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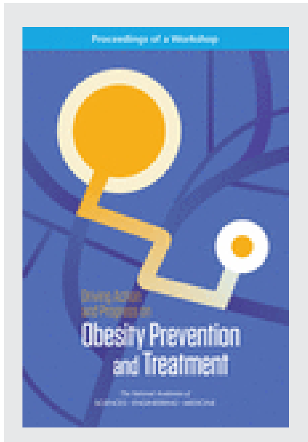

Driving Action and Progress on Obesity Prevention and Treatment: Proceedings of a Workshop

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Driving Action and Progress on Obesity Prevention and Treatment

Proceedings of a Workshop

Steve Olson, *Rapporteur*

Roundtable on Obesity Solutions

Food and Nutrition Board

Health and Medicine Division

The National Academies of
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This Proceedings of a Workshop has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published Proceedings of a Workshop as sound as possible and to ensure that the Proceedings of a Workshop meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the process. We wish to thank the following individuals for their review of this Proceedings of a Workshop:

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Although the reviewers listed above provided many constructive comments and suggestions, they did not see the final draft of the Proceedings of a Workshop before its release. The review of this Proceedings of a Workshop was overseen by **CONNIE WEAVER,** Purdue University. She was responsible for making certain that an independent examination of this Proceedings of a Workshop was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this Proceedings of a Workshop rests entirely with the rapporteur and the institution.

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Obesity Trends and Workshop Overview

After decades of increases in the obesity rate among U.S. adults and children, the rate has recently dropped among some populations, particularly young children (Fryar et al., 2012, 2014; Ogden et al., 2016). What are the factors responsible for these changes? How can promising trends be accelerated? What else needs to be known to end the epidemic of obesity in the United States?

To examine these and other pressing questions, the Roundtable on Obesity Solutions, which is part of the Health and Medicine Division of the National Academies of Sciences, Engineering, and Medicine, held a workshop in Washington, DC, on September 27, 2016, titled "Driving Action and Progress on Obesity Prevention and Treatment."[1] The workshop brought together leaders from business, early care and education, government, health care, and philanthropy to discuss the most promising approaches for the future of obesity prevention and treatment. More than 100 people attended the workshop in person, with several hundred more watching a live webcast.[2] Box 1-1 provides the workshop's complete statement of task; the workshop agenda appears in Appendix A; acronyms and abbreviations found throughout this proceedings are defined in Appendix B; and biographies of the speakers and facilitators are provided in Appendix C.

[1] The planning group's role was limited to planning the workshop, and this Proceedings of a Workshop was prepared by the workshop rapporteur with staff assistance as a factual summary of what occurred at the workshop.

[2] The webcast is available at http://nationalacademies.org/hmd/Activities/Nutrition/ObesitySolutions/2016-SEPT-27.aspx (accessed January 12, 2017).

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BOX 1-1
Workshop Statement of Task

An ad hoc committee will plan and conduct a 1-day public workshop that will focus on moving to the next level in solving the obesity crisis. The workshop will comprise individual invited workshop speakers' assessments of where the nation is in the obesity epidemic and the levers that could drive significant progress in obesity prevention and treatment. The workshop agenda will also include discussion on the gaps that can be filled through cross-sector collaborations of federal and local government, academia, health care institutions and professionals, the education and early child care communities, industry, and foundations and nonprofits.

The Roundtable on Obesity Solutions was established in 2014 to engage leaders from multiple sectors, including health care, academia, business, health insurance, education, child care, government, media, philanthropy, and diverse nonprofits, to help solve the nation's obesity crisis. The roundtable provides for inspiration and the development of multisector collaborations and policy initiatives aimed at preventing and treating obesity and its adverse consequences throughout the life span. It is also focused on eliminating obesity-related health disparities. A major purpose of the roundtable is to examine and promote dialogue around successful on-the-ground implementation of multisector solutions.[3]

U.S. TRENDS AND PREVALENCE

Highlights from the Presentation of Captain Heidi Blanck

- Although rates vary by age, gender, and race/ethnicity, 82.7 million American adults have obesity.
- After decades of increases in childhood obesity rates, some promising signs are beginning to emerge in the data on younger children, although disparities persist.
- A broad array of behavioral, societal, and community factors can affect weight, and these factors can be monitored to better understand the influence they can have on overweight and obesity.

[3] To learn more about the roundtable, visit http://nationalacademies.org/HMD/Activities/Nutrition/ObesitySolutions.aspx (accessed May 24, 2017).

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In the first presentation of the workshop, Captain Heidi Blanck, chief of the Obesity Prevention and Control Branch, Centers for Disease Control and Prevention (CDC), provided an overview of U.S. trends and prevalence in overweight and obesity to establish a framework for the ensuing discussion.[4] Obesity is associated with poorer health from physical and mental health conditions, she explained. It increases the risk of heart disease; stroke; type 2 diabetes; lung disease, including asthma; liver disease, including fatty liver; certain types of cancer; infertility; and a host of other problems (CDC, 2015). Excess weight "isn't just a cosmetic issue," Blanck stated. Obesity is "putting our children [and] adults at risk for early disease and early death."

According to data from the National Health and Nutrition Examination Survey (NHANES), more than one-third of adults in the United States have obesity; the first 15 years of the 21st century saw an increase in obesity prevalence of about 7 percentage points (Ogden et al., 2015) (see Figure 1-1). This percentage translates to 82.7 million U.S. adults struggling with obesity. And more than two-thirds of U.S. adults—71 percent—either have obesity or are overweight (CDC, 2016c). Data from the Behavioral Risk Factor Surveillance System[5] show a slower rate of increase in the prevalence of self-reported obesity among U.S. adults by state and territory since 2011, when the survey methodology was changed to ensure better representation of the U.S. population, Blanck explained (CDC, 2016a). Still, these self-reported data, like measured data, also show disparities by race/ethnicity.

Obesity is higher among women than men (38.3 percent versus 34.3 percent), and among people over 40 years old (40.2 percent for those aged 40–59; 37 percent for those aged 60 and over) than those aged 20–39 (32.3 percent) (Ogden et al., 2015). Obesity is also higher among African Americans and Hispanics (48.1 percent and 42.5 percent, respectively) than among non-Hispanic whites (34.5 percent) and non-Hispanic Asian Americans (11.7 percent), again with higher rates for women than men (Ogden et al., 2015). As Blanck pointed out, 56.9 percent of non-Hispanic black women and 45.7 percent of Hispanic women are struggling with obesity—a clear disparity by race/ethnicity (Ogden et al., 2015). In addition, she explained, birth certificate data show that 24.8 percent of women who gave birth in 2014 had obesity before becoming pregnant (Branum et al., 2016), thereby facing an increased risk of gestational diabetes and other maternal morbidities and mortalities.

[4] The findings and interpretation in her workshop presentation are solely her views and do not represent the official views of the CDC or the U.S. Department of Health and Human Services.

[5] See https://www.cdc.gov/obesity/data/prevalence-maps.html (accessed November 22, 2016).

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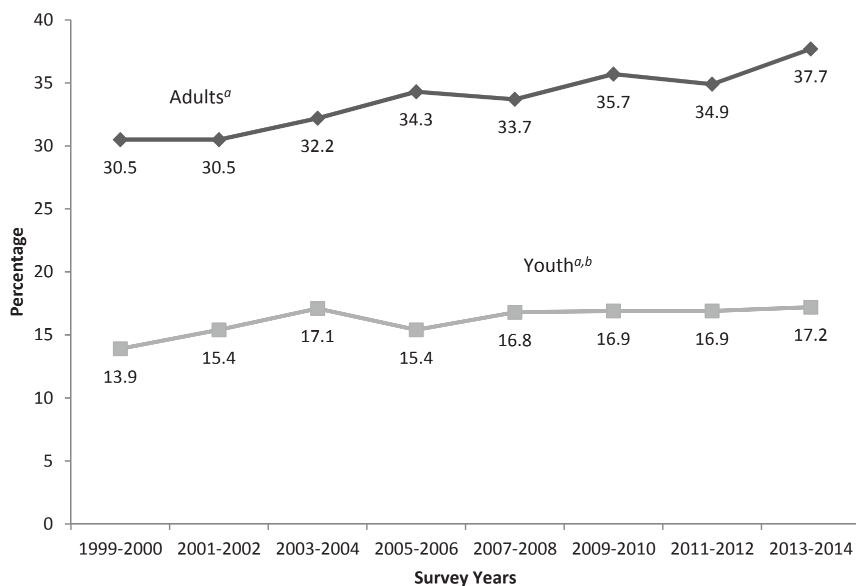

FIGURE 1-1 Trends in obesity prevalence among adults aged 20 and over (age-adjusted) and youth aged 2–19 years: United States, 1999–2000 through 2013–2014.
NOTE: All adult estimates are age-adjusted by the direct method to the 2000 U.S. census population using the age groups 20–39, 40–59, and 60 and over.
[a]Significant increasing linear trend from 1999–2000 through 2013–2014.
[b]Test for linear trend for 2003–2004 through 2013–2014 not significant (p >0.05).
SOURCES: Ogden et al., 2015. Presented by Heidi Blanck, September 27, 2016 (http://www.cdc.gov/nchs/data/databriefs/db219.htm [accessed November 14, 2016]).

CHILDHOOD OBESITY TRENDS

According to NHANES data, obesity rates have increased substantially among U.S. youth aged 2–19 over the past three decades (see Figure 1-2). Among 12- to 19-year-olds, obesity almost doubled between 1988–1994 and 2013–2014 (Ogden et al., 2016). Starting in the late 1980s, the rate also rose appreciably for 6- to 11-year-olds and for 2- to 5-year-olds (Ogden et al., 2016). Altogether, 12.7 million U.S. youth are struggling with obesity, according to the most recently available data. Furthermore, extreme obesity rose in 12- to 19-year-olds from 2.6 percent in 1988–1994 to 9.1 percent in 2013–2014. “This is definitely an area where we need to be thinking about resources and strategies,” Blanck said.

However, some promising signs have started to emerge in recent years, Blanck observed. The prevalence of obesity declined among 2- to 5-year-olds between 2003–2004 and 2013–2014, from 13.9 percent (95 percent

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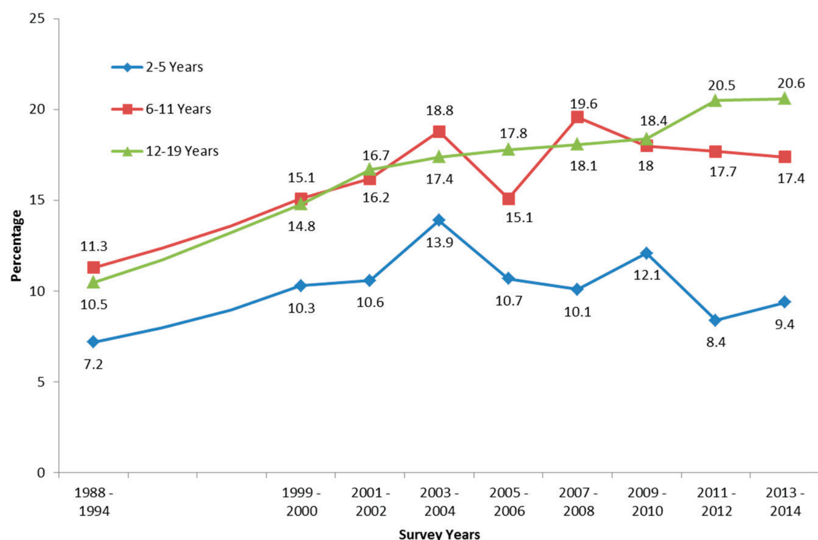

FIGURE 1-2 Prevalence of obesity, youth aged 2–19 years, by age: United States, 1988–1994 through 2013–2014.
NOTE: Obesity is defined as at or above the sex-specific 95th percentile of body mass index (BMI)-for-age Centers for Disease Control and Prevention (CDC) growth charts; extreme obesity is defined as 120 percent of the sex-specific 95th percentile of BMI-for-age CDC growth charts.
SOURCES: Ogden et al., 2016. Presented by Heidi Blanck, September 27, 2016.

confidence interval [CI], 10.7–17.7 percent) in 2003–2004 to 9.4 percent (95 percent CI, 6.8–12.6 percent) ($p = 0.03$) in 2013–2014. Similarly, after reaching a peak of 19.6 percent in 2007–2008, the prevalence among 6- to 11-year-olds has since held steady (Ogden et al., 2016). "We're hoping that [these data show] that we're aiding the ability for the youngest of our children to thwart obesity," Blanck said.

Disparities in obesity rates also are evident in the data from this period for 2- to 19-year-olds, with prevalence being lowest among Asian Americans (8.6 percent), higher for non-Hispanic whites (14.7 percent), and highest among non-Hispanic blacks (19.5 percent) and Hispanics (21.9 percent) (Ogden et al., 2016). Among low-income 2- to 4-year-olds enrolled in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) whose data were part of the CDC's Pediatric Nutrition Surveillance System, obesity rates rose from about 13 percent in 1998 to just under 15 percent in 2011 (Pan et al., 2015). Among non-Hispanic white, non-Hispanic black, Hispanic, and Asian/Pacific Islander children, the rates

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decreased, Blanck observed. The exception, she continued, was American Indian and Alaska Native children enrolled in WIC, who experienced obesity at a rate of 21 percent in 2011.

Another hopeful sign Blanck described comes from state-level data on changes in obesity rates among low-income 2- to 4-year-olds (CDC, 2013). Between 2008 and 2011, 19 states saw a small but significant decline in childhood obesity, while only 3 saw increases (CDC, 2013). Blanck noted that the CDC will soon release data from a new biennial monitoring system for children in the WIC program—the U.S. Department of Agriculture's WIC Participant Characteristics Survey—that found the prevalence of obesity and overweight to be 31.2 percent among 2- to 4-year-olds in 2012 (HRSA, n.d.), with lower rates among non-Hispanic whites, non-Hispanic blacks, and Asian Americans/Pacific Islanders and higher rates among Hispanics and American Indians and Alaska Natives. Another promising trend, Blanck said, can be seen in data from a few locations across the country, including the New York City public schools, generated by the use of FitnessGrams®, with rates of obesity declining slightly since 2006–2007 (Berger et al., 2011). Still, she noted, disparities persist in many communities; for example, African American and Hispanic children experienced obesity at a higher rate than their white and Asian/Pacific Islander counterparts.

IMPROVED MONITORING

"We're starting to see some great local success stories," said Blanck. But she argued that improvements in the quality of monitoring efforts and interpretation of short-term data need to be considered. For example, NHANES has fewer than 1,000 children in its 2- to 5-year-old 2-year sample (e.g., 2013–2014, versus more stable estimates when the data are pooled across the 2011–2014 cycles), and it often takes about 2 years for the data to become available to the public. Moreover, researchers may need additional training in or knowledge of post hoc approaches for data cleaning to minimize errors and bias when working with data from HeadStart and FitnessGram® or self-reported data.

Combining data from different sources, such as birth certificates and vital statistics, can help fill some of the current gaps in obesity surveillance, Blanck suggested. Also, new technologies such as electronic health records provide opportunities to facilitate surveillance and improve public health. A specific example cited by Blanck is an open-source platform that can aid in the exchange of information—known as Fast Healthcare Interoperability Resources—by helping to harness data from electronic health records for public health monitoring. "As entities move forward in negotiating data sharing agreements with health care," she said, "public health jurisdictions across the country are going to be able to monitor body mass index

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and see whether their state and local programs and policies are making a difference." Monitoring of data from other sources, such as data on state and district policies and practices in schools and early care and education programs, community built environments, consumption of fruits and vegetables, food insecurity, breastfeeding rates, and physical activity, can provide information on the broad array of behavioral and social influences that affect weight, she explained.

Anticipating discussions in the remainder of the workshop, Blanck observed that a broad array of societal and community factors can have an influence on weight. Retrospective analyses of places where obesity among children has declined, she noted, have pointed to such factors as policies related to nutrition and physical activity—for example, child care and school wellness policies. In particular, she emphasized the presence of strong community coalitions in places where obesity has declined, entailing "engagement with business leaders, engagement with child care and schools, engagement with parents." Researchers are also continuing to look at additional factors related to energy balance, including the microbiome, sleep, stress, and environmental chemicals. Simple fixes cannot be expected, Blanck concluded, but evaluations of success and continued surveillance and research can support further progress.

THEMES OF THE WORKSHOP

Bill Purcell, currently with Farmer Purcell & Lassiter, PLLC, and former mayor of Nashville, Tennessee, summarized general themes he had identified during the workshop presentations and discussions. These themes are presented here as an introduction to the topics discussed during the workshop and should not be viewed as the conclusions of the workshop as a whole:

- Multifactorial and multisectoral approaches with coordination at all levels and in all sectors can help end the obesity epidemic, Purcell reflected. Key factors include making obesity relevant to everyone, addressing the social determinants of health, sharing progress, staying the course, and making sure that everyone knows what to do. (Chapter 2)
- In early care and education, promising approaches exist for practice, training, technical assistance, and self-assessment for improvement, Purcell noted, referring to the panel discussion. Important issues remain, however, including disseminating and scaling up these approaches, achieving equity, dealing with funding limitations, and translating research results into sustainable programs. (Chapter 3)

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- Many businesses are developing a new awareness of their potential role in health and well-being, Purcell said, with some businesses being described as bridging the gap between profit and purpose. The results in some cases have been transformative. But the individual panelists on this topic advised that difficult conversations will be necessary to tap this resource, along with incentives that encourage and enable businesses to change. (Chapter 4)
- The session on physical activity revealed that U.S. children are among the least physically active in the world, Purcell noted, although there has been some improvement since 2008. Physical activity interventions can make a difference, but few are widely implemented, often for reasons of cost. Training and technical assistance can improve the implementation of such interventions, and advocates and leaders can champion the cause, recounted Purcell. (Chapter 5)
- The treatment of obesity is a challenge, observed Purcell, with more than 17.6 million Americans having severe obesity and just 1,600 new doctors being certified in obesity medicine each year. He noted several challenges that speakers had identified, including gaps in treatment capacity, guidelines, insurance coverage, and understanding of disparities among groups that additional research could help bridge. Only 25 percent of physicians report that they have had enough training to talk with their patients about obesity. Speakers during the treatment panel suggested taking an integrated approach, paying more attention to social programs, and developing common definitions and competencies as possible solutions. (Chapter 6)
- The U.S. Department of Agriculture has played an important role in federal efforts to prevent obesity, Purcell summarized. Through the WIC program, the Supplemental Nutrition Assistance Program, and the MyPlate guide, it acts to address problems at multiple societal levels and accelerate progress on many fronts. (Chapter 7)
- Philanthropists have supported work on obesity prevention and treatment for decades, noted Purcell, and the speakers on the philanthropy panel stated that they will continue to support this work. (Chapter 8)
- Purcell encouraged foundations and other advocates to remain committed for the long haul, because ending the obesity epidemic will require a sustained commitment. Staying the course, he suggested, includes developing a better understanding of what can work at the street level, the neighborhood level, the store level, the regional level, and the national level.

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2

Two Decades of Obesity Prevention and Treatment

Highlights from the Discussion of Individual Speakers

- A series of articles and books dating from the late 1990s have called attention to the obesity epidemic and how to counter it. (David Satcher)
- Efforts to change the social determinants of health could have the greatest effect on health and obesity. (David Satcher)
- The tobacco control campaign demonstrates the great potential to change societal norms and unhealthy behaviors. (Jeffrey Koplan)
- Sustaining the effort to end the obesity epidemic will depend on whether people believe the issue is directly relevant to them, see evidence of progress, and have a sense that what they do will make a difference. (Vivek Murthy)

William (Bill) Dietz, director of the Sumner M. Redstone Global Center on Prevention and Wellness at George Washington University's Milken Institute School of Public Health, moderated a wide-ranging discussion with three of the leading figures in identifying and responding to the obesity epidemic in the United States: David Satcher, founding director and senior advisor to the Satcher Health Leadership Institute at the Morehouse School of Medicine, and 16th surgeon general and 10th assistant secretary for health of the United States; Jeffrey Koplan, vice president for global

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health at Emory University and former director, Centers for Disease Control and Prevention (CDC); and Vice Admiral Vivek Murthy, 19th surgeon general. The topics they discussed included the labeling of obesity as an epidemic, the social determinants of health, comparisons with antismoking campaigns, and how momentum for dealing with a complex and difficult problem can be maintained. In their presentations, these speakers laid the groundwork for the discussions of specific settings and policy issues later in the workshop.

THE HISTORY OF AN EPIDEMIC

In response to a question from Dietz, Koplan noted that in the 1990s, the people who most noticed obesity in the United States were visitors from other countries. "You couldn't travel anywhere without people saying to you, 'What's going on in your country?'" Then, in 1999, the *Journal of the American Medical Association* (JAMA) devoted an entire issue to obesity, including an article by Koplan and his colleagues that called attention to the spread of obesity during the previous decade (Mokdad et al., 1999). "I give *JAMA* and the American Medical Association a lot of credit, because they recognized the subject as important, and important in a long-range way," said Koplan.

The article was the subject of some pushback as to whether it was appropriate to label the increase in obesity an epidemic, recalled Koplan. That reaction was "good for the cause," he said, "because it permitted public health people and epidemiologists to say, 'You're damn right it's an epidemic, and here's why.' It was an effective kickoff to introducing this to the press as a subject of interest and, of course, to professionals and the public as a subject of more than passing interest."

In 2001 the *Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity* was released, offering recommendations for families, communities, schools, health care, media and communications, work sites, and the federal government (HHS, 2001). Satcher explained that it was the first call to action released during his time as surgeon general, and it was a relatively brief report. "We felt that if you're dealing with an epidemic," he said, "you've got to figure out a way to get people's attention, and you've got to figure out a way to get people to act. And so we didn't waste a lot of pages on discussing and explaining but got right to the point to say, 'This is what we need to do.'" The report introduced the acronym CARE: C for communication, A for action, R for research, and E for evaluation. "We hoped that . . . we would motivate actions in all of those settings," said Satcher.

Satcher cited what has happened in schools as the most important action since the release of the report. When he left government, he helped

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found Action for Healthy Kids,[1] a public–private partnership of more than 75 organizations dedicated to promoting health in schools. As he explained, "Our argument was that there were some kids who didn't have safe places to play in their communities; they were not from homes where their parents understood the importance of nutrition or had access to good nutrition. But we felt that the schools should be the great equalizers in the sense that, at school, every child should have an opportunity to experience good nutrition and physical activity." Although this vision has not yet been fully realized, he said, "we have made a lot of progress in the schools, . . . and we need to keep that going."

In 2005, an Institute of Medicine committee chaired by Koplan released the report *Preventing Childhood Obesity: Health in the Balance* (IOM, 2005), which was followed up in 2007 by the report *Progress in Preventing Childhood Obesity: How Do We Measure Up?* (IOM, 2007). Koplan subsequently became chair of the Institute of Medicine Standing Committee on Childhood Obesity (the forerunner of the Roundtable on Obesity Solutions). These and other reports produced up to the present day have recommended multiple elements that work together: "a range of different players approaching this, a range of different approaches, multiple actions in a given community—even while we're still determining which of them work better and how they work in concert with each other," said Koplan. In addition, he reported that over the past decade foundations and other funders have been devoting large sums of money and energy to the issue. The Robert Wood Johnson Foundation, for example, initially dedicated $500 million to obesity prevention and treatment and then renewed that initiative. At the same time, Koplan continued, key voluntary health organizations in the country have made obesity a top priority, as have individual communities and states. These efforts still need to be better coordinated, measured, and evaluated, he said, "but we have some potential best practices out there, and we have enumerable examples from cities and some states."

THE PERSISTENCE OF DISPARITIES

Satcher cited as one of the most influential experiences he has had since leaving government working with the World Health Organization's Commission on Social Determinants of Health. The 24 commissioners traveled all over the world, and everywhere they beheld how "the social determinants of health stood out in terms of the impact that they were having on health and health outcomes." Concentrating on the social determinants

[1] See http://www.actionforhealthykids.org (accessed November 21, 2016).

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of health "is where we're going to make the greatest difference," Satcher asserted.

The commission's final report emphasized that changing the social determinants of health will require changes in policy (CSDH, 2008). Schools and communities are particularly promising targets of such changes, Satcher suggested. He gave the example of the City of Louisville, which changed zoning laws to expand access to fresh fruits and vegetables. Similarly, he said "we can never justify having a situation in which every child doesn't have access to a safe place to be physically active." He cited a report produced by Action for Healthy Kids demonstrating that children who are active and well nourished learn better and are more prepared for school (Action for Healthy Kids, 2004). According to Satcher, if schools were aware of this finding, they would be less likely to cut funding and time for physical education. "We still haven't [reached] the point where all schools value physical activity and good nutrition, but we're moving in the right direction," he said. Additional scientific research on this and other contributors to the obesity epidemic, he added, could foster needed policy changes.

Murthy said that when he became surgeon general he wanted two values—prevention and health equity—to drive everything his office did. But he quickly realized that discussions of health equity can make people uncomfortable. Such conversations, he said, "force us to confront the fact that people who are like us and who deserve the same opportunity to lead a healthy life are not afforded that opportunity." He gave the analogy of a family in which two of three children have access to healthy food, physical activity, and health care, while the third child does not. No family would shower all of its love and resources on two children while neglecting a third, he argued, "but we don't do that with societal inequities, because we don't necessarily feel that sense of the family and community." Overcoming that lack of connection requires rebuilding a sense of community, he argued, so that people empathize with what others are experiencing and have a vested interest in the outcomes and well-being of others. The United States has "the potential for diversity and understanding but too often ends up segregated and excluded," he asserted, with entire groups of people being siloed in separate parts of towns and invisible to other groups. "If we want equity to be a focus," he said, "we have to recognize that equity is not just a policy priority; it's a value that reflects who we are as a country. For that reason, it has to be a part of how we evaluate our success. It has to be a part of how we train our medical and public health professionals. It has to be a part of what we track in terms of the research that we do when we're evaluating whether programs work or don't work."

What was once seen as a U.S. problem is now a worldwide problem, Koplan observed. Some of the highest rates of obesity in preteen boys are in Italy and in Greece, he noted, and such countries as England and

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Germany have widespread adult obesity. He argued that this represents an opportunity for the United States to learn from other countries. Scotland, for example, has placed a heavy emphasis on social determinants in its health policies, he observed. It has sought to provide safe, attractive, and accessible places for people to be physically active, he continued, and housing, transportation, and schools are incorporated in the country's health program in a seamless way. "We're going to need to go in that direction," he said, even if it requires seeking to reverse the loss of a sense of mutual responsibility and community in the United States.

According to Murthy, "We spend a lot of money on health care in this country, but we don't invest a lot of it in health promotion and disease prevention." Furthermore, he noted, funding that affects public health is segregated into sectors, such as transportation, housing, public health, and health care. But the sectors need to work together, he argued, to build healthy communities, and without more flexible funding, the issue of who pays for the initial up-front investment will always be contentious. Recently, he explained, the Centers for Medicare & Medicaid Services has been funding demonstration projects aimed at moving toward a model of community-wide prevention funding, while accountable care organizations have been moving away from fee-for-service payment models to paying for desired health outcomes. "We're going to need to change overall our funding in communities and tie funding to collaboration if we want a multisector approach that addresses the social determinants of health," Murthy argued.

During the discussion session, Shiriki Kumanyika, research professor for community health and prevention at Drexel University and founder and chair of the African American Collaborative Obesity Research Network, raised the issue of unintended consequences of implementing public health interventions. She referred to evaluations finding that certain interventions could widen disparities by exacerbating issues in low-income communities. She hypothesized that restrictions on marketing of food could fall into that category. When public health measures force an unhealthy product from an affluent community, for example, it may remain or become even more widely promoted in less advantaged communities, especially where the product is still popular and affordable, and disparities could increase as a result. Koplan added that the same thing happens internationally, with unhealthy products moving to other countries or toxic chemicals being produced and stored abroad. "There is a pattern in multiple areas of public health in which items that are toxic, either by ingestion or by exposure or by addiction, get shifted onto vulnerable communities," he said.

Melissa Clark, director for population health at the National Human Genome Research Center, suggested that the scope of data on disparities in obesity should go beyond race and ethnicity. Many factors affect the health of population groups, she asserted, such as maternal and paternal nutri-

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tion, access to supermarkets, and safe neighborhoods. Presenting statistics in terms of race and ethnicity can be instructive, she said, but can mask other social determinants of obesity. She argued that presenting statistics in terms of such indicators as poverty, access to groceries, and zip codes could provide much more useful information than that gleaned from ethnic and racial categorizations.

PARALLELS WITH TOBACCO CONTROL

The panelists drew several parallels between efforts to combat obesity and tobacco control, in which considerable progress has been made over the last half century, observed Koplan, often driven by reports from surgeon generals. However, tobacco control is a more direct problem than obesity prevention and treatment, he pointed out. The toxic effects of tobacco are widely accepted, he noted, and commercial sources of tobacco are readily identifiable, whereas the commercial products that contribute to obesity are more benign in normal doses. "I'm not apologizing for all things that are ingested," he said, but "it's a much more complex issue to deal with."

Nevertheless, Koplan asserted, the tobacco control campaign demonstrates how much is possible. A few decades ago, he said, the idea that people would not be able to smoke in the workplace was inconceivable, as was the idea that taxes could be much greater than the cost of making cigarettes. These steps were labeled "wishful thinking," he observed, yet since then they have been implemented, and he credited them with helping to cut the rate of smoking in the United States in half. People have to "demonstrate the stamina to get with [the fight against obesity] and stick with it, and it has to take place no matter what political party is in power, no matter what else is going on," he said. "Tobacco has done that and has done it successfully. . . . We have to employ a similar level of energy."

According to Satcher, the tobacco campaign also demonstrated how the promotion of healthful models can cause best practices to spread. In 1990, for example, California was the first state to establish a comprehensive statewide tobacco control program, which included banning smoking in public places (Office of Smoking and Health, 2001). Between 1988 and 1997, the state saw a decrease in lung cancer incidence among women, while other regions experienced an increase, a finding Satcher worked to disseminate widely. Today many states and cities have outlawed smoking in public places. "We need to do a better job of highlighting successful models if we're going to make real progress," Satcher asserted.

Murthy drew a contrast with the tobacco campaign, warning against "picking a bad guy" and "saying this person is responsible for everything" with regard to obesity. For example, he said, while the practices of the food and beverage industry could be better, businesses have stepped up to

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improve health through the Partnership for a Healthier America and other endeavors. Also, he suggested, part of the effort to shift the products and services offered includes working to shift demand as well as supply. However, he argued that efforts to increase demand for more healthful foods must be paired with lowering prices because "[healthful options] are far out of reach for far too many people."

Koplan observed that stigmatizing people who are overweight or obese is not acceptable, but as with tobacco, "there also is a problem in normalizing it." "There has to be an interplay," he said, "where people are compassionate and understand that this is a health problem, not a cosmetic or aesthetic issue . . . and it has to be something that we work to diminish."

THE CAMPAIGN FOR WALKING

Murthy has been a leader in the effort to promote physical activity, particularly walking. *Step It Up!: The Surgeon General's Call to Action to Promote Walking and Walkable Communities* (HHS, 2015) was released in September 2015. In traveling around the country as surgeon general, Murthy has heard that time for physical activity is disappearing from schools and that communities today have fewer places for children to play than in the past.

"We live in a world that often believes that complex problems can only be met with complex, expensive solutions," Murthy said. "[But] every now and then there are some simple elements that can be part of the solution that are accessible for people to take, and walking happens to be one of them." He pointed out that an average of just 22 minutes of brisk activity, when performed consistently, can lower a person's risk of diabetes by 30 percent while also lowering the risk of cardiovascular disease and sudden death (HHS, 2015). "I guarantee you that if I created a taken-once-daily medication that lowered your risk of diabetes by 30 percent, I would probably do quite well," he said. "But people are used to the idea of taking pills to improve their health and less necessarily inclined to believe that lifestyle change is worth the investment."

In many communities, "the ability to step outside our door and take a walk after dinner is often not that easy," Murthy pointed out, noting that in neighborhoods that are not safe, people can risk being the victims of crime if they go for a walk. He therefore has been calling attention to the structural factors that impact walking. His office has been working with city planners, local elected officials, and others to help them understand that making communities walkable is "a very powerful public health intervention."

Koplan also advocated for policy changes that promote physical activity in communities and that are tied to funding. He suggested creating a

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range of incentives to promote physical activity, citing the example of creating incentives for developers to build or renovate sidewalks. He argued that such measures can have benefits down the road. "When that gets done, housing values go up; it benefits the builders; it benefits the community as a whole; it benefits the tax base. Doing the right thing can also sometimes play into economic growth and enhancement of other areas of life."

Incentives are the critical factor, agreed Satcher. He gave the example of major businesses that had created incentives for employees to quit smoking and saw tobacco use among their employees fall dramatically. But in addition to incentives, he called for investments in what he identified as the leading social determinants of health—education, income, and safety.

As an example of an incentive, Murthy cited a walking competition among the clinicians at Brigham and Women's Hospital in Boston. People initially said they would never have the time to compete, but soon they were finding time to take 20,000 to 30,000 steps per day. Because the incentives were aligned with the culture of the hospital, people incorporated walking into their everyday life. For example, physicians would meet for walks rather than coffee. "The idea of taking a walk with somebody and conversing is a subtle but powerful shift," Murthy observed. "It's part of the cultural change that can drive behavior change." Similarly, Koplan said, physically active video games and other activities done in front of screens may not be perfect, but they can allow physical activity to take place.

Finally, Eduardo Sanchez, deputy chief medical officer for the American Heart Association, raised the issue of loose dogs, which in many ways act as a proxy for the lack of safety that can deter people from walking. Citing the city of Dallas as an example, he noted that, in some neighborhoods, loose dogs act as a powerful force against walking, reducing not only physical activity but also social cohesion.

MAINTAINING MOMENTUM

The challenge for obesity prevention and treatment, Koplan argued, is to maintain momentum with a problem that took time to develop, has many contributing factors with uncertain and interacting effects, strikes disadvantaged groups the most, and will take time to solve. Murthy agreed, noting that people can tire of being reminded about the obesity epidemic. Their response can be, "We know it's a problem, but stop trying to take my chips away." Three things are necessary if people are to sustain their efforts in an epidemic, he continued: they need to believe that the issue is directly relevant to them; they need to see evidence of progress; and they need to have a sense of clear agency, "that there are things they can do in their day-to-day lives that will make an impact." All three of these things were present in the tobacco campaign, he argued. With the sense of agency,

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for example, "at the very basic level, you could choose to quit. At another level, you could talk to family members you love about quitting. At yet another level, if you're a local elected official, you could think about passing clean indoor air laws and know that that would have an impact on the health of your community." So as Koplan had suggested, the challenge with obesity is that it is an epidemic with multiple causes that will not have a quick fix. Rather, Murthy asserted, it will require a long-term commitment and engagement of the public.

Government warns people about many threats—such as the Zika virus, obesity, and prescription opioids—"and sometimes, with all of that, people can feel overwhelmed, and they tune out," said Murthy. One approach is to engage people in communities to help change the environment, which is "a powerful avenue through which we can impact the choices that people make," he suggested. Changing the environment is not always easy, he acknowledged, and families may be busy and short of resources, including time. Changing the environment also often requires having difficult conversations with people who do not want to change. But Murthy has been encouraged by seeing what is possible, and he cited the example of a group of mothers who succeeded in removing advertising for unhealthy foods from the schools their children attended. "They didn't necessarily have a lot of money; they didn't have a whole lot of training; they were not public health experts," he said. "These were grassroots mothers who care deeply about their kids, and that was actually their most powerful asset." People often underestimate how much change is possible, he observed. "If we can help them see examples of progress, and help them learn from other communities how to make their voices heard, that could be incredibly powerful."

Murthy continued by pointing out that people have a hunger to learn from others. "If I go to Birmingham and they know I was in Chicago the day before," he noted, "they'll often say, 'We know that Chicago has had problems with obesity. What are they doing about it? Can we learn something from them?'" Great things are happening at the grassroots level, he observed. The challenge is to connect communities so they can learn from each other; to provide advocates with the resources they need to make their work collaborative and sustainable; and to enable them to see their progress, giving them a sense of hope.

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3

Early Care and Education

Highlights from the Presentations of Individual Speakers

- The identification of best practices and policy changes at the state level has highlighted the importance of improved nutrition and physical activity in early care and education. (Debbie Chang)
- Collaboration, federal policy, efforts of the private sector, and the existence of a spectrum of opportunities are critical factors in pursuing and treating obesity in young children. (Debbie Chang)
- Many state, local, and private-sector organizations are working to incorporate obesity prevention within the child care sector. (Daithi Wolfe)
- Every child care program and setting deserves to be included in the policy-making process for early care and education. (Anna Mercer-McLean)
- Child care centers face barriers to improving the quality of the nutrition and physical activity services they provide, including a lack of resources needed to implement positive changes. (Anna Mercer-McLean)

In the second panel of the workshop, a group of experts on early care and education examined the broad range of steps that can be taken for

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children aged 0–5 to establish lifelong behaviors that can prevent obesity. Debbie Chang, senior vice president of policy and prevention with Nemours Children's Health System, described opportunities to prevent obesity in early care and education settings. Daithi Wolfe, early education policy analyst with the Wisconsin Council on Children and Families, spoke about progress and challenges in obesity prevention at the state level. Anna Mercer-McLean, executive director of the Community School for People under Six, a child care center in Carrboro, North Carolina, emphasized the importance of including the voices of providers in prevention efforts.

OPPORTUNITIES IN EARLY CARE AND EDUCATION

At the beginning of the 21st century, very little work was being done on obesity prevention in child care settings, Chang noted, but a series of developments over the past decade and a half have established early care and education as a key locus for childhood obesity prevention efforts. She suggested that the identification of best practices directed attention to what works and allowed those practices to be expanded, while policy changes at the state level, such as child care licensing changes, fostered healthy eating and active play. Despite this progress in scaling up best practices, however, a central question persists, said Chang: "How do we reach the most children in the shortest period of time with the highest-impact policy and practice changes in the most efficient way?"

"Starting early makes sense," Chang argued. She recalled a previous Roundtable workshop, Obesity in the Early Childhood Years: State of the Science and Promising Solutions (NASEM, 2016),[1] at which several modifiable risk factors for developing obesity at a young age, including taste and flavor preferences, sleep adequacy, and feeding practices, were explored. "In those critical early years—pregnancy to age 5—we need to embed those risk factors and protective factors in all that we do," she asserted.

Chang emphasized four critical factors in efforts to promote healthy weight through early care and education. The first was collaboration. Chang cited the example of Healthy Kids, Healthy Future, a collaboration that has brought experts on early care and education and obesity prevention together to work on child care issues. To advance such cross-sectoral work, she suggested, it is important to build trust, forge partnerships, and continually reassess and reset system goals. "Multi, multi, multi—multiple partners, multiple sectors, multiple systems, and multiple strategies. It will take all of these components to get the change that we need," she argued.

The second factor Chang emphasized was federal policy. "Over time,"

[1] A full summary of the workshop is available at https://www.nap.edu/catalog/23445 (accessed January 9, 2017).

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she observed, "we have embedded the opportunity for healthy eating and physical activity in a range of federal programs" that address child care. The U.S. Department of Education, for example, has focused on early childhood education through its Race to the Top—Early Learning Challenges program (ED, 2016), while the U.S. Department of Agriculture has adopted new standards for meals served through the Child and Adult Care Food Program, which reaches millions of children in child care centers (FNS, 2016) (see Chapter 7). Similarly, Chang noted, the Administration for Children and Families within the U.S. Department of Health and Human Services has integrated healthy eating and physical activity into its grantmaking (Office of Child Care, 2016).

The third factor Chang cited was involvement of the private sector. The Partnership for a Healthier America, for example, has garnered commitments from five national private child care companies to encourage healthier eating and physical activity within their centers (Partnership for a Healthier America, 2015). When these commitments are realized, Chang reported, they will reach nearly 1 million children in child care settings (Partnership for a Healthier America, 2015).

Finally, Chang emphasized the "spectrum of opportunities" for obesity prevention in early care and education settings identified by the Centers for Disease Control and Prevention (CDC) (see Figure 3-1). These "levers"

FIGURE 3-1 The spectrum of opportunities for obesity prevention in early care and education settings.
SOURCES: CDC, n.d. Presented by Debbie Chang, September 27, 2016.

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BOX 3-1
Opportunities for Obesity Prevention in Early Care and Education

Debbie Chang identified the following opportunities for obesity prevention in early care and education.

Regulatory Approaches

Policy

- Incorporate best practices and standards into licensing or quality rating and improvement systems (QRIS).
- Create a consensus document with shared practices and recommendations.

Practice

- Create and implement wellness policies.
- Examine what activities are already required in a state and use those as opportunities to integrate health messaging and behaviors.
- Engage parents as partners.
- Participate in state learning collaboratives.
- Link child care and nutrition program staff with licensing monitors.

Research

- Monitor and evaluate the impact of changes in licensing standards or QRIS adoption on specific and measurable outcomes among children, facilities, and staff members.

Equity

Policy

- Ensure that policies do not adversely impact the ability to provide quality care, especially in at-risk communities and among vulnerable populations.
- Ensure that guidelines for federal programs—such as the Child and Adult Care Food Program—are flexible enough to allow for culturally appropriate foods that still meet basic minimum nutrition standards.

range from training for child care professionals to licensing standards, all of which can be used to address obesity prevention, she pointed out. She listed several "best bets" and how they can work to embed obesity prevention practices into child care settings. Regulations and accountability for compliance can change practices, she explained, while training, technical assistance, and self-assessment can improve programs. And best bets in content areas—such as serving fruits and vegetables at every meal, implementing standards for healthy foods and beverages, limiting screen

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Practice

- Ensure that the community's social and cultural beliefs and practices are understood and represented in the policies, practices, and messages that are disseminated.
- Raise the frequency and level of equity conversations.
- Ensure that policies, recommendations, training materials, and other resources are available and distributed in multiple languages.
- Seek out and provide racial equity training and resources.

Research

- Identify the most pressing needs for and barriers to meeting healthy eating and physical activity guidelines in underserved, minority, rural, or economically suppressed communities.

Family Engagement

Policy

- Embed measures of family engagement into state QRIS.
- Develop breastfeeding-friendly policies in child care facilities.

Practice

- Invite parents to trainings attended by child care providers.
- Help families fully address their other health needs.
- Work in collaboration with health organizations to provide or expand services that support at-risk children.

Research

- Determine parental needs with respect to healthy eating and physical activity.
- Expand on the understanding of what types of information and support parents need and what methods for providing this information and support will be successful at reaching them.

time, encouraging breastfeeding, and promoting physical activity—all can improve the health of children, she argued.

Keeping these four factors in mind, Chang suggested examples of opportunities in three categories—policy, practice, and research—in the areas of regulatory approaches, equity, and family engagement (see Box 3-1).

In addition to the opportunities listed in Box 3-1, Chang identified opportunities for action in the area of innovation:

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- Explore how state and federal money can be used to support child care health consultants or other home-visiting program efforts.
- Create and support policies that will professionalize careers in early care and education.
- Advocate for funding to disseminate studies of programs that work.
- Explore opportunities for data sharing.
- Create the business case for early childhood intervention.
- Use technical solutions, such as cloud-based management systems, as models for creating administrative resource-sharing policies among facilities.

In closing, Chang emphasized the importance of sustaining policy advances that are made and not letting them roll back. Sustaining such advances will require continued advocacy, she suggested, which can also focus on what remains to be done. "There are additional policies and more opportunities for state flexibility to embed healthy eating and physical activity into the daily routines of child care," she said, "as long as there's input from both states and providers."

PROGRESS AND CHALLENGES AT THE STATE LEVEL

In addition to federal initiatives, many state, local, and private-sector organizations are working on child care, Chang noted. "Virtually every state is focused on early care and education," she said. "There has been a tremendous amount of progress in this area."

Wolfe used the experiences of the Wisconsin Council on Children and Families as an example of the interplay between state and federal policy. The council is a statewide family and child advocacy organization founded in 1881. Its 2013 report *The Race to Equity* (Wisconsin Council on Children and Families, 2013) examines disparities in employment, health, education, incarceration, and other indicators in Dane County, which includes Madison. As an example of its findings, Wolfe pointed out that the poverty rate for white children in Dane County was 5 percent, while that for African American children was 75 percent. "We have a lot of work to do," he asserted.

Wolfe described several initiatives in Wisconsin that are improving the lives of children. The Wisconsin Early Childhood Obesity Prevention Initiative, for example, brings together actors in early care and education to create collective impact through a shared agenda and continuous communication, he explained. The group has created toolkits to help child care providers incorporate physical activity and healthy eating into their centers.

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An example is *Active Early*,[2] which focuses on physical activity. In a pilot in 20 Wisconsin child care centers in which children wore accelerometers, the intervention led to a near-tripling of the amount of moderate to strenuous activity in which the children engaged (LaRowe et al., 2016). One of the biggest changes occurred going from one activity to the other, Wolfe noted. "Child care providers were taught to do things like, 'We're going to bunny hop to the next one,' or 'We're going to march backwards,' or 'We're going to clap hands,' or 'We're going to sing a song,'" he reported. "It doesn't have to be that you're going out for an hour and running laps. . . . We're trying to have it be there throughout the day." The challenge now, he explained, is to implement these practices in the 5,000 child care centers in Wisconsin. "We need everybody to have this resource and to make it work," he said.

Wolfe particularly emphasized local partners and peer-to-peer learning. Policy can go only so far, he said. Connecting it to the good work that is going on elsewhere can be even more important, he asserted, especially in the areas of equity and targeting of underserved populations. Such connections can provide increased capacity, support, and funding, he argued.

After years on the back burner, observed Wolfe, family engagement has been a recent focus of attention in Wisconsin. Advocates have worked, for example, to incorporate family engagement measures in the state quality rating and improvement systems (QRIS) for child care. To assist centers in adopting this new practice, the Wisconsin Early Childhood Obesity Prevention Initiative created a menu of family engagement activities from which centers could choose that would count toward the quality standards, Wolfe explained. In designing this menu, the initiative combined health and wellness activities with family engagement activities, such as by supporting a breastfeeding-friendly environment, which gives child care providers credit for both health and wellness and family engagement. Wisconsin advocates for obesity prevention in child care have also used the state's QRIS to increase the amount of physical activity required each day in early care and education settings.

As a specific example of a positive change, Wolfe pointed to gardening. "Providers want to serve better food, they want to have more physical activity, they want to create a nutritious environment," he observed. In a competition for funds to create and maintain gardens, more than 300 centers applied for only about 90 grants. "The demand is there," said Wolfe. "If we had private funders or other sources, almost every child care provider in Wisconsin would love to have a garden."

A great challenge to progress is "dismal" child care wages, Wolfe asserted. The median child care wage in Wisconsin is about $10 an hour, he

[2] See https://activeearlyhealthybites.wordpress.com/the-guides (accessed February 8, 2017).

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explained, which represents income below the poverty line. "If we want to make changes in children's lives—and they're spending 50 hours a week in child care—we need to pay for the teachers and we need to pay for the programs," Wolfe argued.

Child care providers can also see increased regulation as burdensome, Wolfe pointed out, which has caused some to drop out of such programs as the Child and Adult Care Food Program, which recently updated its meal standards. "We want every child care provider to participate," he said. "People are saying they're leaving it because they don't want three visits a year, they don't want to fill out the paperwork, etc. What do we do about that?"

Another barrier Wolfe mentioned involves equity. Wisconsin is second in the nation in the number of organic farms, but local food is often more expensive to use in a child care setting. "Is that food going to low-income families in Milwaukee?" Wolfe asked. "Not for the most part, so we have work to do." Greater equity will not be achieved on its own, he suggested. "We only can promote equity by being intentional, by being purposeful," he said. He also argued for disaggregating data by race, ethnicity, and other social factors whenever possible to enable assessment of inequities.

A final barrier Wolfe cited is that many children in Wisconsin are not in the child care system. "We can do great policies, we can have wonderful child care programs, we can train the teachers, but there are many kids who are either in unregulated care or at home or with friends and family," he observed. "How do we reach those kids?"

INCLUDING THE VOICES OF PROVIDERS

Mercer-McLean urged that the voices of the child care community be included in the conversation about obesity prevention. "Not too often do we get to come and speak in a setting such as this," she noted.

The Community School for People under Six is a nonprofit child care center that provides quality early care and education for all children, especially those from low- and moderate-income families. It is a highly recognized program, said Mercer-McLean, but it continually asks how it can move to the next step in enabling children to be healthy. It operates under standards in the state of North Carolina that are designed to improve the quality of child care, including standards for physical activity and nutrition. "Those things have to happen at the policy level," she argued, but with consideration for the needs of the child care provider.

North Carolina has a QRIS that itself is subject to improvement, said Mercer-McLean. "Who looks at those standards?" she asked. "Who looks at how to improve them, monitor them, to be accountable and provide funding and technical assistance for those standards?" Moreover, she noted,

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these policies are not implemented across the board. "We have to keep pushing so those policy changes don't just affect the upper level but at the bottom," she asserted.

Mercer-McLean described her center's continuous work on improving the quality of the care it provides. She pointed out that the changes it has implemented did not happen on their own. The Community School participated in Shape NC,[3] a program sponsored by Blue Cross and Blue Shield of North Carolina that helps child care centers and their communities develop policies and build environments that support healthy children. The center's involvement in Shape NC has encouraged it to implement several changes, Mercer-McLean reported. The Nutrition and Physical Activity Self-Assessment for Child Care (NAP SACC) program[4] has produced changes in nutrition for children at the Community School by increasing healthy eating. The Be Active Kids program has taught teachers how to engage their children and themselves in more physical activity, increasing the number of adult-led physical activities in which children are engaged, with the teachers themselves wearing Fitbit fitness bracelets. The school has also set up a breastfeeding space called Serenity Place that provides a setting for relaxation, reading, and being together. And the center has been gardening and bringing that food to the classroom to eat. "It's that private nonprofit process and all of the people being involved in that process that's made a change," Mercer-McLean explained.

Implementing such positive changes requires substantial resources, Mercer-McLean noted, and this is an ongoing challenge for child care centers. For example, the Community School is looking to serve more organic food but is struggling to find suppliers that fit within its budget. Furthermore, Mercer-McLean observed, even five-star programs such as the Community School, much less one-star programs, may lack the resources to achieve certain improvements. "Those resources are not there for children and families everywhere," she said. "When we think about the field, we need to think about how we can broaden that."

Mercer-McLean concluded by reiterating her belief that every child care program and setting needs and deserves a voice in the policy process. This participation may occur through focus groups, interviews, or simple phone calls, but "first there has to be a conversation," she argued. "I want to make sure that's focused on everybody."

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[3] See http://www.smartstart.org/shape-nc-home (accessed January 12, 2017).

[4] See https://gonapsacc.org (accessed January 17, 2017).

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4

Business

Highlights from the Presentations of Individual Speakers

- The Healthy Weight Commitment Foundation exceeded by 400 percent its goal of removing 1.5 trillion calories from the nation's food supply. (Becky Johnson)
- The National Business Group on Health has observed a shift toward a more holistic view of employee well-being that encompasses financial security, emotional well-being, social and community connectedness, and job satisfaction, and has changed the metrics used to measure the success of these programs. (LuAnn Heinen)
- The Partnership for a Healthier America has been working through its member companies to change business practices, improve the accessibility and affordability of healthy choices, and build the demand for healthier foods. (Ryan Shadrick Wilson)
- The Health Means Business Campaign has been seeking to educate the business community on the feedback loop between health and economic growth and to inspire businesses to invest in their communities. (Elyse Cohen)

During the third panel of the workshop, examples of the positive role business can play in preventing and reducing obesity were described by four

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representatives of business organizations: Becky Johnson, executive director of the Healthy Weight Commitment Foundation; LuAnn Heinen, vice president of workforce well-being, productivity, and human capital for the National Business Group on Health; Ryan Shadrick Wilson, chief strategy officer and general counsel of the Partnership for a Healthier America (PHA); and Elyse Cohen, director of the Health and Wellness Program at the U.S. Chamber of Commerce Foundation's Corporate Citizenship Center.

THE HEALTHY WEIGHT COMMITMENT FOUNDATION

When the Healthy Weight Commitment Foundation was established by food and beverage companies in 2009, its members committed themselves to removing 1.5 trillion calories from the nation's food supply, explained Johnson. According to an independent evaluation by the Robert Wood Johnson Foundation, those companies exceeded their goal by 400 percent, removing 6.4 trillion calories from the nation's food supply (Ng et al., 2014). Today, the coalition consists of more than 300 organizations and is engaged in a wide variety of activities, such as the following:

- It has partnered with Discovery Education, the education branch of the Discovery Channel, to create a wellness curriculum that teaches children about the importance of social and emotional wellness, nutrition, self-esteem, physical activity, goal setting, and resilience. According to Johnson, the curriculum materials are freely available to schools, and already more than 38 million students from prekindergarten to fifth grade have been reached through these materials (Healthy Weight Commitment Foundation, 2016). Recently, the program expanded to Latin America.
- It has created incentive programs that have provided more than $1.3 million in grants and prizes, many going to at-risk schools (Healthy Weight Commitment Foundation, 2016). "Many of these schools either didn't have safe places for kids to play or they needed to update their food service equipment to encourage more healthful eating," said Johnson.
- It has joined in a research partnership with the City University of New York School of Public Health to assess the impact of its corporate members' community initiatives, explained Johnson. She reported that an initial assessment of 10 companies' community-based programs on hunger and obesity prevention showed that the companies had donated more than 55,500 hours of their employees' time to these efforts, had partnered with more than 660 organizations, had invested $30.5 million, had donated more than 54 million pounds of food, had facilitated 1.6 million hours of

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exercise, had reached 34,700 schools and 11.2 million individuals, and had provided more than 420.6 million servings of food.

Johnson asserted that the impact these companies have had through the foundation "provides clear evidence as to why and how businesses can be a part of the solution." And she stated that "our efforts continue."

THE NATIONAL BUSINESS GROUP ON HEALTH

The National Business Group on Health represents many of the largest self-insured employers in the United States, explained Heinen. She went on to note that its more than 400 members, which include many Fortune 500 companies (National Business Group on Health, 2017), together purchase health care services on behalf of about 50 million employees.

Member companies participate to network and share best practices in improving workforce well-being, Heinen continued. The organization has been helping to lead a shift toward a more holistic view of employee well-being that encompasses dimensions beyond physical health, such as financial security, emotional well-being, social and community connectedness, and job satisfaction, she observed. She reported that members are also expanding how they measure the success of their wellness programs to include employee engagement, recruitment, and retention in addition to such more traditional metrics as absenteeism and safety incidents.

Heinen focused on the physical health programs that employers have been developing in recent years. Since she began working on the obesity issue in 2003, she said, there has been "a great expansion in the breadth, depth, and sophistication of what is being offered by large employers." According to a recent survey of Business Group members, these efforts include physical activity challenges, smoking cessation assistance, weight management programs, and fitness classes (Fidelity Benefits Consulting and National Business Group on Health, 2016) (see Figure 4-1). Companies are also looking to include families in such programs, Heinen said. Of the 78 percent of member companies that offer weight management programs, for example, 84 percent offer them to spouses and domestic partners (Fidelity Benefits Consulting and National Business Group on Health, 2016).

Wellness programs are often associated with incentives, Heinen observed, but the use of outcome-based incentives has been declining. "While incentives are still important," she said, "they're being redefined to include, in many cases, not just individual financial rewards but nonfinancial rewards, group incentives, group rewards, and donation of awards into the community."

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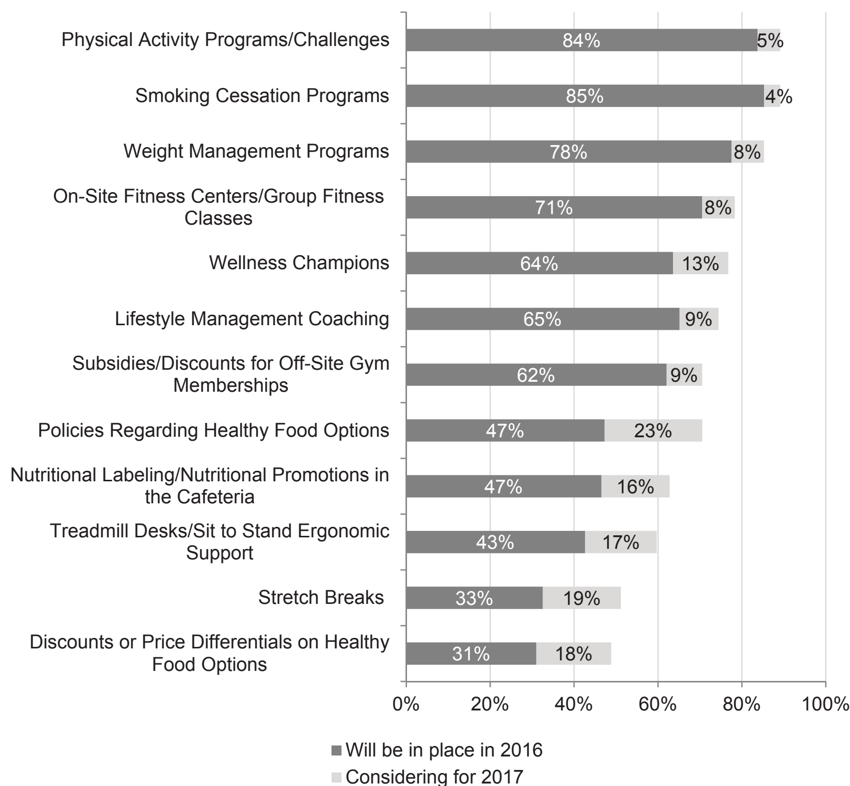

FIGURE 4-1 Physical health programs either planned or considered by surveyed companies.
SOURCES: Fidelity Benefits Consulting and National Business Group on Health, 2016. Presented by LuAnn Heinen, September 27, 2016.

PARTNERSHIP FOR A HEALTHIER AMERICA

Shadrick Wilson noted that PHA was launched in 2010 on the same day that First Lady Michelle Obama announced her Let's Move! initiative. It is an independent, nonprofit, nonpartisan organization with more than 200 members, she reported, with the mission of improving children's health and fighting the childhood obesity crisis. "We say that our goal, each day, is to make the healthy choice the easy choice, in all communities, with an eye toward those communities most in need," she explained. PHA brings together people, such as industry CEOs, within and across sectors to create innovative solutions. "It gives me faith that we're going to have a breakthrough in this crisis," Shadrick Wilson said.

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PHA works directly with the private sector to negotiate meaningful commitments to improving the nation's health and wellness, Shadrick Wilson noted. For some companies, she explained, this means reformulating foods and making healthy foods more accessible. PHA has garnered commitments to improving hospital food from more than 10 percent of the nation's hospitals, for example, and has worked with convenience store chains to increase the accessibility and affordability of healthy choices available in their stores. Other companies, Shadrick Wilson noted, have committed to investing in communities to create healthier places for both children and adults. For example, she explained, PHA is working with developers across the country to incorporate active design principles into the construction, design, and management of affordable housing developments. In addition, it has launched a Healthier Campus initiative to encourage universities and colleges to meet certain nutrition and physical activity objectives. "We're working with a diverse array of industries and, frankly, trying to pull levers wherever we can," said Shadrick Wilson.

The 200 member organizations have agreed to have their commitments and activities verified by an independent third-party evaluator, explained Shadrick Wilson, which allows PHA to publish its progress annually. "This is not a PR moment," she noted. "This is a real commitment that will be tracked and verified." Companies "are hearing consumer demand, they're hearing the voices of their employees, and they're wanting to do what they can to create healthier products and healthier workforces," she said.

Shadrick Wilson reported that PHA has also begun working on the demand as well as the supply side of healthier choices. For example, she said, it has launched a campaign called Drink Up to promote water consumption and a campaign called FNV (Fruit and Vegetable) to promote the consumption of fruits and vegetables. She noted that, based on research associating popular media characters with eating patterns in children, PHA negotiated a partnership with Sesame Workshop to provide its licensed characters for free to any fruit or vegetable grower for 2 years, which was later extended to 5 years. PHA has also worked with celebrities and athletes to provide their names for a fruit and vegetable marketing campaign.

While the partnership does not engage in policy advocacy, Shadrick Wilson observed, it was created in part to continue the work begun by the first lady beyond the Obama administration. She concluded by saying, "We are poised and ready to continue the shift."

THE HEALTH MEANS BUSINESS CAMPAIGN

Cohen explained that the Health Means Business Campaign, which is being led by the U.S. Chamber of Commerce Foundation, the Robert Wood Johnson Foundation, and local and regional chambers of commerce across

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the country, has the goal of engaging the business community in the wellness of the nation's communities. It is seeking, first, to educate the business community on the feedback loop between health and economic growth and, second, to inspire businesses to invest in their communities. "This isn't just about what health care and health insurance companies can do," Cohen said. "This is about the role that every business, large or small, can play in impacting community health."

Cohen noted that the campaign has three overarching themes. The first is creating the movement by building the case for why businesses should care about investing in the health of their communities. "More than $220 billion per year is lost in worker productivity," observed Cohen. "When folks in the room hear this, that's when their ears and eyes perk up."

The second theme is building momentum. The campaign has been working to create champions, Cohen reported, in part through an awards program that recognizes businesses and tells their stories. The campaign also asks companies to take a wellness pledge. "Businesses don't often take these pledges, because they don't know that they play a role and don't know what they have to do," Cohen noted. "Creating this community has enabled them to make a commitment to this work."

The third theme is accelerating the movement and building long-term sustainability. Cohen explained that the campaign has created an online resource center and has fostered opportunities for dialogue. "We provide resources, toolkits, and open communication platforms, [and] there's also a research component," she said.

The anchor of the campaign, Cohen noted, has been a series of forums in 11 cities designed to bring together the business and nonprofit communities to build relationships and form partnerships. "By creating this community," she said, "it enables businesses to actually make a commitment to this work." At the time of the workshop, the campaign was gathering feedback from the forums to share more widely.

Companies are no longer separating health and wellness programs from the rest of their activities and are treating them as a corporate social responsibility, Cohen observed. Companies are "embedding social impact around health, wellness, and food access into who they are," she said. She reported that the campaign has been compiling case studies to help build the business case for investing in health. When it comes to food companies, she observed, the campaign has been able to show that profit in many cases is staying the same or increasing because consumer demand is shifting, and many consumers want to see quality, access, and transparency in the foods they purchase and consume.

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ADDRESSING DISPARITIES

In response to a question, each of the four panelists commented on how their organizations address the disparities that exist in obesity. Cohen noted that the Health Means Business Campaign can work directly with specific communities. The people in the room "are the businesses, the stakeholders, the nonprofit organizations, and the government officials within that community," she said. "We're able to foster and tailor everything community by community, region by region, and state by state, as opposed to a broad stroke that may not be transferrable across communities."

Johnson responded that the Healthy Weight Commitment Foundation is focused on reaching underserved communities. In the previous year, for example, two-thirds of the prizes the organization awarded went to Title I schools, which have high numbers of children receiving free and reduced-price lunches.

According to Shadrick Wilson, PHA has made a major commitment to equity. For example, its affordable housing and convenience store initiatives leverage the influence of large companies that are already in disadvantaged communities. "We're constantly challenging ourselves to do better and to do more with an equity lens," she asserted.

Finally, Heinen pointed to the importance of incentives in aligning corporate policy with social change. "When you're recruiting Target in Minneapolis to build their headquarters downtown," she observed, "it's not just about job creation. It's also about a healthy workforce."

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5

Physical Activity

Highlights from the Presentations of Individual Speakers

- U.S. children and adults on average are less physically active than children elsewhere in the world. (James Sallis)
- Multicomponent interventions in school and early care and education settings have been found to be effective in increasing physical activity in children and youth. (James Sallis)
- Efforts to increase physical activity in children will require an approach that incorporates physical activity in all policies across all systems and sectors with which children interact. (Harold Kohl)
- Translating research to practice is necessary for evidence-based programs to take root and spread. (Christina Economos)
- Local champions for physical activity, resources, and collaboration with community stakeholders are important for implementing physical activity programs in schools. (Christina Economos)
- Improving equity in approaches to increasing physical activity requires identifying and responding to what people need and want. (Arnell Hinkle)

Approaches to driving significant progress in preventing and treating obesity through physical activity were examined by four speakers: James

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Sallis, distinguished professor of family medicine and public health, University of California, San Diego; Harold (Bill) Kohl, professor of epidemiology and kinesiology, University of Texas Health Science Center, Houston School of Public Health, and The University of Texas at Austin; Christina Economos, co-founder and director of ChildObesity180[1] and professor at the Friedman School of Nutrition Science and Policy, Tufts University; and Arnell Hinkle, founding executive director of Communities, Adolescents, Nutrition, and Fitness (CANFIT). These speakers emphasized promising interventions and approaches to their implementation, the translation of research into practice, and equity.

INTERVENTIONS TO INCREASE PHYSICAL ACTIVITY

Sallis began by noting that U.S. children overall are among the least physically active in the world. In a comparison of moderate to vigorous physical activity among young people in 10 countries, based on objective monitors, the United State scored lowest, at 46 minutes, compared with an average of 65 minutes and a top level (in Norway) of almost 84 minutes, nearly twice the U.S. average (Hallal et al., 2012) (see Figure 5-1). "Our children are just not active enough," asserted Sallis. The same general pattern is seen among adults, he reported, with fewer than 50 percent of U.S. adults meeting the 2008 federal guidelines for aerobic activity based on self-report (although the percentage has risen somewhat over the past decade) (NCHS, 2016). Disparities also mark levels of physical activity, he added, with the percentage of those meeting the guidelines being higher for men than for women, declining with age, and being lower for blacks and Hispanics than for whites (NCHS, 2016).

Fortunately, Sallis noted, the National Physical Activity Plan,[2] which was revised in 2016, provides a comprehensive set of policies, programs, and initiatives designed to increase physical activity in all segments of the U.S. population. The plan organizes recommended actions into nine sectors:

1. business and industry
2. community, recreation, fitness, and parks
3. education
4. faith-based settings
5. health care
6. mass media
7. public health
8. sport
9. transportation, land use, and community design

[1] See www.childobesity180.org (accessed January 17, 2017).
[2] See www.physicalactivityplan.org (accessed January 17, 2017).

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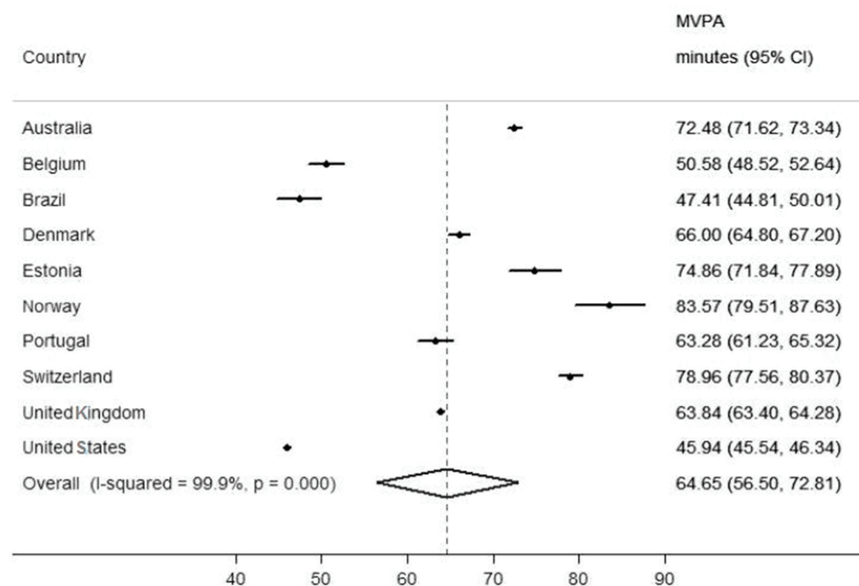

FIGURE 5-1 Daily minutes spent engaged in moderate to vigorous physical activity among youth in different countries.
SOURCES: Presented by James Sallis on September 27, 2016 (reprinted with permission, Hallal et al., 2012).

Furthermore, Sallis continued, effective interventions to increase physical activity have been identified. He cited a review of strategies for increasing physical activity among youth that found sufficient evidence for multicomponent school programs and physical education; suggestive or emerging evidence for active transportation to schools, activity breaks in classrooms, strategies in preschool and child care settings and the built environment; and insufficient evidence for school physical environments, after-school programs, home and family influences, and programs in primary care settings (Physical Activity Guidelines for Americans Midcourse Report Subcommittee of the President's Council on Fitness, Sports & Nutrition, 2012).

Sallis emphasized that no one intervention will be sufficient. He cited the Institute of Medicine report *Educating the Student Body: Taking Physical Activity and Physical Education to School* (IOM, 2013), which recommends a whole-of-school approach and reinforces the value of a multicomponent school program. As an example, he pointed to a study of about 100 elementary schools in San Diego County and Washington State (Carlson et al., 2013). Accelerometer data revealed that children in schools

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with more physical activity–supportive practices[3] engaged in significantly more minutes per day of moderate to vigorous physical activity in school relative to children in schools with fewer such practices. Children in schools with the fewest such practices (zero to one) engaged in just 21 minutes of activity during the school day, compared with 41 minutes per day in schools with the most (four to five). In particular, Sallis reported, providing more than 100 minutes of physical education per week, having recess periods of 20 minutes or longer, and having a physical education specialist were positively associated with increasing moderate to vigorous activity in school. Disparities appear in these data as well, Sallis noted. According to Carlson and colleagues (2014), the practice with the largest disparity by school socioeconomic status was having a physical education specialist, which is less likely in low-income than in high-income schools.

More evidence for the existence of effective interventions and the benefits of multiple approaches comes from early care and education, noted Sallis. A meta-analysis of 43 studies quantified the strength of obesity prevention interventions, defined by number of strategies, intensity, frequency, and duration, in early care and education settings (Ward et al., 2016). Sallis observed that a summary indicator of intervention strength was positively correlated with reporting of positive anthropometric outcomes (e.g., body fat, body mass index), while the addition of parent engagement components increased the strength of these relationships. "The stronger the intervention, the more likely it was to be effective in reducing or slowing down weight gain," said Sallis. "That's good news in early child care and education," he added. "The most intensive interventions that are being evaluated do seem to work." The key, he said, is translating research into practice.

Multicomponent policy and environmental interventions are challenging and can be costly to deliver, Sallis acknowledged, but having an impact on children's health depends on finding a way to overcome these challenges. "How can we be more effective in attracting commitment and support for these approaches in schools and early care settings from education decision makers?" he asked. One answer, he said, is the new federal education bill, the Every Student Succeeds Act,[4] which makes more funding available for school physical activity. Another is wider and more equitable distribution of school funds for sports, he argued. For example, he noted, a few schools have essentially eliminated their interscholastic sports programs and used those resources to greatly expand intramural programs that are open to

[3] Such practices included, for example, having a physical education teacher, providing more than 100 minutes/week of physical education, having recess supervised by personnel other than classroom teachers, providing more than 20 minutes/period of recess, and having no more than 75 students/supervisor in recess (Carlson et al., 2013).

[4] See https://www.ed.gov/essa?src=ft (accessed January 30, 2017).

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all students, who thereby have more opportunities to be physically active. Evaluations of this approach have pointed to more widespread activity, particularly for African American students (Kanters et al., 2013). "That's a revolutionary approach that could redistribute the same funds for greater benefits while reducing health disparities," Sallis asserted.

THE IMPORTANCE OF MULTIPLE APPROACHES

Like Sallis, Kohl emphasized the importance of taking multiple approaches to preventing obesity. As he pointed out, even in the best physical education programs, children tend to be active for no more than 10 or 15 minutes. "If 60 minutes is the recommendation," he said, "then we have a bunch of work to do."

According to Kohl, an especially promising approach is to consider physical activity in all policies related to schools. Such policies can extend from birthday parties to siting schools so as to facilitate active transport. "We have to think more about the systems in which our children live," Kohl asserted. "They [encounter] the health sector, the transportation sector, the education sector, and the recreation sector virtually every day. How do we make those more accessible and make them relevant for participation in physical activity?"

Kohl also advocated making physical education a core subject like mathematics or reading and having a federally determined provision for measuring it. The drive to increase test scores of recent years has been forcing schools to have their students spend more time in class, but as he pointed out, physical activity plays an important role in cognitive development and academic performance. He believes all classroom teachers and administrators, not just physical education instructors, should receive preservice as well as in-service training in physical education. "We may be holding test scores down by keeping kids more sedentary in class," he suggested. "Active kids learn faster, and they remember more, than their inactive counterparts." He argued that measuring physical activity and its effects on academic achievement could help make the case for a more intensive effort.

Kohl advocates reducing disparities in access. Schools without adequate physical education, which are predominantly in low-income communities, are "unacceptable from a public health standpoint," he said. He cited reducing disparities as the cornerstone of public health, and argued that advocates in schools, on school boards, and on state boards of education all can influence policies that affect disparities.

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TRANSLATING RESEARCH TO PRACTICE

Economos began by observing that a critical factor in the success of evidence-based programs is translating research to practice. As an example, she cited a study of the factors within schools that have enabled them to institute multicomponent physical activity programs (Economos, in press). Survey and interview data on 23 geographically and economically diverse U.S. school districts that had been nominated as exemplars in providing physical activity and physical education to their students revealed that they offered more opportunities (in terms of minutes) for physical education and recess per week compared with a nationally representative sample of school districts. Furthermore, Economos noted, the exemplar school districts provided a high number of physical activity programs in addition to physical education and recess opportunities. "Think about a school bringing in a walking–running program, a classroom (physical activity) break program, and a dance program," she said. Schools that implemented a rich portfolio of programs to get their students up and moving were especially successful, she reported.

Economos suggested that the presence of champions for physical activity, adequate resources, and collaboration with stakeholders in the community are important for implementing a multicomponent physical activity program in schools. However, she noted, "there are a lot of communities out there that haven't been able to do that. How do we provide the resources, the inspiration, and the training to get other communities to do the same programming and get kids up and moving?" she asked.

Economos closed by arguing that more work is needed in the areas of dissemination, implementation, and translation. "We have really good recommendations and policies," she observed. "How do we actually put them into schools and communities and make sure that they are sustained over time?"

WALKING AND WALKABILITY

Turning specifically to the issue of walking and walkability, Sallis cited the surgeon general's 2015 Call To Action report on the subject (HHS, 2015). The number of people who walk for transportation in the United States is "pretty low," he said—around 30 percent (Paul et al., 2015). Walking for leisure is slightly more popular, but still only 40 to 50 percent of people engage in this most common physical activity, he noted, with some disparities among population groups. He observed that those percentages are related in part to walkability—the design of a community so that people can walk from their home to other places they might want to go. In an international study of 12 countries around the world, he noted, the lowest

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walkability indexes among the cities studied were for four cities in New Zealand and two regions in the United States (in and around Baltimore and Seattle) (Adams et al., 2014). The walkability index included such factors as residential density, the connectivity of the street network, and mixed use or having destinations nearby. "We are among the least walkable countries in the world," said Sallis.

Once a city has been laid out, Sallis continued, changing it is difficult, but short-term approaches are still possible. One such approach is to change the details of the streetscape to encourage walking by adding housing, stores, crosswalks, trees, and other amenities. Using a tool called Microscale Audit of Pedestrian Streetscapes (MAPS) Mini[5] that Sallis and his colleagues developed, streets can be measured for their friendliness to activity on such measures as public parks, streetlights, benches, sidewalks, the absence of graffiti, trees, marked crosswalks, curb cuts, and crossing signals (Sallis et al., 2015). Sallis reported that the quality of streetscapes was positively related to walking for transport, from children through older adults (Sallis et al., 2015). "This shows that the quality of the built environment can matter," he said.

According to recent studies, Sallis noted, low-income communities do not necessarily show consistent environmental disparities (Engelberg et al., 2016; Thornton et al., 2016). In some cases, he said, there are "equitable differences" across communities, with the quality of streetscapes or parks being significantly better in low-income or high-minority neighborhoods. According to Sallis, these data suggest that local policies can be effective in creating more equitable built environments. Given each city's unique pattern of environmental disparities, he suggested, it is necessary to assess local conditions as a basis for remediating disparities in physical activity environments.

BUILDING IN EQUITY

Hinkle has been working with community-based organizations to promote physical activity for more than two decades, with a particular focus on equity. CANFIT operates on the belief that "equality" is not the same as equity. As an example, she noted that equality may be getting a park in every low-income neighborhood, but "if you build it, it doesn't mean that they're going to come." People need to feel invited and welcome, she asserted, and a park or other resource needs to provide them with something they want to do. Thus, she suggested, "the equity piece is more about finding out what people want to do to be active, what their interests are,

[5] See www.activelivingresearch.org/microscale-audit-pedestrian-streetscapes (accessed January 12, 2017).

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building community capacity around that, and involving residents in the process." She pointed to a model known as PROGRESS Plus[6] in which the design and implementation of programs take into account places of residence, race, ethnicity, culture, occupation, gender/sex, religion, education, socioeconomic status, social capital, age, and disability. "To be equitable, you have to think about all of those factors," she said. Examples of physical activity projects that reflect the PROGRESS Plus model include the "Walk with Friends" project in Sacramento[7] and an interesting experiment under way in Denmark to redesign the entire school system to be more of an active learning environment.

According to Hinkle, an important issue to remember in efforts to build in equity is that the goal should be lifelong physical activity. Activities need to be "fun, enjoyable, something that people want to do, and are able to continue doing throughout their lives," she argued, suggesting that dance, yoga, swimming, and other activities can teach people how to be active for longer spans of time. Especially among children older than 10, she noted, community time tends to be critical, not just school time or the time spent learning a team sport. Student athletes have a tendency to overwork their bodies and end up injured, she observed, so that they cannot engage in the activities they learned to do and become sedentary later in life. Focusing on injury prevention and proper body mechanics can help people perform activities correctly, she said, which will "serve them better over the long haul."

As an additional issue to consider when thinking of solutions for improving access to physical activity opportunities, Hinkle cited the role of violence and physical safety in the community. Violence is a factor in some settings, she noted, such as a park where violent gang activity is common. She emphasized that neighborhood involvement can lead to such activities as walking groups that build cultural norms around activity and take back public spaces.

Message framing is critical to increasing equitable implementation of physical activity resources, Hinkle argued. "We come up with policies and recommendations that people should do," she said, "but they often don't know how to implement them." As an example, she suggested that instead of emphasizing weight loss as the primary benefit of physical activity, it would be better to highlight the wide range of benefits that result from being active, including social support, reduced stress, greater longevity, and improved mobility. "For a lot of people, weight loss is not going to be the hook," she suggested. It's going to be the other benefits."

Hinkle concluded by citing important questions to consider when de-

[6] See http://www.nccmt.ca/resources/search/234 (accessed January 30, 2017).
[7] See https://healthedcouncil.org/events (accessed January 30, 2017).

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veloping physical activity programs: Who benefits? Who pays? Who is harmed? Who leads? Who decides what a program includes? Who speaks up for it? Who funds it? How much is funded?

THE ROLE OF COMMUNITIES

An issue that arose in the discussion session was the role of communities in building momentum for change involving physical activity. Many decisions about transportation, land use, and school policies are made at the local level, Sallis noted, and when leaders from inside and outside of government create a shared vision, change can happen. Leadership, he suggested, is critical because multiple city agencies need to work together to create more activity-friendly communities. "Leadership makes it happen most of the time," he said, "and community input probably makes it better; but I haven't seen it come too often just from the ground up." The risk of grassroots efforts, he continued, is that consensus is very difficult when so many different voices come together to work on a plan. "What we need is educated and informed input, . . . where scenarios are created and consequences are discussed," which, he argued, requires both research and good community engagement.

Kohl elaborated that finding a champion for a program is not enough; rather, a broader demand for equitable programs to promote physical activity needs to be developed. "Grassroots, bottom-up demand has to be leveraged," he asserted. "It just takes a few people to start that ball rolling."

Hinkle observed that several of the initiatives she discussed had committed explicitly to authentic community engagement. "Just like in research," she noted, "you can have good community engagement; you can have bad community engagement." She suggested that sustainable programs are successful because they engage and educate community members. As a result, the community has the skills and resources necessary to lead and advocate for its own physical activity environment.

Communities not only can be sources of advice and advocacy but also can take a leadership role in developing more opportunities for physical activity, Sallis added. Getting children active is not cost free, he noted. "I would like to see, especially in low-income areas, more creative solutions to providing activities in local parks or elsewhere in the neighborhood," he said. "There may be ways of doing this that help with economic development, too. If there were small grants, where people from the neighborhoods would compete to get little contracts to provide activities within the neighborhoods. . . . I think you can have multiple wins by doing things like that."

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6

Treatment Challenges

Highlights from the Presentations of Individual Speakers

- Many new treatments for obesity have become available, but relatively few people receive them. (Caroline Apovian)
- The treatment of patients with obesity is complicated by a range of socioeconomic, geographic, cultural, biological, and environmental differences. (Caroline Apovian)
- The pool of physicians trained to treat obesity is highly inadequate given the number of people with the condition. (David Fukuzawa)
- Very few physician visits include counseling on nutrition and physical activity. (David Fukuzawa)
- An integrated approach that encompasses environmental and social interventions is more likely than isolated treatments to have an impact. (Don Bradley)

David Fukuzawa, managing director for health and human services at The Kresge Foundation, observed that, just as obesity is a complicated disease to prevent, it is a complicated disease to treat. Obesity may consist of a complex combination of different diseases, with treatment, especially for severe obesity, requiring more than better nutrition and physical activity, he noted. The challenges of treatment, including the limited effectiveness of current treatments, the lack of access to treatment, and the shortage of

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trained treatment providers, were examined by three presenters: Caroline Apovian, professor of medicine and pediatrics, Boston University School of Medicine; Fukuzawa; and Don Bradley, associate consulting professor of community and family medicine, Duke University.

NEW TREATMENTS

Since about 2000, the number of treatments for obesity has risen rapidly, according to Apovian (see Figure 6-1). New drug treatments can produce weight losses of 5 to 10 percent, she noted, which might translate to 25 pounds in a patient with a body mass index (BMI) over 30 who weighs 250 pounds. Surgical approaches for patients with extreme obesity have also become more numerous and safer, she reported, with weight losses of up to 30 percent (Chang et al., 2014). However, she added, the more efficacious the treatment, the higher is the complication rate, which she called "the Catch-22 about the benefits and risks of obesity treatments."

According to Apovian, millions of patients with severe obesity are eligible for a surgical treatment, but only about 1 percent undergo such a procedure, amounting to about 200,000 procedures per year (American Society for Metabolic and Bariatric Surgery, 2016; Funk et al., 2016). Similarly, only about 2 percent of the U.S. population who are eligible for a drug treatment receive it (Samaranayake et al., 2012; Xia et al., 2015).

Among the many barriers to obesity treatment are patients who do not accept the idea of surgical intervention for their weight problem and doctors who do not accept the risk of surgery for their patients, Apovian noted (Diamant et al., 2014; Funk et al., 2015, 2016; Westerveld and Yang, 2016). Additional barriers she cited include the lack of insurance coverage for drugs, the dearth of physicians who can treat obesity, and patients' unwillingness to undergo drug treatment (Avidor et al., 2007; Forman-Hoffman et al., 2006; Funk et al., 2016; Perlman et al., 2007; Westerveld and Yang, 2016). In marked contrast with the obesity treatment guidelines released in 2013 (Jensen et al., 2014), she reported, clinicians often fail to diagnose overweight and obesity or discuss weight management with patients (Abid et al., 2005; Bardia et al., 2007; Cyr et al., 2016; Fink et al., 2014; King et al., 2015; Ko et al., 2008; Ma et al., 2009; McAlpine and Wilson, 2007). She gave as part of the reason the lack of time for each patient in a busy primary care practice (Korber, 2011; Lewis and Gudzune, 2014). She observed that physicians may also be reluctant to discuss the issue because it is so emotionally charged for many people (Wadden and Didie, 2003). And many doctors have not been trained to produce behavioral changes to treat obesity (Forman-Hoffman et al., 2006).

Apovian went on to suggest that the treatment of patients with obesity

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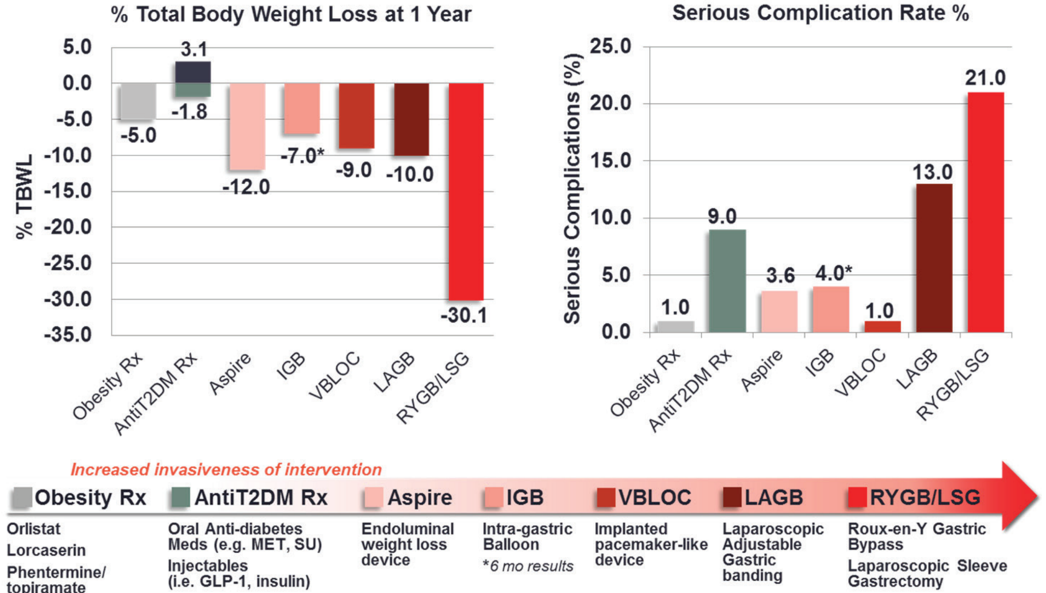

FIGURE 6-1 Risks and benefits of obesity treatments.
NOTE: IGB = intragastric balloon; LAGB = laparoscopic adjustable gastric banding; LSG = laparoscopic sleeve gastrectomy; Rx = pharmacological management; RYGB = roux-en-Y gastric bypass; T2DM = type 2 diabetes mellitus; TBWL = total body weight loss; vBloc = neurometabolic therapy.
SOURCES: Presented by Caroline Apovian on September 27, 2016 (reprinted with permission). Data drawn from Apovian et al., 2015 (obesity Rx); Chang et al., 2014 (bariatric surgery: gastric banding, gastric bypass); Daneschvar et al., 2016 (obesity Rx); Imaz et al., 2008 (intragastric balloon); Kashyap et al., 2010 (bariatric surgery: gastric banding, gastric bypass, gastric sleeve gastroectomy); Patel, 2015 (obesity Rx); Phillips et al., 2009 (Realize gastric band); Ribaric et al., 2014 (bariatric surgery: gastric banding, gastric bypass, gastroectomy); Thompson et al., 2016 (AspireAssist).

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is complicated by a range of socioeconomic, geographic, cultural, biological, and environmental differences. Beyond socioeconomic, geographic, and cultural disparities, she noted, there may be inherent physiological differences in how different racial groups develop comorbidities. With gastric bypass surgery, sleeve gastrectomy, and medications, for example, African Americans tend to lose less weight than non-Hispanic whites in clinical trials, probably because of a complicated interplay of physiological drivers, access to care, and treatment responses (Lewis et al., 2016). Apovian observed that African Americans tend to be more insulin resistant than non-Hispanic whites with similar BMIs, which may be related to a genetic or physiological difference among racial groups (Hasson et al., 2015). Other group differences exist as well. As an example, Apovian explained that typically people with mental illness have a higher risk of obesity, both because of the medications they are typically prescribed and because of their behaviors (Taylor et al., 2012).

Apovian called for inclusion of a wider range of racial and ethnic minority groups in studies of new treatments (which typically focus primarily on African Americans and non-Hispanic whites), as well as socially distinct groups (rural residents, people with mental illness, and those who have alternative lifestyles). Culturally appropriate and tailored care shows promise in the research literature, she said, but standards for such care need to be developed. Similarly, she suggested, research is needed on social and physiological factors related to treatment outcomes for nonbehavioral therapies such as medication and bariatric surgery, as are strategies for improving access to care for underserved populations (Lewis et al., 2016).

Apovian added that clinicians need more training, obesity medicine specialists need more time to work with individual patients, and approaches are needed for dealing with a lack of patient motivation to lose weight because of frequent failures or unavailability of reimbursement. Even today, she noted, BMI is generally not being added to patient charts, many scales in doctors' offices are inadequate since they often go only to 350 pounds, and clinics may lack equipment that can accommodate larger-sized patients. Therefore, Apovian argued, improvements in training, practice-based changes, and better coverage of services, especially for those of lower socioeconomic status, all are crucial for improving capacity for the treatment of obesity (Bleich et al., 2012). She concluded by noting that preventive programs, lifestyle treatment programs, and Head Start programs that engage children and their parents are proposed targets for patients at risk or high risk for obesity and its comorbidities.

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THE LACK OF PROVIDERS

The numbers on supply and demand for obesity treatment provide "a sense of just what it is we're up against," said Fukuzawa. The number of new board-certified physicians in obesity medicine has undergone a dramatic increase, from fewer than 400 in 2011 to about 1,600 in 2016.[1] However, approximately 17.6 million U.S. adults have severe obesity, Fukuzawa noted, meaning that, at current levels of board-certified physicians, each trained obesity specialist would have to serve approximately 11,000 patients. Even if the pool of physicians able to treat obesity were considered to be all primary care physicians, he said, including family practitioners and general practice, internal medicine, and obstetrics/gynecology physicians, each physician would need to treat about 90 people with severe obesity (a BMI greater than 40) or 160 and 440 people with less severe obesity (BMIs greater than 35 and 30, respectively). Thus, he said, "we face an enormous challenge just on the treatment side."

With regard to patient self-management, Fukuzawa observed, probably the best-known program is the YMCA's Diabetes Prevention Program. From slightly more than 500 participants in 2010, the program grew to 12,600 participants in 2015.[2] However, noted Fukuzawa, 86 million U.S. adults with prediabetes would be candidates for the program (CDC, 2016b). Given that the program at each YMCA currently serves an average of 57 participants, approximately 1.5 million programs would be required to reach all prediabetics—an 11,000 percent increase.

Bradley elaborated on the lack of trained obesity treatment providers. He reported that only about one-quarter of physicians say that they know enough about diet or physical activity to provide adequate care for obesity, fewer than one-eighth of physician visits include counseling for nutrition (Howe et al., 2010), and fewer than 30 percent of medical schools provide the education future physicians will need to treat patients with obesity (Adams et al., 2010). In addition, coverage for such care by the Centers for Medicare & Medicaid Services and other payers is spotty (Petrin et al., 2014). A nutritionist or dietitian can provide care for obesity if a physician bills for it, Bradley noted, but these providers are not allowed to move forward independently. As a result, he said, "the best trained people . . . have the least ability to be paid for the services."

Bradley also noted that only a handful of states provide Medicaid coverage for obesity drugs, whereas coverage for bariatric surgery is near 100 percent. Furthermore, he observed, the poorest coverage seems to be where the prevalence of obesity is highest (Petrin et al., 2014).

[1] Personal communication, Dana Brittan, American Board of Medicine.
[2] Personal communication, Emily Greenberg, YMCA of the USA.

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BEYOND HEALTH CARE

Fukuzawa briefly described a framework for integrated clinical and community systems of care (see Figure 6-2). It combines care delivery systems intended to manage and prevent obesity with community systems that can serve the same goals. The challenge, Fukuzawa said, is to connect these components through various mechanisms to achieve the greatest possible effect.

Building on this point, Bradley observed that only 10 percent of premature deaths related to the social determinants of health can be accounted for by influences from health care (Schroeder, 2007); the rest relates to behavioral patterns, social circumstances, environmental exposures, and genetics. What is needed, he asserted, is an integrated approach that entails spending a great deal more on social programs.

Apovian called for a more consistent view of obesity as a condition across health systems and the community. "Physicians are not the center of the earth," she said. "There are a number of health professionals who

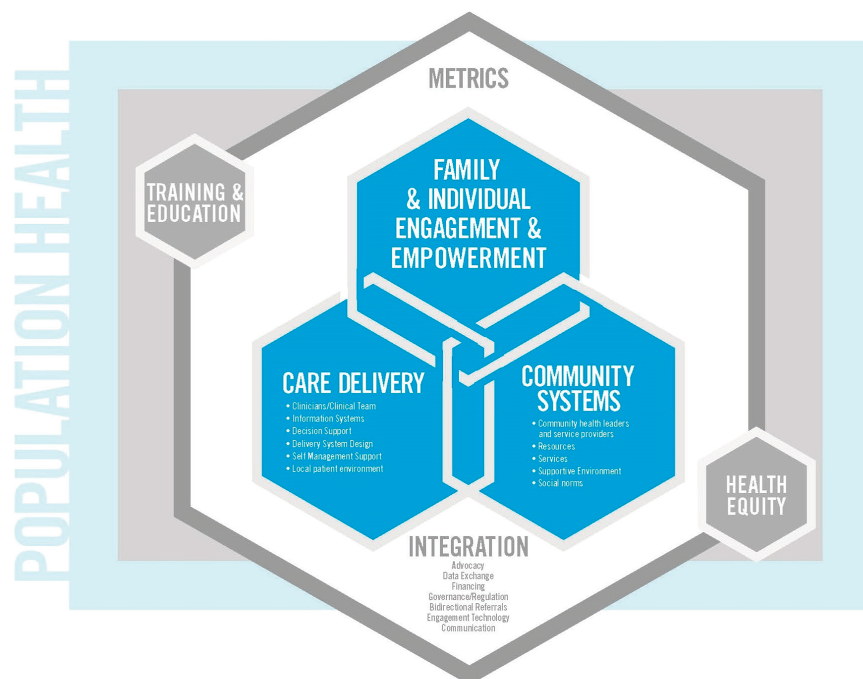

FIGURE 6-2 A framework for integrated clinical and community systems of care.
SOURCES: Presented by Don Bradley, September 27, 2016 (with permission, Dietz et al., 2017).

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can provide care at least as effectively, and in some cases more effectively." She acknowledged, however, that the primary care physician will continue to be the gatekeeper for exercise physiologists, dietitians, social workers, psychologists, and others. Multidisciplinary practices can provide these specialists, even as primary care physicians are overseeing the treatment plan, she suggested. An interesting question, for example, is how the YMCA's Diabetes Prevention Program could be scaled up and used in a multidisciplinary program. "We're never going to have enough obesity medicine specialists, certainly in the next 20 years," Apovian argued, "to start pushing back on this problem. We need to develop programs like that." One extension she suggested is developing an Internet-based video version of the program for patients who do not want to travel to the YMCA, although she acknowledged that some patients in underserved areas lack access to the Internet.

Another extension, suggested Bradley, could be to work through provider groups (i.e., accountable care organizations) or the community to deliver such services in more creative ways, such as through local churches or community centers. What this would do, he explained, is help focus on outcomes, with fewer rules as to who can deliver services. As a more specific suggestion, he noted that his students experienced a tremendous response from African American barber shops when they went into the community to work on health issues.

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7

Roles of the U.S. Department of Agriculture

Highlights from the Presentation of Tom Vilsack

- The U.S. Department of Agriculture (USDA) has made a concerted effort to change the foods consumed in preschools, schools, and homes.
- Expansion of local and regional food systems can increase the availability of fruits and vegetables.
- Research supported by USDA can support incentives that encourage people to make healthier choices.
- Maintaining and accelerating efforts—by reauthorizing successful programs, for example—could result in continued improvements to nutrition and produce significant benefits on multiple fronts.

Tom Vilsack, then-secretary of the U.S. Department of Agriculture (USDA), gave a keynote address on the work USDA has done to combat obesity. The obesity epidemic affects "many, many Americans," he began. "We're particularly concerned about it as it relates to our young people. If you look at those who have obesity or at risk of having obesity, it can be as many as one-third of the youngsters in this country." He stated that he personally and USDA devote considerable time and effort to the issue, and went on to describe the department's major initiatives.

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INCREASING ACCESS TO HEALTHY FOODS

Vilsack began by observing that, early in the Obama administration, attention focused on improving the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), which affects about half of all preschool children in the United States. USDA worked to increase the consumption of fruits and vegetables not only to improve nutrition but also to introduce preschool children to a broader range of foods. Building on this success, Vilsack reported, it also worked with school-aged children. The Institute of Medicine and other organizations had identified many problems with the meals children were eating at school, including too much fat, too many calories, too much sugar, and too much sodium. With support from the Healthy, Hunger-Free Kids Act, the administration sought to refocus the National School Lunch Program and School Breakfast Program[1] by changing the mix of foods; reducing fat, sodium, and sugar; and introducing foods that would be both nutritious and delicious at school.

Many school districts had a difficult time shifting to healthier foods, Vilsack noted. In response, USDA created an initiative called Team Up for School Nutrition Success, which entailed pairing districts that were struggling and similarly situated districts that could provide them with a mentoring experience. In addition, chefs from local restaurants were invited into the schools to work with their food personnel, and school districts received grants for equipment that would enable them to do more scratch cooking on site or in centralized processing facilities. In addition, the National Football League and the dairy industry supplemented these grants with $5 million for small-equipment purchases.

USDA also worked with schools to change the foods available in vending machines, said Vilsack, "to make sure that we were sending a consistent message at the school." He noted that many school districts were concerned because vending machines are a source of school revenue. "But it turned out that kids will buy what's in the vending machines," he said, "and they are more than happy to buy flavored water, low-cal sports drinks, low-cal sodas, and things of that nature that substantially reduce the exposure to calories, to sugar, and to sodium." At the same time, USDA has been working with schools on the marketing that takes place in schools to ensure that advertising is consistent with the new standards. In addition, Vilsack reported, the department worked with university researchers to develop strategies for encouraging Smarter Lunchroom[2] choices—"the way in which food is displayed, the way in which it's named, who serves it, how it's served, sharing tables, things of that nature designed to provide an

[1] See www.fns.usda.gov/school-meals/healthy-hunger-free-kids-act (accessed January 12, 2017).

[2] See http://smarterlunchrooms.org (accessed January 12, 2017).

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opportunity for school districts to look at innovative ways to make school meals more nutritious and more appealing."

According to Vilsack, this work has contributed to a 16 percent increase in vegetable consumption and a 23 percent increase in fruit selection among students through school meals (Cohen et al., 2014). Today, 97 percent of school districts in the country are following the new guidelines (USDA, 2015).

CHANGING DEMAND

Vilsack described another focus of attention: revising USDA recommendations for healthy eating. The department replaced the food pyramid with the My Plate icon,[3] which calls for meals to consist of half fruits and vegetables and half carbohydrates and protein, with dairy on the side. "The MyPlate effort has been incredibly successful," said Vilsack. It has given people "an understanding of what a nutritious plate looks like—and we're seeing that being adopted. We're seeing the visits to our website increase dramatically. We think it's a much easier way of explaining to people precisely what a healthy plate looks like."

The department then turned to the Supplemental Nutrition Assistance Program (SNAP). One issue it considered was whether incentives to encourage families to purchase more fruits and vegetables would work. A long-term longitudinal study in Massachusetts had examined whether extension of SNAP benefits could be tied to the purchase of more fruits and vegetables (USDA, 2014). "What we found from that study was that, in fact, incentives work," Vilsack observed. In response, the 2014 Farm Bill included the Food Insecurity Nutrition Incentive grant program,[4] a roughly $100 million effort to encourage SNAP beneficiaries to take advantage of the ability to buy more fresh fruits and vegetables. The department also worked with private foundations and nonprofit organizations to match its funding through "double buck" campaigns, whereby SNAP benefits are matched dollar for dollar by nonprofit assistance for specific purchases. In addition, USDA has invested in expanded Electronic Benefit Transfer systems to make SNAP benefits more available at farmers' markets, "and we're continuing to look for ways in which we can expand access for SNAP families," Vilsack reported.

According to Vilsack, USDA has also been looking at the problem of food deserts—persistently poor or remote areas in which residents lack access to a full-scale grocery store. Addressing this problem involved work-

[3] See www.choosemyplate.gov (accessed January 12, 2017).

[4] See www.nifa.usda.gov/program/food-insecurity-nutrition-incentive-fini-grant-program (accessed January 12, 2017).

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ing with the U.S. Department of Health and Human Services and the U.S. Department of the Treasury to encourage the development and financing of full-scale grocery stores. USDA has mapped the country to gain a better understanding of where food deserts are located (through the Food Access Research Atlas), and is working with Congress to provide grants and incentives for locating grocery stores in these neighborhoods. Vilsack said he has also used his position as the secretary of USDA to ask grocery chains to consider their social responsibility for making nutritious food available.

Finally, Vilsack reported, USDA is working with stores to rethink what they stock and shelve. For some stores, SNAP payments constitute a significant part of their business, which gives the federal government an opportunity to help these stores stock a more nutritious set of foods.

MATCHING SUPPLY WITH DEMAND

Healthier eating requires that fruits and vegetables be available to the people who want to eat them, Vilsack observed, which in turn requires expansion of local and regional food systems. Investing in those systems serves multiple purposes, he said, and can respond to a renewed interest in specialty crop production. For example, USDA has been experimenting with offering microloans to create opportunities for people to engage in small-scale farming.[5] As a specific example, Vilsack mentioned hoop houses that can extend the growing season in parts of the country with harsh winters. Such farming can be done "just about anywhere," he said—in vacant lots, on roofs, in community gardens. In honor of President Lincoln's 200th birthday, USDA converted an asphalt-covered parking lot at its Washington, DC, headquarters to an organic garden. "That has spawned over 2,100 gardens of that kind," Vilsack said, "which are producing fruits, vegetables, herbs, and so forth that are now going to food banks."

Vilsack also observed that an estimated one-third of food in America is wasted. "If we could cut down significantly on food waste," he suggested, "there would obviously be greater supply." He noted that one way to do so would be reducing portion sizes. "I've begun to say to the waiters and waitresses, 'I know I'm entitled to fries, but I really don't need five pounds of fries. I just need a handful.' I'm happy to pay whatever I need to pay, but I don't want to waste food. You make people more sensitive on that score."

Vilsack acknowledged that international trade affects the supply of fruits and vegetables in the United States and that some U.S. growers are deeply concerned about market shares. But, he pointed out, the earth will soon have 9 billion people living on it. "To feed that many people," he

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[5] See www.fsa.usda.gov/programs-and-services/farm-loan-programs/microloans (accessed January 12, 2017).

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argued, "we're going to have to increase productivity and food production worldwide." He asserted that greater demand will mean many more people consuming fruits and vegetables, which will help stabilize markets and support production. USDA is also trying to create new consumers of healthy foods by acquainting school districts with what is being grown in their vicinities. Vilsack described Farm to School grants,[6] which are making it possible for schools serving millions of children to purchase local foods and support local farmers, thereby creating closer links between rural and urban areas and a stronger sense of community.

Vilsack also cited immigration reform as a way to increase the production of fruits and vegetables. "There is a lot of acreage in this country today that is not being farmed," he observed; "or if it is being farmed, it's not being harvested; or if it's harvested, it's harvested at a very late stage because we don't have a stable, secure workforce." He asserted that immigration reform would help create a more stable and secure agricultural workforce, which would make it easier for farmers to ensure that whatever is planted is harvested. "With fruits and vegetables," he pointed out, "if you don't have the workforce at the time that the fruits and vegetables are ready, you're out of luck."

UNDERTAKING TECHNOLOGY AND RESEARCH INITIATIVES

Technology programs implemented by USDA have the potential to empower people, Vilsack suggested. With SNAP benefits, for example, embarrassment at being identified and judged in a grocery line can be an impediment to the purchase of foods. Thus, Vilsack said, "we have made a concerted effort to try to bring everything together so that what SNAP families are doing looks no different than what the rest of us do with a Visa card or a MasterCard."

Vilsack observed that research can also point to the information people need to make better choices. One research project, for example, looked at how to characterize the value of fruits and vegetables. Characterizing foods by portion size rather than calorie content can help people understand that fruits and vegetables are not necessarily more expensive, Vilsack argued, and thus can help them make informed choices (ERS, 2016). Additionally, recipes on the USDA website have been giving SNAP families the capacity to incorporate more fruits, vegetables, and whole grains into their diets inexpensively.[7] Vilsack explained that the department's SNAP Nutrition Education and Obesity Prevention Grant Program, informed by research,

[6] See www.fns.usda.gov/farmtoschool/farm-school-grant-program (accessed January 12, 2017).

[7] See https://snaped.fns.usda.gov/recipes (accessed January 12, 2017).

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teaches people using or eligible for SNAP about good nutrition and how to make their food dollars stretch further.

MAINTAINING MOMENTUM

Vilsack observed that, as other workshop participants had pointed out, "we're beginning to see some small steps, small signs, that we're beginning to have an impact." Some obesity rates, especially among children, have plateaued, and for some groups of children, the rates have even declined. "If we give this effort a generation or so, we're going to see, I think, significant changes," Vilsack said.

Reauthorizing the programs that have been making a difference is critical, Vilsack asserted. He suggested that Congress has an opportunity to cement a better approach to nutrition in government. "We have a great advocate with the First Lady and her Let's Move! initiative," he said. "We want to make sure that we finish strong, if at all possible. We're going to work with Congress to try to get that done before this administration is over."

Vilsack went on to report that USDA is also working with a broad range of partners to encourage continuation of its successful programs. Food insecurity has recently declined in the United States, he observed, "and the good news is we've seen a particularly important decline among children." "It's at a record low this year. We're proud of that; we want to obviously see that continue."

Vilsack noted that in the 1950s President Truman instituted the School Lunch Program because he was concerned about the country's ability to have enough healthy people to defend itself. According to Vilsack, "he felt that there needed to be more calories consumed by young people so that they would be physically strong to be able to defend the country." Now, he said, military leaders are concerned about too few young people being healthy enough to participate in a voluntary army. In addition, he argued, better nutrition could prevent large amounts of unnecessary health care expenditures and lost productivity.

"We didn't get into this situation overnight, and we're not going to get out of it overnight," Vilsack concluded. But, he asserted, "if we stick with it and stay with it, we'll see more significant benefits over time."

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8

The Roles of Foundations

Highlights from the Presentations of Individual Speakers

- Strengthening obesity prevention and treatment as a social movement organized around health would propel the issue forward. (Marion Standish)
- The intersections between societal factors and negative outcomes provide opportunities to weave together strategies for making greater progress. (Monica Hobbs Vinluan)
- Poverty is an especially influential and challenging social determinant of poor health, including obesity. (Barbara Picower)
- Foundations can support communities that have been marginalized and take the long view, which enables them to be progenitors of long-term social movements. (David Fukuzawa)

Foundations have supported efforts in preventing and treating obesity. In the final panel of the workshop, four foundation representatives—Marion Standish, vice president for enterprise programs at The California Endowment; Monica Hobbs Vinluan, senior program officer at the Robert Wood Johnson Foundation; Barbara Picower, president of The JPB Foundation; and David Fukuzawa of The Kresge Foundation (who also spoke about treatment challenges; see Chapter 6)—reflected on the lessons they have learned from past investments and their plans for future investments.

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CREATING A MOVEMENT

Standish began by saying that everyone working on childhood obesity—whether lawyers, scientists, researchers, or social workers—is passionate about the issue. She suggested that strengthening obesity prevention and treatment as part of a broader social movement focused on health equity would propel the issue forward. She observed that grassroots movements around the country are taking on issues related to obesity, from school nutrition to safe streets and access to healthy foods. If these groups forged a broader narrative together, she asserted, they could create a tent large enough to include multiple new constituencies. A much larger narrative around this work would, of necessity, encompass prevention, health, the food system, and other basic societal systems that underlie the work of diverse advocates. "If we began to see ourselves more as a social movement than as a set of diverse activities, research projects, and interventions," she said, "we would be ever more powerful."

Standish argued that this larger social movement could organize itself around obesity, food, physical activity, the built environment, conservation, animal rights, or other issues, but that the most powerful force within all those movements is health. She believes, for example, that the current food system has proven itself to be "a profound failure" in its central mission, which is to produce and sustain the health and well-being of society.

According to Standish, social movements have several defining characteristics. First, they need a vision and a framework for their work. "We have that," Standish said. "We just need to call it out." They also need an authentic base of people at the grassroots level who are engaged in meaningful ways; they need to be there for the long haul; they need a vision for governance; and they need to be networked with other movements. Finally, they need to be able to scale. "We have so many evidence-based good ideas," Standish said, but "scale is a challenge."

FINDING THE INTERSECTIONS BETWEEN SOCIETAL FACTORS AND OUTCOMES

Vinluan agreed that bringing disparate movements together to advance work on child obesity is "the key to our future." The Robert Wood Johnson Foundation has been a leader in the work on obesity, she noted, investing a billion dollars in the issue over 10 years. In the process, the foundation has learned some important lessons, said Vinluan. It has gained a better understanding of how health and well-being are linked to education, income, zip code, race, and ethnicity. According to Vinluan, while the declining rates of obesity—in particular for young children—have been gratifying, "we're

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not making the progress that we need to be making" if disparities continue to widen.

Vinluan explained that the foundation has also learned about different strategies and how to link them to what works in communities and states. When young children experience poverty, hunger, family violence, or substance abuse, they are more likely to drop out of school, end up in prison, or become addicted to drugs, she observed. She asserted that the intersections between these societal factors and negative outcomes provide opportunities to weave together strategies for making greater progress.

Vinluan noted that the foundation has been investing in a number of different strategies that take advantage of these intersections. Its Culture of Health Prize not only rewards communities for their accomplishments but also uncovers successful approaches that can be shared. Vinluan explained that the foundation has been investing in communities that make child obesity prevention a priority above all else. "That is their primary strategy," she said, "whether they articulate it like that or whether there are several movements that are giving voice to different aspects of the child obesity movement." She noted that successful communities have also been implementing a wide range of strategies with multiple sectors. "To build a culture of health," she suggested, "we need lots of component pieces in place. We need to make sure that health is a shared value. We need to make sure that we're fostering cross-sector collaboration. And we need to create healthier communities while at the same time integrating our health services and systems. . . . Health is very much connected around the conditions of social, emotional, and physical health. How do we try to identify strategies and solutions that combine all of those efforts?"

The Robert Wood Johnson Foundation is going to continue this work, Vinluan said, focusing on schools, early care environments, homes, and communities. The work will be connected to efforts to identify tools and strategies that can help communities and families address the trauma and toxic stress that are present in many communities across the United States. "That's where we're going," Vinluan said, "and I invite you all to join us in this journey."

ATTACKING POVERTY

According to Picower, The JPB Foundation considers poverty to be the biggest problem in the United States. "People find nice ways to talk about poverty," she said. "They call it inequality or lack of social mobility. But when push comes to shove, it's that people are living really poorly. They don't have enough money to feed themselves. And when they do feed themselves, the food that is generally available to people who are making

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$2.00 a day with a family of four is fattening food. It's chips. It's snacks. It's potatoes. It's nothing that's good for them."

Picower reported that the foundation has been working to identify and lower the barriers to escaping poverty. Obesity is one such barrier, she asserted. "If we can get young people to grow up at normal weight," she suggested, "then they will have a chance of crossing that street and having a more successful life."

One program the foundation has been funding is the Harlem Children's Zone, which includes a project known as Healthy Harlem. Picower explained that the program's components include nutrition, cooking, physical activity, and sports, with opportunities for parents to become involved as well. An evaluation of the program found promising and statistically significant results, Picower reported, saying, "We're really proud of that." The foundation has also been funding the scale-up of the YMCA's Diabetes Prevention Program for adults (see Chapter 6) and working to translate it for young people.

Obesity is not going to go away, said Picower. She emphasized that foundations will need to remain involved and cannot succumb to issue fatigue. The problem does not belong to any one group in the United States, she said. Rather, "this is an American problem, and we have to work together to solve the problem."

FOSTERING A CULTURE OF HEALTH

Funders can bring a values-driven or a mission-driven point of view to social issues, observed Fukuzawa. Because they are not constrained by government, he suggested, they can speak on behalf of or in support of communities that have been marginalized, and they can take the long view. As a result, he asserted, foundations can be, and have been, the progenitors of long-term social movements. The Kellogg Foundation has funded experiments and important advances in local, equitable, and sustainable foods for decades, he observed, arguing that the food movement today would be significantly different "were it not for [that foundation's] early investments."

His foundation is also "fixed on the culture of health," Fukuzawa explained. He described it as a community development foundation that includes a health program. But, he noted, health is clearly a central theme in community development. In fact, he suggested, it is a critical integrating factor in transit, housing, economic development, workforce development, and other aspects of community development. As an example, he pointed to the many places where health care institutions have become the foundation for community development and better health. As other examples, he cited the work of the Partnership for a Healthier America on affordable

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housing and the effects of the Moving to Opportunity demonstration on health, including obesity.

One thing foundations can do besides supporting programs, Fukuzawa suggested, is to fund leveraged investments that improve health. In this way, he argued, they can help induce other funders, both public and private, to invest in socially beneficial community programs, such as the new accountable communities for health.

REASONS FOR HOPE

At the end of his summary of the workshop's themes (see Chapter 1), Bill Purcell cited the work of foundations as one reason "not just to be hopeful but to be optimistic." He said, "This country has a large number of people, many in this room, who understand what needs to be done and increasingly are closer to knowing how to do it. For that reason, I'm optimistic, hopeful, and encouraged."

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A

Workshop Agenda

Driving Action and Progress on Obesity Prevention and Treatment:
A Workshop

Roundtable on Obesity Solutions

September 27, 2016

National Academy of Sciences Building
2101 Constitution Avenue, NW, Washington, DC
Auditorium

Purpose: Assess how far the nation has come in tackling the obesity epidemic, identify the levers that will drive significant progress in obesity prevention and treatment, and discuss how gaps in the field can be filled.

Workshop Goals:

- Review the progress that has been made in obesity prevention and treatment.
- Identify urgent issues and gaps in the field, and high-priority research opportunities.
- Identify promising approaches for future work.

8:30 AM **Welcome**
Bill Purcell, J.D., Chair, Roundtable on Obesity Solutions

PROGRESS IN OBESITY PREVENTION AND TREATMENT

8:45 AM **Trends and Prevalence of Overweight and Obesity and Gaps in Information**
Captain Heidi Blanck, M.S., Ph.D., Centers for Disease Control and Prevention

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9:15 AM **Progress on the Call to Action to Prevent and Treat Overweight and Obesity**
Facilitator: William (Bill) H. Dietz, M.D., Ph.D., George Washington University

Jeffrey Koplan, M.D., M.P.H., Vice President for Global Health, Emory University
David Satcher, M.D., Ph.D., former U.S. Surgeon General; Founding Director, Satcher Health Leadership Institute, Morehouse School of Medicine
Vice Admiral Vivek H. Murthy, M.D., M.B.A., U.S. Surgeon General

10:15 AM BREAK

DRIVING PROGRESS IN COMMUNITIES AND THE NATION

10:30 AM **Early Care and Education**
Facilitator: Jennifer Zuckerman, M.S., Blue Cross and Blue Shield of North Carolina Foundation

Debbie Chang, M.P.H., Nemours Children's Health System
Daithi Wolfe, Wisconsin Council on Children and Families
Anna Mercer-McLean, M.S., Community School for People under Six, Carrboro, North Carolina

11:15 AM **Business**
Facilitator: Becky Johnson, Healthy Weight Commitment Foundation

Becky Johnson, Healthy Weight Commitment Foundation
LuAnn Heinen, M.P.P., National Business Group on Health
Ryan Shadrick Wilson, J.D., Partnership for a Healthier America
Elyse Cohen, M.P.H., U.S. Chamber of Commerce Foundation

12:00 PM LUNCH

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1:00 PM **Physical Activity**
Facilitator: Christina Economos, Ph.D., Tufts University

James Sallis, Ph.D., University of California, San Diego
Harold W. (Bill) Kohl III, Ph.D., The University of Texas at Austin
Arnell Hinkle, M.A., R.D., M.P.H., CHES, Communities, Adolescents, Nutrition, and Fitness

1:45 PM **Treatment Challenges with Obesity Therapy**
Facilitator: David D. Fukuzawa, M.Div., M.S.A., The Kresge Foundation

Caroline Apovian, M.D., Boston University School of Medicine
Don Bradley, M.D., M.H.S.-CL, Duke University
David D. Fukuzawa, M.Div., M.S.A., The Kresge Foundation

2:30 PM BREAK

2:45 PM **Future Directions in Supporting Obesity Efforts**
Facilitator: Bill Purcell

Marion Standish, J.D., The California Endowment
Monica Hobbs Vinluan, J.D., Robert Wood Johnson Foundation
Barbara Picower, M.A., M.S., The JPB Foundation
David D. Fukuzawa, M.Div., M.S.A., The Kresge Foundation

3:30 PM **Moving Forward**
Facilitator: Bill Purcell

The Honorable Tom Vilsack, J.D., U.S. Secretary of Agriculture

4:00 PM **Closing**
Bill Purcell

4:15 PM **Adjourn**

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B

Acronyms and Abbreviations

BMI	body mass index
CANFIT	Communities, Adolescents, Nutrition, and Fitness
CDC	Centers for Disease Control and Prevention
CI	confidence interval
JAMA	*Journal of the American Medical Association*
NAP SACC	Nutrition and Physical Activity Self-Assessment for Child Care
NHANES	National Health and Nutrition Examination Survey
PHA	Partnership for a Healthier America
QRIS	quality rating and improvement system
SNAP	Supplemental Nutrition Assistance Program
USDA	U.S. Department of Agriculture
WIC	Special Supplemental Nutrition Program for Women, Infants, and Children

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C

Speaker and Facilitator Biographies

Caroline Apovian, M.D., is professor of medicine and pediatrics in the Section of Endocrinology, Diabetes, and Nutrition at Boston University School of Medicine. She is also director of the Center for Nutrition and Weight Management at Boston Medical Center. Dr. Apovian is a nationally and internationally recognized authority on nutrition and has been in the field of obesity and nutrition since 1990. Her current research interests are in adipose cell metabolism and inflammation, research in the bariatric surgery population, novel pharmacotherapeutic antiobesity agents, and weight loss and its effects on endothelial cell function. She is also an expert in the technique for subcutaneous adipose tissue biopsies and has been performing these biopsies on research subjects for more than 10 years. She was on the expert panel for updating the 2013 American Heart Association (AHA)/American College of Cardiology (ACC)/The Obesity Society (TOS) Clinical Guidelines for the Management of Overweight and Obesity in Adults. Dr. Apovian was a recipient of the Physician Nutrition Specialist Award from the American Society of Clinical Nutrition for her work on developing and providing nutrition education for medical students and physicians in training at Boston University School of Medicine. She has published more than 200 articles, chapters, and reviews on the topics of obesity, nutrition, and the relationship between adipose tissue and the risk of developing cardiovascular disease. Dr. Apovian wrote the books *The Age-Defying Diet*, *The Overnight Diet*, and *The ALLI Diet Plan*. She has given more than 100 invited lectures nationally and internationally and is president-elect of The Obesity Society for 2016–2017.

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Captain Heidi Blanck, Ph.D., M.S., M.P.H., is chief of the Obesity Prevention and Control Branch at the Centers for Disease Control and Prevention (CDC) in the Division of Nutrition, Physical Activity, and Obesity. She has more than 17 years of CDC experience as a public health epidemiologist and has authored more than 100 papers and reports in the areas of weight management, nutrition, physical activity, and environmental exposures. She recently served as acting division director (2012–2013) and continues to provide leadership to the agency and department. Dr. Blanck oversees the CDC's monitoring of state obesity prevalence and key behavioral, environmental, and policy supports for healthy eating and active living. Staff within the branch focus on national, state, and local surveillance, including the use of electronic health records, applied research, and guideline development with respect to the topics of body mass index and obesity-related behaviors. Dr. Blanck's work focuses on changes in environments across multiple settings (i.e., child care, schools, medical care, and communities), with an emphasis on improving health equity. She is senior advisor to the CDC's extramural Nutrition and Obesity Policy Research and Evaluation Network and is a senior member of the National Collaborative on Childhood Obesity Research. Dr. Blanck received her Ph.D. in nutrition and health sciences from Emory University, where she also holds an adjunct professor position.

Don Bradley, M.D., MHS-CL, is associate consulting professor in the Department of Community and Family Medicine at Duke University and director for the Practical Playbook (www.practicalplaybook.org). He retired in 2014 from Blue Cross and Blue Shield of North Carolina (BCBSNC), where he served in a number of roles, including executive director for BCBSNC's federally qualified health maintenance organization and senior vice president, healthcare and chief medical officer. His accomplishments there included producing the company's first primary care provider profiles/reports, implementing BCBSNC's first fully transparent online medical policy, developing and successfully marketing the State of Preventive Health Summits, developing and implementing the country's first bariatric surgery centers of excellence in collaboration with the American Society of Bariatric Surgery, developing an office-based endoscopy network (so members could obtain endoscopy services for an office copay rather than a deductible and coinsurance), creating BCBSNC's Healthy Lifestyle Choices program (nutrition counseling benefits, coaching, and incentives for physical activity and healthy lifestyle choices), and leading the implementation of the patient-centered medical home program. Dr. Bradley continues his work as chair of the North Carolina Health Quality Alliance and as a member of the Academy of Nutrition and Dietetics Board of Trustees.

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Debbie Chang, M.P.H., is senior vice president of policy and prevention and a corporate officer for Nemours Children's Health System, working to spread what works through national policy and practice changes to improve the health and well-being of children nationwide. She co-directs Moving Health Care Upstream, a national collaborative network for testing, developing, and spreading innovative population health strategies. Ms. Chang was founding executive director of Nemours Health and Prevention Services, an operating division devoted to using a comprehensive multisector, place-based model to improve children's health in Delaware. She serves with the National Academies of Sciences, Engineering, and Medicine's Board on Children, Youth, and Families and Roundtables on Population Health and Improvement and Obesity Solutions; the National Center for Children in Poverty; the Winter Park Health Foundation Board; the Asian and Pacific Islander American Health Forum; and the University of Michigan Griffith Leadership Center Board. Ms. Chang has more than 29 years of federal and state government and private-sector experience in the health field. She has held key government positions, including deputy secretary of health care financing at the Maryland Department of Health and Mental Hygiene, with oversight for Maryland's Medicaid program, and national director of the State Children's Health Insurance Program (SCHIP) when it was first implemented in 1997. Ms. Chang's work on population health, child health systems transformation, Medicaid, SCHIP, and Nemours's prevention-oriented health system (including its Centers for Disease Control and Prevention Pioneering Innovation Award–winning statewide childhood obesity program) has been widely published. She holds a master's degree in public health policy and administration from the University of Michigan and a bachelor's degree in chemical engineering from the Massachusetts Institute of Technology.

Elyse Cohen, M.P.H., is director of the Health and Wellness Program at the U.S. Chamber of Commerce Foundation Corporate Citizenship Center (CCC). In this role, she works with CCC's business supporters to help create healthier communities around the world. She also serves as executive director of the Health Means Business campaign. Previously, she served as deputy director of First Lady Michelle Obama's Let's Move! initiative. In this role, she supported the first lady's mission to help America raise a healthier generation of children by making healthy choices easier for American families. Prior to working at the White House, Ms. Cohen spent more than a decade developing social marketing and health communication campaigns, addressing primarily food and nutrition, public–private partnerships, high-level stakeholder outreach, marketing, and social impact. Her work has focused on building thought leadership and guiding companies, nonprofits, and individuals on their social impact and external affairs agen-

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das around food, health, and wellness. Ms. Cohen serves on the "Kitchen Cabinet" Young Leader Advisory Board of DC Central Kitchen and the Advisory Council of the Jewish Food Experience, a division of the Jewish Federation. She holds a B.S. in psychology with a concentration in nutrition from the University of Florida and a master's in public health, with a focus on communication and marketing, from George Washington University.

William (Bill) H. Dietz, M.D., Ph.D., is consultant to the Roundtable on Obesity Solutions and director of the Sumner M. Redstone Global Center on Prevention and Wellness at the Milken Institute School of Public Health, George Washington University. He was director of the Division of Nutrition, Physical Activity, and Obesity in the Centers for Disease Control and Prevention's (CDC's) Center for Chronic Disease Prevention and Health Promotion from 1997 to 2012. Prior to his appointment to the CDC, he was a professor of pediatrics at the Tuft's University School of Medicine and director of clinical nutrition at the Floating Hospital of New England Medical Center Hospitals. Dr. Dietz has been a counselor and past president of the American Society for Clinical Nutrition and is past president of the North American Association for the Study of Obesity. From 2001 to 2003, he served as a member of the Advisory Board to the Institute of Nutrition, Metabolism, and Diabetes of the Canadian Institutes for Health Research. Dr. Dietz received his B.A. from Wesleyan University in 1966 and his M.D. from the University of Pennsylvania in 1970. After completing his residency at Upstate Medical Center, he received a Ph.D. in nutritional biochemistry from the Massachusetts Institute of Technology. Dr. Dietz is a member of the National Academy of Medicine.

Christina Economos, Ph.D., is co-founder and director of ChildObesity180 and is professor and New Balance Chair in Childhood Nutrition at the Friedman School of Nutrition Science and Policy, Tufts University. As the principal investigator of large-scale research studies, her goal is to inspire behavior, policy, and environmental change to reduce obesity and improve the health of America's children. At ChildObesity180, Dr. Economos blends scientific evidence and rigor with innovation and experience from the private sector to develop, implement, evaluate, and scale high-impact obesity prevention initiatives. She led the groundbreaking Shape Up Somerville study, which demonstrated that it is possible to reduce excess weight gain in children through multiple leverage points within an entire community. Dr. Economos is involved in national obesity and public health activities and has served on several committees of the National Academies. In addition, she serves on the American Heart Association's Nutrition Council on Lifestyle and Cardiometabolic Health and has authored more than 130 scientific publications. Dr. Economos received a B.S. from Boston University,

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an M.S. in applied physiology and nutrition from Columbia University, and a doctorate in nutritional biochemistry from Tufts University.

David D. Fukuzawa, M.Div., M.S.A., is managing director for health and interim managing director for human services at The Kresge Foundation. He has more than 20 years of experience in philanthropy, with a special focus on vulnerable children and youth. His experience as a youth worker and community organizer in Detroit and Chicago taught him that health and well-being are affected profoundly by the condition of the communities, schools, and environment in which people live. Those lessons have informed the efforts he has led to reenvision and redesign Kresge's approach to health grantmaking. In 2002, he helped develop and then manage the Special Opportunities Initiative, which focused on building the capacity of high-impact organizations that reached underserved populations but were uncompetitive in the foundation's historic bricks-and-mortar challenge program. From 1990 to 1999, Mr. Fukuzawa was a program officer at The Skillman Foundation in Detroit, where he focused on child and youth health. Mr. Fukuzawa was responsible for a major initiative to address the lack of safe and accessible out-of-school opportunities for Detroit youth, a major factor in the city's high incidence of violence, delinquency, substance abuse, and teen pregnancy. He also helped develop Michigan's first statewide childhood immunization registry. Prior to his career in philanthropy, Mr. Fukuzawa served as director of human needs at New Detroit, Inc. (NDI), where he was responsible for policy analysis and development, particularly in the areas of welfare reform and health care reform. He drafted NDI's policy statement for health care reform and was NDI's liaison to the Michigan Legislature regarding liability/tort reform and its effect on physicians in Detroit. He also administered a Robert Wood Johnson Foundation grant that established the first school-based health centers in the Detroit Public Schools. A Yale University graduate, Mr. Fukuzawa also holds an M.Div. degree from Catholic Theological Union in Chicago and an M.S. in administration from Central Michigan University.

LuAnn Heinen, M.P.P., leads the National Business Group on Health's initiatives on employee, family, and community well-being and workforce effectiveness. The National Business Group on Health is the nation's only nonprofit organization devoted exclusively to representing large employers' perspectives on national health policy issues and helping companies optimize business performance through health improvement, innovation, and health care management. Ms. Heinen leads initiatives including the Best Employers for Healthy Lifestyles® recognition program; the Institute on Innovation in Workforce Well-being, a source of thought leadership, benchmarking, and tactical support to large employers on their health

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and well-being strategies, programs, and communications; and the Institute on Health, Productivity and Human Capital, a forum for employers to share innovations and best practices related to employee engagement, leave policy, the changing workscape, and links between employee health and business performance. Ms. Heinen currently serves on the Agency for Healthcare Research and Quality's Evidence-Based Practice Center Expert Panel on Total Worker Health and the STOP Obesity Alliance Steering Committee. She is a regular speaker, media commentator, and author. Ms. Heinen earned a master of public policy degree from the Kennedy School of Government at Harvard University and an A.B. in human biology with distinction from Stanford University.

Arnell Hinkle, M.A., R.D., M.P.H., CHES, is founding executive director of Communities, Adolescents, Nutrition, and Fitness (CANFIT), a nonprofit organization that provides training, technical assistance, coaching, and strategic consultation on nutrition, physical activity, and policy development and implementation for after-school providers and community-based organizations. Ms. Hinkle has experience working directly with African American, Latino, Southeast Asian, Filipino, and American Indian low-income communities throughout the nation. Currently, she serves as a Fulbright specialist and a technical assistance provider for the W.K. Kellogg Foundation Food and Fitness Initiative. Ms. Hinkle is a recipient of the 2003 Robert Wood Johnson Community Health Leader Award; a 2005 Rockefeller Foundation Bellagio, Italy, Study Center Fellowship; a 2008–2010 Food and Society Policy Fellowship; and a 2010 Ian Axford (New Zealand) Public Policy Fellowship. Prior to her work at CANFIT, Ms. Hinkle was a professional chef and organic farmer.

Becky Johnson, is a nationally recognized healthy lifestyle promotion, organizational management, and public relations expert. She currently serves as executive director of the Healthy Weight Commitment Foundation (HWCF), a broad-based not-for-profit organization whose mission is to help solve obesity—especially childhood obesity—by encouraging positive and permanent lifestyle changes among school-aged children and their families. At HWCF, Ms. Johnson manages the foundation's annual budget, maintains and grows the organization's membership revenue, oversees an annual school grants program, and manages a team of staff and consultants. She joined HWCF in 2009 as a founding staff member and has played an instrumental role in the development and expansion of the organization's Together Counts™ healthy and active lifestyle school curriculum program, which has reached more than 38 million school students and their families with tools and information to help them achieve and maintain a healthy diet and active lifestyle. She spearheaded the effort to expand the

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foundation's membership from 21 in 2009 to more than 300 corporate and nonprofit members today. Her project management and public affairs expertise was honed through multiple leadership positions in the federal government. Before coming to HWCF, she served as director of scheduling and senior advance representative for Secretary of Commerce Carlos Gutierrez. Ms. Johnson earned a B.A. in political science, with a minor in public relations, from Union University in Jackson, Tennessee.

Harold (Bill) Kohl III, Ph.D., M.S.P.H., FACSM, FNAK, is professor of epidemiology and kinesiology at The University of Texas Health Science Center–Houston School of Public Health and The University of Texas at Austin. At the School of Public Health, he also serves as associate regional dean for academic affairs and international health affairs. Previously, he served as lead epidemiologist and team leader in the Physical Activity and Health Branch of the Centers for Disease Control and Prevention's Division of Nutrition and Physical Activity, and has worked since 1984 in the area of physical activity and health. He earned his doctorate in epidemiology and community health studies at The University of Texas at Houston Health Science Center School of Public Health and an M.S. in public health at the University of South Carolina. Dr. Kohl's other areas of specialization are biostatistics and health promotion. His research interests include physical activity, exercise, fitness, sports medicine surveillance, and health. His recent efforts have focused on national and international physical activity surveillance and epidemiology issues, as well as program development and evaluation studies for the promotion of school-based physical activity for children and adolescents. Dr. Kohl initiated Active Texas 2020, a state physical activity plan for Texas. He has served as an elected trustee and is a fellow of the American College of Sports Medicine and a fellow in the National Academy of Kinesiology. He is the founder and past president of the International Society for Physical Activity and Health. He has served in an editorial capacity for several scientific journals; served as chair of an Institute of Medicine committee on physical activity and physical education in school-based settings; and is a past chair of the Science Board of the President's Council on Physical Fitness, Sports and Nutrition. He has produced numerous publications in the scientific literature and co-authored the textbook *Foundations of Physical Activity and Public Health*.

Jeffrey P. Koplan, M.D., M.P.H., is vice president for global health at Emory University. He established and served as director of the Emory Global Health Institute from 2006 to 2013. A former director (1998–2002) and 26-year veteran of the Centers for Disease Control and Prevention (CDC), Dr. Koplan began his public health career in the early 1970s as a member of the CDC's Epidemic Intelligence Service. He has played a key role in a

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variety of domestic and global public health issues, from infectious diseases such as smallpox, SARS, and HIV/AIDS; to environmental issues such as the Bhopal chemical disaster; to the health tolls of tobacco, obesity, and chronic diseases. His work has included extensive international assignments in Bangladesh, India, and Trinidad and Tobago, as well as U.S.–Chinese bilateral projects, World Bank missions, and World Health Organization consultations. From 1993 to 1998, he was president of the Prudential Center for Health Care Research. Dr. Koplan is a master of the American College of Physicians and a member of the National Academy of Medicine. He is also a trustee of the Robert Wood Johnson Foundation, Kaiser Permanente–Georgia, and the China Medical Board and a former trustee of Yale University. He chairs the Visiting Committee for the Harvard T.H. Chan School of Public Health and serves on the Independent Monitoring Board for the Eradication of Polio. Dr. Koplan is a co-founder and former president of the International Association of National Public Health Institutes and principal investigator of the Child Health and Mortality Prevention Surveillance Network. He is the author of more than 240 scientific papers.

Anna Mercer-McLean, M.S., has been in the early childhood education field for more than 27 years. She is executive director of the five-star licensed North Carolina child care center Community School for People under Six in Carrboro. She has served on several national, state, and local early childhood boards, including the North Carolina Partnership for Children (NCPC). Her center is a current participant in the NCPC Shape the NC Collaborative Project. Also, she serves with the NC Institute for Child Development Professionals, the NC Tennis Association, the NC Pre-kindergarten Advisory Committee, and the Durham-Orange-Chatham (DOC) Association for the Education of Young Children.

Vice Admiral Vivek H. Murthy, M.D., M.B.A., was nominated by President Barack Obama in November 2013 and confirmed on December 15, 2014, as the 19th U.S. Surgeon General. As Surgeon General, he is responsible for communicating the best available scientific information to the public regarding ways to improve personal health and the health of the nation. He also oversees the operations of the U.S. Public Health Service Commissioned Corps, composed of approximately 6,700 uniformed health officers who serve in locations around the world to promote, protect, and advance the health and safety of the nation.

Dr. Murthy has devoted himself to improving public health through the lens of service, clinical care, research, education, and entrepreneurship. The son of immigrants from India, he discovered a love for the art of healing early in his childhood while spending time in his father's medical clinic in Miami, Florida. After attending Miami Palmetto Senior High School, Dr.

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Murthy received his bachelor's degree from Harvard and his M.D. and M.B.A. degrees from Yale. After completing his residency at Brigham and Women's Hospital and Harvard Medical School, he joined the faculty as an internal medicine physician and instructor. As a clinician–educator, Dr. Murthy has cared for thousands of patients and trained hundreds of residents and medical students. He regards caring for patients as the greatest privilege of his life.

In addition to clinical practice, Dr. Murthy has two decades of experience in improving health in communities across the country and around the world. He co-founded and served as president of VISIONS, an HIV/AIDS education program in India and the United States, which he led for 8 years. As its president, he established 10 chapters with hundreds of volunteers in both countries and grew the organization's education programs to reach more than 45,000 youth. He also co-founded the Swasthya project, a community health partnership in rural India, to train women to be health providers and educators. During his 5-year tenure with the organization, he established seed funding and helped expand research and direct care programs that reached tens of thousands of rural residents.

As a research scientist, Dr. Murthy has conducted laboratory research on vaccine development and studied the participation of women and minorities in clinical trials, and his research findings have been published in scientific journals. He is also a health care entrepreneur and innovator, having co-founded and chaired a successful software technology company, TrialNetworks, which improves research collaboration and enhances the efficiency of clinical trials around the world. In 7 years, Dr. Murthy and his team took the company from conception to an international enterprise that powers dozens of clinical trials for more than 50,000 patients in more than 75 countries. Dr. Murthy has also served as the president of Doctors for America, a nonprofit organization with more than 16,000 physicians and medical students in all 50 states who work with patients and policy makers working to build a high-quality, affordable health system for all.

As Surgeon General, Dr. Murthy has focused on building cross-sector partnerships in communities to address the epidemics of obesity and tobacco-related disease, to reduce the stigma associated with mental illness, to improve vaccination rates, and to make prevention and health promotion the backbone of communities. Dr. Murthy firmly believes that the nation's greatest strength has always come from its people. Strengthening our communities and the nation by improving the health of its people is his highest priority as surgeon general.

Barbara Picower, M.A., M.S., is president and chair of the board of directors of The JPB Foundation, whose mission is to enhance the quality of life in the United States through transformational initiatives that promote

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the health of communities. JPB's program areas include poverty, specifically in the areas of health and chronic disease, economic opportunity, and democracy; medical research involving collaborative consortiums of scientists investigating diabetes, Parkinson's disease, and Alzheimer's disease and conducting brain research on learning and memory (Massachusetts Institute of Technology); and the environment, with a focus on enabling healthy and resilient communities. JPB's values include an evidence-based approach focused on impact, intelligent risk taking, and addressing challenges of poverty at the root cause level. JPB pursues funding that is highly strategic by working with nonprofits and other funders to collaborate, coordinate, and leverage resources to achieve maximum impact. Ms. Picower also serves on the dean's advisory board of the Harvard T.H. Chan School of Public Health, the National Academies' Roundtable on Obesity Solutions, the board of directors of Living Cities, and the advisory board of the Bridgespan Institute. She earned her B.A. in political science from Hofstra University in 1964, and holds an M.A. in history and secondary education and an M.S. in nutrition, both from New York University.

Bill Purcell, J.D., is an attorney in Nashville, Tennessee, and an adjunct professor of public policy at Vanderbilt University. While he was serving as mayor of Nashville (1999 to 2007), his accomplishments as a civic leader earned him Public Official of the Year honors in 2006 from *Governing* magazine. Elected to five terms in the Tennessee House, he held the positions of majority leader and chair of the Select Committee on Children and Youth. After retiring from the General Assembly, Mr. Purcell founded and became director of the Child and Family Policy Center at the Vanderbilt University Institute of Public Policy Studies. From 2008 to 2010, he served as director of the Institute of Politics at the Harvard Kennedy School of Government. He was then appointed special advisor and co-chair of the Work Team for Allston in the Office of the President at Harvard University. He previously served in various capacities on obesity-related committees of the National Academies, including the Committee on an Evidence Framework for Obesity Prevention Decision Making (member), the Committee on Accelerating Progress in Obesity Prevention, and the Standing Committee on Childhood Obesity Prevention (member). Mr. Purcell graduated from Hamilton College and Vanderbilt University School of Law.

James Sallis, Ph.D., is distinguished professor of family medicine and public health at the University of California, San Diego. Dr. Sallis's primary research interests are promoting physical activity and understanding policy and environmental influences on physical activity, nutrition, and obesity. He has made contributions in the areas of measurement, correlates of physical activity, intervention, and advocacy. Dr. Sallis's health improve-

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ment programs have been studied and used in health care settings, schools, universities, and companies. He is the author of more than 600 scientific publications, co-author of several books, and a member of the editorial boards of several journals. He is a frequent consultant to universities, health organizations, and corporations worldwide. Dr. Sallis was elected to the National Academy of Medicine in 2016. He received his Ph.D. in clinical psychology from Memphis State University.

David Satcher, M.D., Ph.D., is a physician-scientist and public health administrator with an extensive track record of leadership, research, and community engagement. He is a Phi Beta Kappa graduate of Morehouse College and holds M.D. and Ph.D. degrees from Case Western Reserve University. Dr. Satcher served as the 16th U.S. surgeon general of the United States (1998–2002) and the 10th assistant secretary for health in the U.S. Department of Health and Human Services (1998–2001). He also served as director of the Centers for Disease Control and Prevention and administrator of the Agency for Toxic Substances and Disease Registry. Dr. Satcher has held top leadership positions at the Charles R. Drew University for Medicine and Science, Meharry Medical College, and the Morehouse School of Medicine. He has received more than 50 honorary degrees and has received numerous awards from diverse organizations and agencies. Currently, Dr. Satcher is founding director and senior advisor for the Satcher Health Leadership Institute at the Morehouse School of Medicine in Atlanta.

Marion Standish, J.D., joined The California Endowment (TCE) with an extensive legal and philanthropic background. As vice president, Enterprise Programs, she is responsible for managing resources that will support collaboration and alignment across all TCE departments. Ms. Standish leads multiple philanthropic partnerships, provides strategic guidance to impact investing activities, and works closely with TCE's chief learning officer to achieve organizational goals. She serves as lead officer for TCE with the Partnership for a Healthier America, First Lady Michelle Obama's Let's Move! initiative, California's Let's Get Healthy effort, and the National Convergence Partnership. Previously, Ms. Standish was senior advisor to the president of TCE and director of Community Health, where she oversaw multiple grantmaking initiatives focused on transforming communities to reduce inequities and improve health. She played a key role in developing and implementing many TCE signature initiatives, including the Partnership for the Public's Health, Community Action to Fight Asthma, and Healthy Eating Active Communities. Before joining TCE, she was founder and director of California Food Policy Advocates, a statewide nutrition and health research and advocacy organization focused on access to nutritious food for low-income families. Previously, she served as director of the Califor-

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nia Rural Legal Assistance Foundation, a statewide advocacy organization focused on health, education, and labor issues facing farmworkers and the rural poor. Ms. Standish began her career as a staff attorney with California Rural Legal Assistance. She received her J.D. from the University of San Francisco School of Law, and both her M.A. and undergraduate degrees from New York University.

The Honorable Tom Vilsack, J.D., as leader of the U.S. Department of Agriculture (USDA) under President Obama, worked to strengthen the American agricultural economy, build vibrant rural communities, and create new markets for the innovation of rural America. In more than 8 years at the department, Secretary Vilsack has worked to implement President Obama's agenda to put Americans back to work and create an economy built to last. USDA has supported America's farmers, ranchers, and growers who are driving the rural economy forward, provided food assistance to millions of Americans, carried out conservation efforts, made record investments in rural communities, and helped provide a safe, sufficient, and nutritious food supply for the American people.

The Obama administration and USDA have made historic investments in America's rural communities, helping create ladders of opportunity for rural people and building thriving rural economies for the long term. As chair of the first White House Rural Council, Secretary Vilsack and USDA have taken steps to strengthen services for rural businesses and entrepreneurs by finding new ways to make the connection between the demand for investment in rural areas and the financial community. At the request of President Obama, Secretary Vilsack also led an interagency effort to address the heroin and prescription opioid epidemic, leveraging USDA's unique relationship with rural America, where rates of opioid misuse and overdose are particularly high. During his tenure, USDA promoted American agriculture by conducting cutting-edge research and expanding markets at home and abroad. The past 8 years represent the strongest period for American agricultural exports in history. New trade agreements President Obama signed with Colombia, Panama, and South Korea and improved relations with Cuba will create even more export opportunities for American farmers and ranchers. Here at home, USDA has helped increase the number of farmers' markets nationwide to more than 8,500 and made more than 900 investments in local food infrastructure.

Secretary Vilsack knows that conserving natural resources is critical to the long-term strength of the nation's economy. That is why USDA has also enrolled a record number of private working lands in conservation programs and implemented new strategies for restoring the nation's forests and cleaning its water supply. This work is creating private-sector jobs that involve protecting and rehabilitating forests and wetlands, and providing

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increased opportunities for outdoor recreation, which supports 6.1 million direct jobs across the country. USDA's Building Blocks for Climate Smart Agriculture and Forestry—the department's framework for helping farmers, ranchers, and forestland owners respond to climate change—relies on voluntary, incentive-based conservation, forestry, and energy programs to reduce greenhouse gas emissions, increase carbon sequestration, and expand renewable energy production in the agricultural and forestry sectors. Through this initiative, USDA is committed to reducing greenhouse gas emissions and increasing carbon stored in forests and soils by more than 120 million metric tons of carbon dioxide equivalent per year by 2025, ensuring that agriculture and forestry play a significant role in helping the United States meet its commitment to reducing greenhouse gas emissions by 26 to 28 percent below 2005 levels by 2025. USDA has also partnered with First Lady Michelle Obama's Let's Move! initiative to improve the health of America's children. Secretary Vilsack helped pass and implement the Healthy, Hunger-Free Kids Act, which resulted in the most significant improvements to school meals in 30 years. He has also led a comprehensive effort to improve the safety of the American food supply, implementing changes to food safety standards to prevent illness by reducing the prevalence of *E. coli*, salmonella, and campylobacter in meat and poultry.

In addition, Secretary Vilsack has made civil rights a top priority, reaching historic resolutions to all major past cases of discrimination brought against USDA by minority groups, and taking definitive action to move USDA into a new era as a model employer and premier service provider.

Secretary Vilsack is the longest-serving member of President Obama's original Cabinet. Prior to his appointment as secretary, he served as governor of Iowa, in the Iowa State Senate, and as mayor of Mt. Pleasant, Iowa. A native of Pittsburgh, Pennsylvania, he was born into an orphanage and adopted in 1951. After graduating Hamilton College and Albany Law School in New York, he moved to Mt. Pleasant, his wife Christie's hometown, where he practiced law.

Monica Hobbs Vinluan, J.D., is senior program officer at the Robert Wood Johnson Foundation, which she joined in 2015 as part of the childhood obesity team. Her work focuses on supporting policy strategies for helping children attain their optimal physical, social, and emotional development and well-being. Prior to joining the foundation, Ms. Vinluan directed YMCA of the USA's Healthier Communities Initiatives, which catalyzed nearly 250 community- and state-level leadership teams to advance policies that allow people to make healthy choices where they live, work, learn, pray, and play. She has spent her career advocating for strategies that help individuals and communities live well, including policies related to physical activity, healthy eating, and health equity. She has served as a government

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relations professional on a variety of health and well-being issues for 17 years and has been a professional advocate for health promotion issues for more than two decades. Her experience includes working for a U.S. senator and serving as a child and family advocate, a regulatory counsel, a legislative counsel, and a lobbyist. Ms. Vinluan completed her J.D. at the American University Washington College of Law and graduated with a bachelor's degree in political science from Virginia Tech.

Ryan Shadrick Wilson, J.D., is chief strategy officer and general counsel of Partnership for a Healthier America (PHA). She works with corporate executives, celebrities, health experts, government officials, and PHA's leadership—including Honorary Chair First Lady Michelle Obama—to develop innovative strategies for improving health in all communities and tackling the childhood obesity crisis. Ms. Wilson and her team have garnered commitments from more than 200 private-sector partners across a range of industries, including Mercedes Benz USA, Walmart, Nike, Reebok, and Subway. Notably, she led the development of FNV—a bold new campaign that has recruited more than 80 celebrities to help market fruits and vegetables with humor and the same tactics and swagger of the big brands viewed as hip and influential by today's millennials. Ms. Wilson serves on numerous boards of directors. Prior to joining PHA, she counseled large food and agriculture companies and their trade associations on a range of issues at the international law firm Hogan Lovells. While there, she also maintained a pro bono practice, handling civil rights, political asylum, and death penalty cases. Ms. Wilson graduated with honors from both Princeton University and Harvard Law School.

David "Daithi (DAH-hee)" Wolfe, has been an early education policy analyst at the Wisconsin Council on Children and Families since 2007. The Wisconsin Council on Children and Families is a multi-issue policy research and advocacy organization promoting statewide polices that ensure a safe and healthy future for every child in Wisconsin. Mr. Wolfe is co-chair of the Wisconsin Early Childhood Obesity Prevention Initiative, an award-winning statewide coalition that works to improve nutrition and increase physical activity in child care settings. He is currently grant manager for the Farm to Early Care and Education Project, funded by the W.K. Kellogg Foundation. Before becoming an early care and education advocate, Mr. Wolfe was a public elementary school teacher for 16 years. He is a graduate of the University of Michigan, with a B.A. in American culture. He earned his teaching certificate at the Upper Valley Teacher Training Program in Lebanon, New Hampshire.

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Jennifer Zuckerman, M.S., is director of strategic partnerships for the Blue Cross and Blue Shield of North Carolina (BCBSNC) Foundation. She leads the foundation's efforts to make connections across grantees, philanthropy, industry, academia, and nongovernmental organizations at the local, state, and national levels. Previously, she served as senior program officer for Healthy Living, building a strategy for increasing access to safe active environments and healthy, locally sourced food for all North Carolinians, with a strong focus on early childhood development and food systems. She also worked at North Carolina State University's Recreation Resources Service, where she helped parks and recreation agencies across the state develop partnerships for the benefit of community health. Ms. Zuckerman has worked with a variety of North Carolina nonprofits, including the North Carolina High School Athletic Association, Special Olympics North Carolina, and North Carolina Amateur Sports. She currently serves as vice-chair of the Center for Environmental Farming Systems Advisory Board and is a member of the Duke University World Food Policy Center Advisory Board and the National Academies' Early Care and Education Innovation Collaborative. Ms. Zuckerman has also served on the Steering Committee for the North Carolina Institute of Medicine Early Childhood Obesity Prevention Task Force and the Statewide Prevention Task Force. She earned her undergraduate and master's degrees from North Carolina State University in parks, recreation, and tourism management.

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