

Childhood Obesity

What It Means for Physicians

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AN EPIDEMIC OF CHILDHOOD OBESITY AND OVERweight, to which social, economic, and human behaviors have contributed, threatens long-term medical, psychosocial, and financial consequences beyond US society's current capacity to respond. How the epidemic is controlled will be about the art and practice of social and behavioral change as well as the art and science of medicine. Missing from much of the public discussion is what the epidemic means to medical practice and the role of physicians as agents of prevention and change.

Practicing physicians are familiar with the increasing number of obese and overweight adults living with multiple and chronic illnesses, requiring complex and expensive care, and dying prematurely. The epidemic's clinical effects are now evident in younger patients with diabetes, cardiovascular disease, hypertension, and hyperlipidemia.

In addressing this disturbing trend and preventing its spread, physicians are challenged to look to the broader environment. Successful treatment will require improving the health of individual patients and the larger community. For physicians, this means reviving their traditional role as trusted advocates for good health of the public.

The Childhood Obesity Epidemic: Prevalence and Impact

Current evidence indicates a worst-case trend. In just over a generation, rates of overweight have approximately tripled among preschoolers and adolescents, and quadrupled among children aged 6 to 11 years.¹ Ogden et al² reported that overweight among children and adolescents increased significantly between 1999 (13.9%) and 2004, when 17.1% of all children and adolescents in the United States were overweight.

Overweight and obesity are having adverse effects on the health and well being of young individuals that persist into adulthood. For example, type 2 diabetes mellitus, once referred to as adult-onset diabetes, represented up to 45% of new pediatric cases in 2000 compared with 4% prior to 1990^{3,4} and is now occurring increasingly among African American, Hispanic, Asian, and American Indian adolescents. Weight-related hypertension, hyperlipidemia, sleep disorders, and orthopedic problems are now within the prov-

ince of pediatric practice. Cardiovascular disease, the leading cause of death in the United States, is now manifesting in childhood.^{5,6} Severely obese children reportedly have similar, low health-related quality of life as children diagnosed with cancer and receiving chemotherapy.⁷

Even if overweight children escape such health problems in their youth, they are more likely than other children to become overweight adults with a greater life long risk of weight-related disease.⁸ In fact, adiposity in youth remains a significant early risk factor for adult morbidity and mortality.⁹

Children in certain demographic subsets are particularly vulnerable to overweight and its adverse health effects. For example, among African American adolescents, 18.7% of males and 23.6% of females have a body mass index (BMI) at or above the 95th percentile. Comparable figures for Mexican American male and female adolescents are 24.7% and 19.9%, respectively.³ Children whose parents have lower levels of education and household income are also more likely to be overweight.¹⁰

These disparities in obesity and overweight add to the health care burden of populations already disproportionately uninsured and experiencing disparities in care.

Obesity and the Health Care System

The dramatic increase in obesity among youth has serious implications for families, the health care sector, and society. One projection suggests that when today's children become grandparents, the average patient older than 70 years will far more likely be obese—needing assistance bathing, dressing, toileting, transferring from a chair, and, ironically, eating.¹¹ These scenarios will become the future unless treatment and prevention occur soon.

The implications for clinicians are profound. Today's childhood obesity epidemic means more patients will become seriously ill earlier in life with complex, time-consuming, and expensive comorbidities that are difficult to manage. These patients will live with more illness and die younger than their nonobese counterparts, using a significant share of medical resources.

The direct medical costs attributable to overweight and obesity account for slightly more than 9% of all US health

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expenditures.¹² Federal officials estimated the direct and indirect costs of the epidemic at approximately \$117 billion in 2000.¹³ These expenditures can be expected to increase along with the number of overweight and obese children who will likely become overweight and obese adults with chronic, severe illnesses.

Responding Through Medical Practice and Environmental Change

During the past century, physicians and public health professionals have found that a mix of comprehensive medical and community interventions provide significant protections and benefit to the health of the public. They include community-wide campaigns, school-based interventions, mass media strategies, and legal and regulatory changes.¹⁴

The success of the antitobacco movement provides valuable insight. In 1965, more than 42% of individuals in the United States smoked cigarettes. By 2005, that number decreased to less than 21%.¹⁵ During those 40 years, organizations and individuals from across the social spectrum created and implemented evidence-based programs to help smokers quit. They also advocated for effective environmental measures to prevent and reduce tobacco use (eg, higher taxes on tobacco products, smoke-free workplaces, and counteradvertising).

With obese and overweight patients, physicians must likewise take a dual approach, treating both individual patients and the current complex environment. Clinicians caring for children and adolescents can best reach youth directly through clinical practice. The Institute of Medicine recommends “an ecological model” for public health interventions that views the individual patient “within a larger context of family, community, and society.”¹⁶ Community context is so critical to the health of individual patients that physician intervention with the community at large is necessary.

Physicians are uniquely positioned to apply the Institute of Medicine recommendations to childhood obesity. Today among US residents, confidence in public officials is precipitously low, but the majority of individuals trust their physicians.¹⁷ Decision makers and the public listen when physicians and professional medical organizations speak out and take action.

Physician action begins in the examination room. Measuring patient BMI at every well-child visit is essential, along with evidence-based assessment, treatment, and prevention strategies, which may include¹⁸ (1) assessing dietary patterns and lifestyle issues, environmental and social supports and barriers, and the patient’s self-efficacy and readiness to change; (2) following a staged approach to weight management with diet and physical activity, family counseling, and regular follow-up aimed at keeping child and adolescent BMI within a healthy range; and (3) educating families about energy-dense foods and sweetened beverages, prescribing at least 60 minutes of moderate physical activity a

day for all family members, and limiting child and adolescent daily “screen time” to less than 2 hours a day.

Treating the Community at Large

However, physician action must extend beyond the examination room. Both the Chronic Care Model and the Seattle-based Improving Chronic Illness Care rely on health care partnering with the community to benefit patients with chronic conditions and to advocate for policies to improve care.¹⁹ The Institute for Healthcare Improvement reports that improving the health of the population requires health care organizations to form alliances and partnerships with state programs, local agencies, schools, faith-based organizations, businesses, and clubs.²⁰ Moreover, the Institute of Medicine’s ecological model offers a framework for physicians to leverage their clinical interventions in the examination room by intervening in the patient’s larger world for improvements in child and adolescent health that will improve the overall community’s health status by (1) demanding that all food available in schools meet US Department of Agriculture nutrition guidelines; (2) requiring daily physical education and active recess for grades kindergarten through 12 and promoting school nutrition and exercise; (3) helping parents and kids organize energy-burning “walking school buses” along safe routes; (4) campaigning for sidewalks, playgrounds, bike paths, and recreational facilities, particularly in low-income and underserved communities; (5) advocating the elimination of advertising of unhealthy foods to children; (6) calling for adequate numbers of supermarkets in low-income neighborhoods, thereby increasing access to affordable produce; (7) insisting that local hospitals eliminate fast-food outlets, just as they ban smoking; and (8) advocating healthy lifestyles and healthy communities using public venues.¹⁶

Current Successful Environmental Interventions

Several programs changing the food and physical activity environment (including 3 supported by the Robert Wood Johnson Foundation) also complement physician interventions at the local, state, and national levels. Without programs such as these, physicians alone will not stop the progress of the epidemic and without the voice of physicians, these programs will not achieve their potential.

The Food Trust. The Food Trust in Philadelphia, Pennsylvania, began by teaching disadvantaged children about nutrition. Today its mission extends to research into the environmental factors of obesity and overweight, as well as environmental interventions. Because of supporting data from The Food Trust, Philadelphia now bans soda from every public school (kindergarten-grade 12) in the city. The Food Trust also successfully documented connections between poor city neighborhoods, poor access to healthy foods, and poor health outcomes. Armed with these findings, it partnered with 2 other groups and the state in supporting the Pennsylvania Fresh Food Financing Initiative to increase the number of

supermarkets in underserved communities. Eleven supermarket projects have been funded in 2 years. The Robert Wood Johnson Foundation is working with The Food Trust to replicate these efforts in other states.

Arkansas Center for Health Improvement. In Arkansas, state legislation passed in 2003 mandated a number of environmental measures, including banning access to vending machines in elementary schools, developing standards for improving nutrition and increasing physical activity in kindergarten through grade 12, and confidentially measuring and reporting students' BMI to parents.

The Arkansas Center for Health Improvement, working with policy makers and school personnel, collects and tracks each student's BMI.²¹ At the same time, schools supply parents with instructive guidance on nutrition and physical activity. Three years after this program began, the prevalence of overweight Arkansas youth decreased from 20.9% to 20.4%.²¹ Six other states now require schools to measure each student's BMI.²²

Alliance for a Healthier Generation. The Alliance for a Healthier Generation, a joint initiative of the American Heart Association and the William J. Clinton Foundation, is an increasingly influential national player. In 2006, the alliance created the Healthy Schools Program to help schools set and implement standards for nutrition, physical activity, and staff wellness. The program started with 230 pilot schools in 13 states and more than 900 schools signed up to use the program's online tools. In its first year, the program reached approximately 750 000 students and is providing further evidence that school-based interventions are a powerful tool for reaching large numbers of at-risk youth.

The alliance also convinced key food and beverage companies, including Campbell Soup, Coca-Cola, Dannon, Kraft, Mars, and PepsiCo, to institute new, healthier guidelines for the snacks and beverages they sell in schools. These groundbreaking agreements represent a welcome reversal of the industry's long resistance to change and are important first steps in creating healthier schools.

Conclusions

The Institute of Medicine has appropriately called for a national campaign to abate the spreading epidemic of childhood obesity. Although actions by local nonprofit organizations, select states, and influential public leaders are encouraging, current efforts are isolated, fragmented, and uncoordinated. A more efficient and unified effort is required, with coordinated individual and population interventions, strong research and measurement, and development of replicable models. Sustainable professional, public, corporate, nonprofit, and philanthropic resources are needed on a large scale to match the scope of the problem. Moreover, individual physicians, county and state medical societies, and national medical specialty associations now have the opportunity, the means, and the rationale to champion

the environmental and social changes that are necessary to alter the daily eating, exercise, and lifestyle choices made by children and adults across the United States. This requires greater awareness by physicians that the community itself is as much a patient in need as the individuals and families in the examination room.

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REFERENCES

1. Institute of Medicine. *Progress in Preventing Childhood Obesity: How Do We Measure Up?* Washington, DC: National Academies Press; 2006. <http://www.iom.edu/?id=36999>. Accessed July 24, 2007.
2. Ogden CL, Carroll MD, Curtin LR, et al. Prevalence of overweight and obesity in the United States, 1999-2004. *JAMA*. 2006;295(13):1549-1555.
3. Hedley AA, Ogden CL, Johnson CL, Carroll MD, Curtin LR, Flegal KM. Prevalence of overweight and obesity among US children, adolescents, and adults, 1999-2002. *JAMA*. 2004;291(23):2847-2850.
4. American Diabetes Association. Type II diabetes in children and adolescents. *Pediatrics*. 2000;105(3 pt 1):671-680.
5. Li S, Chen W, Srinivasan SR, et al. Childhood cardiovascular risk factors and carotid vascular changes in adulthood. *JAMA*. 2003;290(17):2271-2276.
6. Raitakari OT, Juonala M, Kähönen M, et al. Cardiovascular risk factors in childhood and carotid artery intima-media thickness in adulthood: the Cardiovascular Risk in Young Finns Study. *JAMA*. 2003;290(17):2277-2283.
7. Schwimmer JB, Burwinkle TM, Varni JW. Health-related quality of life in severely obese children and adolescents. *JAMA*. 2003;289(14):1813-1819.
8. Whitaker RC, Wright JA, Pepe MS, et al. Predicting obesity in young adulthood from childhood and parental obesity. *N Engl J Med*. 1997;337(13):869-873.
9. Must A, Jacques PF, Dallal GE, et al. Long-term morbidity and mortality of overweight adolescents. *N Engl J Med*. 1992;327(19):1350-1355.
10. Haas JS, Lee LB, Kaplan CP. The association of race, socioeconomic status, and health insurance status with the prevalence of overweight among children and adolescents. *Am J Public Health*. 2003;93(12):2105-2110.
11. Finkelstein EA, Fiebelkorn IC, Wang G. National medical spending attributable to overweight and obesity: how much and who's paying? *Health Aff (Millwood)*. 2003;(suppl Web exclusives):W3-219-226.
12. US Department of Health and Human Services. Overweight and obesity. http://www.surgeongeneral.gov/topics/obesity/calltoaction/fact_glance.htm. Accessed June 22, 2007.
13. Sondik E; Centers for Disease Control and Prevention. Healthy People 2010 progress review focus area 19, nutrition and overweight (slide 2). <http://www.cdc.gov/nchs/about/otheract/hpdata2010/focusareas/fa19-nutrition.htm>. Accessed June 22, 2007.
14. Satcher D; US Department of Health and Human Services. Overweight and obesity threaten US health gains. <http://www.surgeongeneral.gov/topics/obesity/>. Accessed June 22, 2007.
15. Centers for Disease Control and Prevention. Cigarette smoking among adults—United States, 2004. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5444a2.htm>. Accessed July 24, 2007.
16. Eriksen M. Lessons learned from public health efforts and their relevance to preventing childhood obesity [appendix D]. In: Koplan JP, Liverman CT, Kraak VI, eds. *Preventing Childhood Obesity: Health in the Balance*. Washington, DC: National Academies Press; 2005:343-376.
17. Gallup poll: sixty-nine percent rate the honesty and ethics of medical doctors as very high/high. *USA Today*. December 12, 2006. <http://www.usatoday.com/news/polls/tables/live/2006-12-11-ethics.htm>. Accessed June 22, 2007.
18. AMA Working Group on Managing Childhood Obesity. Expert committee recommendations on the assessment, prevention, and treatment of child and adolescent overweight and obesity, June 6, 2007. http://www.ama-assn.org/ama1/pub/upload/mm/433/ped_obesity_recs.pdf. Accessed June 22, 2007.
19. Robert Wood Johnson Foundation. The chronic care model: improving chronic illness care. http://www.improvingchroniccare.org/downloads/ccm_talk_template_with_citations_copy1.ppt#1. Accessed June 22, 2007.
20. Institute for Healthcare Improvement. Community. <http://www.ihl.org/IHI/Topics/ChronicConditions/AllConditions/Changes/Community.htm>. Accessed June 22, 2007.
21. Arkansas Center for Health Improvement (ACHI). Tracking progress: the third annual Arkansas assessment of childhood and adolescent obesity, August 2006. http://www.rwjf.org/files/publications/other/ACHI_2006.pdf. Accessed July 24, 2007.
22. Cotton A, Stanton KR, Acs ZJ, Lovegrove M; University of Baltimore Obesity Initiative. The UB obesity report card. <http://www.ubalt.edu/experts/obesity/index.html>. Accessed June 22, 2007.