

## Controversies Regarding Reported Trends: Has the Obesity Epidemic Levelled Off in the United States?<sup>1–3</sup>

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Obesity has become a public health crisis in the United States and many other countries as the prevalence has been growing and has reached a very high level. Many studies have been conducted to examine the trends and related risk factors of obesity. However, some studies provided mixed results. The symposium reviewed the best available evidence regarding the recent trends in the United States and Europe to address the controversies regarding whether the increasing trend has leveled off and to provide some related recommendations. Four leading experts in the field presented key findings and made recommendations for future research and intervention efforts.

### Overview of the obesity epidemic in the United States

William H. Dietz, Director of the Division of Nutrition, Physical Activity, and Obesity, Centers for Disease Control and Prevention, provided an overview of the US obesity epidemic. Beginning in 1970, the prevalence of obesity increased rapidly in children and adults. The increase in the prevalence of obesity occurred coincident with multiple changes in physical activity and the food supply. Physical activity levels decreased as the population became suburbanized, and relied on car use rather than physical or public transport. High energy-dense foods became ubiquitous, portion sizes increased, and healthful foods became relatively

more expensive, whereas less healthful foods and beverages became relatively less expensive. By 1999, it was clear that obesity had become epidemic, whereas in recent years national data indicate a plateau of obesity rates in children. He suggested the curve of per-capita cigarette consumption provides some insight into why the slope of the increase in obesity has slowed or plateaued. The change in slope of the prevalence of obesity may reflect an increased awareness of the adverse health effects of obesity, driven by the substantial press attention accorded to obesity in the past decade.

He presented a variety of national initiatives designed to change the nutritional environments in early care and education, schools, worksites, and communities aimed to reverse the US obesity epidemic. In the United States, the efforts of First Lady Michelle Obama through her “Let’s Move” initiative have substantially increased the visibility of the obesity issue and have begun to focus attention on solutions. It is now widely accepted that these solutions will need to be comprehensive and multisectoral in nature and address risk factors such as a lack of breastfeeding and physical activity, reduced fruits and vegetable intake, and increased screen time, sugar drink intake, and consumption of high energy-dense foods. The CDC’s investments in state and community programs, initially with Communities Putting Prevention to Work and subsequently with Community Transformation grants are designed to implement strategies that address the risk factors outlined above by making healthier choices easier choices. A key challenge is to evaluate the impact of these programs and to disseminate the strategies that work.

### Some different messages: the trends in different population groups in the United States based on different types of data and analysis

Youfa Wang, Director of the Johns Hopkins Global Center on Childhood Obesity, presented results on the trends in different population groups in the United States based on different types of data and analysis. Available national representative

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data suggest that, in general, the prevalence of overweight and obesity in US children has leveled off in recent years, but the obesity rates in US adults continue to increase. Nevertheless, there are considerable differences between populations in the trends in childhood obesity, and the prevalence continues to increase in some sex, age, ethnic, and socioeconomic status groups. He presented findings based on his group's unpublished results and published studies, which were based on data from several national surveys such as the NHANES; Pediatric Nutrition Surveillance System; National Survey of Children's Health Survey; Youth Risk Behavior Survey; Early Childhood Longitudinal Study, Kindergarten; National Longitudinal Study of Adolescent Health (Add Health); and Behavioral Risk Factor Surveillance System.

The data demonstrate mixed information from different data and analysis approaches. He urged that conclusions based on existing data should be drawn and interpreted with caution. Data limitations such as small sample size and lack of representativeness could be a concern when examining the trend in selected population groups. Although the recent trends in children indicate a promising effect of intervention efforts, urgent, vigorous, and sustainable efforts are still needed to fight the epidemic and promote healthy lifestyle in the United States.

### Lessons from European countries: the recent trends in childhood obesity

Jennifer L. Baker, Senior Research Associate, Copenhagen University Hospital, Copenhagen, Denmark, described the recent trends in childhood obesity in European countries. Recent reports from several countries suggested that there is stabilization in the previously rapidly increasing rates of childhood obesity. Nonetheless, ~25% of European children are overweight (including obesity). The overall average, however, obscures meaningful differences across countries as there is a well-known north-to-south obesity gradient. For example, ~12% of boys in Denmark are overweight (including obesity), whereas farther south, the number increases to 44% among boys in Greece.

She suggested that there remain reasons to be cautious of the apparent pause in the trend. From a historical perspective, the rates of childhood obesity have developed in waves with periods of sharp increases followed by periods of stability. These periods of stability occurred, at least in Denmark, when there were not any public health campaigns against childhood obesity. From this perspective, it is not clear that different populations of children have reached a so-called saturation point at which every child susceptible to becoming obese has done so already. Rather, it raises the possibility that the current stabilization may be temporary and may precede another period of an increasing prevalence. Adding credence to this, a recent report on the prevalence of obesity in English schoolchildren showed a small but significant increase in the prevalence of obesity between the school years of 2008–2009 and 2009–2010. Through the enactment of programs and policies directed toward reducing the levels of childhood obesity and through better surveillance, the

coming years will reveal how successful Europe is at protecting the health of its children.

### Recommendations for future efforts

James O. Hill, Director of the Colorado Nutrition Obesity Research Center, addressed future directions for addressing obesity. The increase in body weight appears to be driven by environmental changes that serve to increase energy intake and decrease energy expenditure. In the face of continued pressure toward a positive energy balance, weight gain is a natural process by which energy balance is re-achieved. Reducing obesity will require both empowering individuals to cope with the modern environment and creating a broad supply and demand for healthier food and physical activity choices.

How much behavior change will be required to reduce obesity? Dr. Hill and colleagues developed the concept of the energy gap in 2003 to estimate the degree of behavioral change needed to prevent or treat obesity (1). They estimated that small degrees of behavioral change ( $\leq 100$  kcal/d) could prevent excessive weight gain and reduce obesity rates over time. Even small changes in behavior require empowering individuals and addressing the environment, but fortunately may not require a total alteration in our modern way of life (1). This can be done by 1) teaching people energy balance skills to allow them to use their intellect to help manage within the current environment, 2) provide healthier options for diet and physical activity, 3) creating a compelling reason why people should choose healthier options in everyday life.

More healthy options are becoming available in the form of healthier foods being provided by food manufacturers, healthier meals being provided by restaurants, and healthier options for physical activity including sidewalks, bike paths, and complete streets (with a sidewalk). However, healthy options alone are just part of the solution. The big missing piece is providing a reason for making healthy choices. The best way to start doing this is in schools and at worksites, and the key is promoting healthy behavior because it drives learning and productivity, not just health. Creating expectations for healthy living in schools and at worksites can, in turn, create demand for healthier options in the community. There is a need to teach children the cognitive skills that they need to manage their body weight within the modern environment. This includes understanding energy balance, including how to estimate their daily energy needs and the factors that influence this, and how energy in food relates to energy in physical activity.

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### Literature Cited

1. Hill JO, Wyatt HR, Reed GW, Peters JC. Obesity and the environment: where do we go from here? *Science*. 2003;299:853–5.