

# The NEW ENGLAND JOURNAL of MEDICINE

## Perspective

DECEMBER 3, 2020

A HALF-CENTURY OF PROGRESS IN HEALTH: THE NATIONAL ACADEMY OF MEDICINE AT 50

### Solving Population-wide Obesity — Progress and Future Prospects

Shiriki Kumanyika, Ph.D., M.P.H., and William H. Dietz, M.D., Ph.D.

According to the World Health Organization, the global prevalence of obesity has tripled since the mid-1970s. More than 1 billion adults are overweight, and 650 million adults and

124 million children and adolescents have obesity. Globally, obesity is responsible for 41% of uterine cancers; more than 10% of gallbladder, kidney, liver, and colon cancers; 40% of cases of cardiovascular disease<sup>1</sup>; and most cases of type 2 diabetes. SARS-CoV-2 infection is more likely to cause serious illness or death in people with obesity than in those with a healthier body-mass index (BMI).<sup>2</sup> The prevalence of obesity is higher in the United States than in other member countries of the Organization for Economic Cooperation and Development: nationwide, about 42% of adults, 14% of children 2 to 5 years of age, and 20% of children 6 to 19 years of age have obesity. Obesity disproportionately affects racial and ethnic minority groups and rural and low-income populations in the United States. Obesity rates have increased during the past two decades in all age groups except the youngest children.<sup>3</sup>

The past 50 years have seen increasing attention to the issue of obesity. Hunger dominated the U.S. nutrition-policy agenda through

the 1960s. In the late 1970s, Joseph Califano's foreword to the first Surgeon General's Report on Health Promotion and Disease Prevention referred to successes in combating infectious diseases during the first half of the 20th century as the first public health revolution and called for a second revolution to address mortality from major chronic diseases, including obesity (see timeline). Data from the National Health and Nutrition Examination Survey from 1970 onward have documented a shift of the BMI distribution in the United States, with an increasing prevalence of obesity and severe obesity. These findings raised awareness of obesity as not only a clinical problem but also one requiring a focus on public health solutions. The *Journal of the American Medical Association's* issue on obesity, published on October 27, 1999, included compelling maps from the Centers for Disease Control and Prevention (CDC) showing changes in obesity rates between 1991 and 1998; this issue mobilized the public health community. It became clear that en-

vironmental factors that increase food intake, reduce physical activity, and promote sedentary behavior and their interactions with endogenous factors that influence susceptibility were leading to weight gain for increasing numbers of people. U.S. Surgeon General David Satcher's 2001 report on overweight and obesity called for mobilization in various sectors and for changes in schools, workplaces, and communities to improve diets, increase physical activity, and reduce health disparities.

Major public- and private-sector investments have been made in the years since the 2001 report. Obesity and related aspects of nutrition policy became an important focus of the Institute of Medicine (IOM, now the National Academy of Medicine); such issues have been the topic of more than 40 consensus studies and workshop reports since 2004 (see the Supplementary Appendix, available at NEJM.org). These reports have included a national plan for the prevention of childhood obesity; recommendations for changes in the content of foods provided by the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and the National School Lunch and School Break-

fast Programs and foods sold separately from school meals (which were later incorporated into federal requirements); standards for school-based physical activity and physical education; a comprehensive strategy for policy and systems-level changes in food and physical-activity environments in settings including communities, schools, workplaces, and health care settings and in nutrition-education information and food advertising<sup>4</sup>; and approaches to addressing health disparities and achieving health equity. Other studies and workshops have focused on methods for evaluating progress, forming alliances among sectors, the role of the business sector in addressing obesity, and the challenge of reducing rates of overweight and obesity in the armed forces. Separately, Michelle Obama's "Let's Move!" campaign became a strategy for promoting healthy eating and physical activity to U.S. children, and a White House task force issued broad recommendations for addressing childhood obesity.

Legislative and regulatory successes have included substantial reductions in obesity among children living in poverty that have been linked to the Healthy, Hunger-Free Kids Act of 2010, which increased the quality of school meals for children from low-income households, and to revisions to the WIC program, which provides healthy foods to pregnant and postpartum women and children in low-income households. Fiscal strategies such as beverage taxes implemented by state and local governments to reduce purchases of sugary drinks have been met with opposition from some consumers and affected companies, but many such measures have moved forward. Some revenue from beverage taxes

has been used to support obesity-prevention projects in high-risk communities. The Diabetes Prevention Program trial demonstrated weight loss linked to lifestyle modification and a reduced incidence of type 2 diabetes in ethnically diverse populations with prediabetes; the trial's lifestyle-change approach has been disseminated and scaled up.

Globally, the development of the International Network for Food and Obesity/Non-communicable Diseases Research, Monitoring and Action Support (INFORMAS) has created an infrastructure for assessing progress in changing national and potentially subnational food environments. The premise of this network is that the same principles of assessment and monitoring that are applied to people's behaviors using national health surveys should be applied to food environments. INFORMAS assessment protocols use a benchmarking approach in which researchers score public- and private-sector entities on their food- and obesity-related policies, actions, and effects in various areas, including food composition and labeling. Researchers in 58 countries, including the United States, collect data using INFORMAS protocols.

There is now widespread agreement regarding the types of changes that are needed to address the U.S. obesity epidemic, although continued challenges relate to implementing programs and determining what combinations of strategies will improve BMI trajectories. Efforts to curb the obesity epidemic must include strengthening and scaling up the most effective strategies, combining complementary interventions, and giving these strategies time to work. This approach assumes that the fundamental

drivers of obesity can be allowed to remain in place — that we can work around them. But experts emphasize that obesity on a global scale is embedded in societal structures driven by the forces of globalization, urbanization, and technology. Moreover, disparities will be exacerbated if strategies don't reach racial and ethnic minority, low-income, and other high-risk communities, and there is some evidence that gaps are already widening. The Healthy Communities Study found that implementation of the CDC's recommended obesity-prevention strategies was associated with favorable BMI trajectories among White children and in higher-income communities in the Northeast, but not in other regions or among Black or Hispanic children or lower-income communities. Reducing obesity disparities will require strategies that address the underlying societal structures that lead to health disparities more broadly.

Reports from the IOM and the U.K. Government Office for Science have called for systems-level transformation to address the structures that foster and sustain population-wide obesity. It will be necessary to reimagine and reengineer systems that define modern life and to move away from the contexts that people often take for granted: an overabundance and the normative overconsumption of highly palatable processed and high-calorie convenience foods, motorized transportation, sedentary work and learning environments and entertainment, and companies whose profits depend on perpetuating these circumstances in both the general and highest-risk populations.

Global initiatives will be essential for success among and



**Obesity-Prevention Milestones.**

BMI denotes body-mass index, CDC the Centers for Disease Control and Prevention, IOM the Institute of Medicine, JAMA the *Journal of the American Medical Association*, NASEM the National Academies of Sciences, Engineering, and Medicine, UN the United Nations, and WHO the World Health Organization.

within countries. The Lancet Commission on Obesity has suggested confronting obesity globally within a syndemic framework that views obesity, undernutrition, and climate change as pandemics that interact with and have adverse effects on each other.<sup>5</sup> The overproduction and overconsumption that drive obesity also increase the release of greenhouse gases that exacerbate global warming, increase the risk of catastrophic weather events, and reduce crop yields and the micronutrient content of crops, thereby leading to food insecurity and undernutrition, particularly in low- and middle-income countries. Powerful societal, political, socioeconomic, and commercial drivers underpin and sustain these pandemics, and all three of them disproportionately affect less-advantaged populations.

Now is the time to act boldly. Syndemic framing can inform U.S. obesity prevention and control efforts. Although awareness of population-wide obesity is now well established, the public

health community hasn't seriously considered the links between obesity and other major health threats. Addressing these issues in concert could enable more effective and mutually reinforcing solutions. Underserved populations are disproportionately affected by obesity, food insecurity, and catastrophic weather events in the United States, for example, and they would benefit from coordinated efforts addressing these issues.

Potential solutions to the obesity pandemic are beyond the purview of medical practice and the scope of what the public health community can accomplish without enlightened investments from other sectors. Creating the right mix of promising strategies will undoubtedly have some positive effects, but these effects may not reduce (and may exacerbate) inequities. Ultimately, population-wide obesity cannot be overcome without far-reaching restructuring of current systems. Bold strategies will, by definition, be controversial and complex, but they are well worth debate and action.

The series editors are Victor J. Dzau, M.D., Harvey V. Fineberg, M.D., Ph.D., Kenneth I. Shine, M.D., Samuel O. Thier, M.D., Debra Malina, Ph.D., and Stephen Morrissey, Ph.D. Disclosure forms provided by the authors are available at NEJM.org.


From the Dornsife School of Public Health, Drexel University, and Perelman School of Medicine, University of Pennsylvania — both in Philadelphia (S.K.); and the Milken Institute School of Public Health, George Washington University, Washington, DC (W.H.D.).

This article was published on November 28, 2020, at NEJM.org.

1. The GBD 2015 Obesity Collaborators. Health effects of overweight and obesity in 195 countries over 25 years. *N Engl J Med* 2017;377:13-27.
2. Yadav R, Aggarwal S, Singh A. SARS-CoV-2-host dynamics: increased risk of adverse outcomes of COVID-19 in obesity. *Diabetes Metab Syndr* 2020;14:1355-60.
3. Ogden CL, Fryar CD, Martin CB, et al. Trends in obesity prevalence by race and Hispanic origin — 1999-2000 to 2017-2018. *JAMA* 2020;324:1208-10.
4. Institute of Medicine. Accelerating progress in obesity prevention: solving the weight of the nation. Washington, DC: National Academies Press, 2012.
5. Lancet Commission on Obesity. The global syndemic of obesity, undernutrition, and climate change: the Lancet Commission report. January 2019 ([https://marlin-prod.literatumonline.com/pb-assets/Lancet/stories/commissions/obesity-2019/GlobalSyndemicCommission\\_policybrief.pdf](https://marlin-prod.literatumonline.com/pb-assets/Lancet/stories/commissions/obesity-2019/GlobalSyndemicCommission_policybrief.pdf)).

DOI: 10.1056/NEJMp2029646

Copyright © 2020 Massachusetts Medical Society.

 An audio interview with Dr. Kumanyika is available at NEJM.org

## The Bottom of the Health Care Rationing Iceberg

Tim Lahey, M.D., M.M.Sc.

A stink filled the room as my patient eased coal-black toes out of his shoes. After spending winter nights in a tattered sleeping bag behind a local grocery store, he had developed frostbite and then gangrene.

In the hospital, we gave him intravenous antibiotics and debrided the dead tissue from his toes. Soon he felt better. He was enjoying regular meals and the kind attention of his nurses. Each day, a new crayon portrait of his life on the street went up on the walls,

scary scenes depicted in bright colors and childlike simplicity.

When the hospitalist said he was getting ready to discharge him, the patient's nurse shook her head and crossed her arms. "How is he supposed to heal if he goes right back out to the streets?" she asked.

She wasn't wrong. More than one in four discharged homeless patients is readmitted within 30 days, according to a recent study by a team from the Boston Health Care for the Homeless Program.<sup>1</sup>

The hospitalist noted that the patient would have been discharged much earlier if he hadn't been homeless. "But is hospitalization really the cure for homelessness?" he asked, as he ran a finger down a list of emergency department patients waiting for a hospital bed. "Don't we owe them something, too?"

There it is, I thought: the bottom of the health care rationing iceberg.

Since February, like ethicists around the world, I have spent