expression and program developmental pathways.

Developmental plasticity makes it possible for organ systems to adjust their development in response to the nature and the timing of nutrition and other cues from the intrauterine environment. Such adjustments favor survival if similar conditions prevail after birth. For example, insufficient calories and nutrients in utero may trigger adaptive physiological mechanisms that encourage maximal use of available nutrients, conferring an adaptive advantage in the womb. However, if food is abundant in post-natal life, the same adaptations can be detrimental for weight control.

Maternal weight before pregnancy is a strong predictor for childhood obesity in offspring. Obese women have higher rates of large-for-gestational-age births, which increases a child's risk for becoming obese. High-calorie intake early in life can affect fat cell development as well as how the brain regulates appetite, resulting in childhood obesity. When the obese child becomes an obese parent, the cycle continues.

The higher prevalence of obesity among women in lower socioeconomic groups suggests how health disparities can be initiated in the prenatal period. The evidence for the developmental origins of obesity presents a strong case for public health interventions that target the nutrition and health of young children, girls, and women through the child-bearing years, especially those from disadvantaged populations. The results of these efforts will influence the health and health equity of current and future generations. ■

Elizabeth Adams, PhD, RD, is an assistant professor in the Department of Public Health and Preventive Medicine and Susan Bagby, MD, is professor of medicine and physiology/pharmacology at Oregon Health & Science University in Portland, Oregon.

Time constraints, in fact, are changing food and family culture. Increases in the number of women in the workforce have significantly limited the time available for preparing healthy meals—from shopping and preparing to cleaning up. This time deficit drives up demand for convenience foods. Understandably, promotion of healthier but more expensive and time-intensive diets has encountered resistance and had little effect on obesity rates.

Work-site policies are an important avenue for obesity prevention. Flexible schedules, breastfeeding support, financial incentives for physical activity, and similar strategies make it easier to fit healthy behavior into work schedules.

The causes of obesity are woven into the economic and social fabric of a community. Having quality time to build bonds with others, for example, creates social cohesion, which has been linked to health. Policies to support and strengthen families and community networks, therefore, provide a foundation for obesity prevention efforts.

Continued on page 24

Reframing Obesity Prevention

Continued from p. 7

Aim for maximum impact

Improving nutrition, especially for young women, is a primary cross-cutting strategy for addressing health inequalities. Social and health disadvantages from poor nutrition begin before birth, accumulate over time, and persist across generations. Malnutrition in fetal life and infancy elevates the chance of obesity in adulthood (*see box on page 7*). Breastfeeding confers protective benefit for later obesity and other health problems. Women with less education and lower incomes are less likely to nurse their newborns. Nutrition interventions that target pregnant women and those of child-bearing age, therefore, can have significant short- and long-term benefit.

The Supplemental Nutrition Program for Women, Infants and Children (WIC) is an example of an intervention with potential for long-term, population-level change. WIC provides nutritional support to low-income children so they are born healthy, are breastfed, and have an opportunity to grow at a healthy rate during their first years of life. Recent changes in the WIC package that include more fruits and vegetables have the potential to further reduce the diet and health differentials among people from different social strata. With nearly 50 percent of newborns participating in the WIC program, this change has the potential for widespread positive effect.

Align partner priorities

Obesity prevention garners greater support when health becomes a shared goal. Throughout the Northwest, efforts are underway to increase access to healthy food, notably local produce, in schools and other institutions. The Washington legislature recently passed the landmark *Local Farms, Healthy Kids* bill that facilitates the availability of local foods in schools and food banks, with additional benefit to farmers and the public. Advocates from educational, agricultural, public health, and environmental sectors are now joining forces to create healthier food environments for children.

The connection between nutrition and academic achievement and the association between graduation and health outcomes have made schools a prime setting for childhood obesity prevention. Schools are well-positioned to reach children and to model and reinforce healthy eating habits. Well-designed and -implemented school meals programs help ensure that all children are fed healthy food and are ready to learn. Wellness policies are setting new standards to improve the nutritional status of food served at school. Bans on the school marketing and sale of foods that are energy-rich but nutrient-poor also have the potential for improving children's diets.

Low graduation rates are a primary indicator for obesity, which suggests that investing in education to boost graduation may have as great an effect on obesity rates as improving student access to fruits and vegetables.

Low graduation rates are a primary indicator for obesity, which suggests that investing in education to boost graduation may have as great an effect on obesity rates as improving student access to fruits and vegetables.

Find the tipping points

Reversing current trends in obesity rates will require collective calls for change. New norms begin with a deep understanding of community needs, priorities, and concerns. The challenge is to identify policies that are not only effective, but also practically and politically feasible. Listening to the voice of the community is a fundamental element of community health assessment.

Most of the Northwest states have developed state plans for nutrition and physical activity. These plans support breastfeeding, anti-hunger programs, physical activity, school health, and many other policy-level interventions.

The plans are based on the work of broad coalitions that come together to propose policy and environmental solutions to advance quality of life across several sectors. For instance, active transportation, such as walking or biking, reduces environmental burdens associated with automobile traffic, reduces exposure to air pollution that exacerbates asthma, and reduces risk of obesity. In Washington, language taken directly from the state plan is now part of legislation to include active transportation as part of city planning.

Act for equity

Poverty means more than having a low income. It includes the multiple and profound effects of disenfranchisement and lack of power, all of which increase chronic stress. Stress responses have biological ramifications, often expressed as changes in brain function and behavior and, ultimately, obesity. When negative responses are triggered at the population level, the extent of the outcomes is severe.

Communities throughout the Northwest are confronting obesity at many levels and acting at different points of intervention. The recently launched King County Equity and Social Justice Initiative, for example, is creating a community dialogue and bringing new stakeholders to the table to develop shared strategies for eliminating disparities.

With concerted plans of action that build equity into all efforts, advance forward-thinking public policy, and embrace community engagement, we can realize a vision of healthy communities and headlines reading "Obesity rates declining!" ■

Resources

King County Equity and Social Justice Initiative. www.kingcounty.gov/equity

World Health Org. Commission on Social Determinants of Health. www.who.int/social_determinants/en

Authors

Laura C. Streichert, PhD, MPH, is associate director of the UW Center for Obesity Research (UW-COR). Donna B. Johnson, PhD, RD, is associate professor of nutritional science and associate director of the Center for Public Health Nutrition (CPHN). Adam Drewnowski, PhD, is professor of epidemiology and director of UW-COR, CPHN, and the interdisciplinary Nutritional Sciences Program.

UW-COR: www.uwcor.org

CPHN: www.cphn.org

The UW-COR is supported by a grant from the NIH Roadmap Initiative (5P20RR020774-03).

 © 2008 University of Washington School of Public Health & Community Medicine