

Treating Child Obesity and Associated Medical Conditions

Sonia Caprio

Summary

With American children on course to grow into the most obese generation of adults in history, Sonia Caprio argues that it is critical to develop more effective strategies for preventing childhood obesity and treating serious obesity-related health complications. She notes that although pediatricians are concerned about the obesity problem, most are ineffective in addressing it.

Treatment should begin, Caprio explains, with a thorough medical exam, an assessment of nutrition and physical activity, an appraisal of the degree of obesity and associated health complications, a family history, and full information about current medications. Caprio also summarizes the current use of medications and surgery in treating child obesity and argues that for severe forms of obesity, the future lies in developing new and more effective drugs.

Caprio explains that today's most effective obesity treatment programs have been carried out in academic centers through an approach that combines a dietary component, behavioral modification, physical activity, and parental involvement. Such programs, however, have yet to be translated to primary pediatric care centers. Successfully treating obesity, she argues, will require a major shift in pediatric care that builds on the findings of these academic centers regarding structured intervention programs.

To ensure that pediatricians are well trained in implementing such programs, the American Medical Association is working with federal agencies, medical specialty societies, and public health organizations to teach doctors how to prevent and manage obesity in both children and adults. Such training should be a part of undergraduate and graduate medical education and of continuing medical education programs.

Caprio also addresses the problem of reimbursement for obesity treatment. Despite the health risks of obesity, patients get little support from health insurers, thus putting long-term weight-management programs beyond the reach of most. Caprio argues that obesity should be recognized as a disease and receive coverage for its treatment just as other diseases do.

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Since the mid-1980s prevalence rates of childhood and adolescent obesity in the United States have more than doubled.¹ American children are on course to grow into the most obese generation of adults in history. The worsening obesity epidemic makes it critical to continue examining and developing new and more effective treatment strategies. And because many obese youngsters suffer obesity-associated metabolic, orthopedic, and other health complications that tend to increase with the severity of obesity, it is essential not only to identify the obese child but to recognize, treat, and monitor the associated obesity-related diseases.²

Although pediatricians are concerned about the problem of obesity, most feel unprepared, ill equipped, and ineffective in addressing it. Many studies, as well as a survey of pediatricians, dietitians, and pediatric nurse practitioners, confirm that pediatricians do indeed face many challenges in treating childhood obesity.³ Most pediatric primary care providers are not trained to provide the extensive counseling on nutrition, exercise, and lifestyle changes that is required to treat obesity, and most are pessimistic that treatment can be successful. Most also have insufficient time and attention to dedicate to the obese child, a problem compounded by the lack of reimbursement by third-party payers. Pediatricians also lack support services, especially access to mental health professionals, nutritionists, or exercise physiologists. And they are frustrated by insufficient patient motivation and a lack of parental concern.⁴ In a study of obese African American children, many parents neither perceived their children as very overweight nor felt that weight was a health problem for their child.⁵ Although comparable data are not available for white children, this

study suggests that many African American parents do not perceive obesity as a pediatric health concern.

Given the magnitude of the childhood obesity problem, however, pediatricians and other health care providers are going to have to step up and take a major role in the care and health of the obese child. Successfully treating obesity will require a major shift in pediatric care.

The Role Pediatricians Should Take in Treating Obesity

In 1998 the Maternal and Child Health Bureau, an agency of the U.S. Department of Health and Human Services, convened a committee of pediatric experts to develop recommendations to guide physicians, nurse practitioners, and nutritionists in evaluating and treating overweight children and adolescents.⁶ A group of pediatricians, nurse practitioners, and nutritionists reviewed the recommendations and approved their appropriateness for practitioners. Although the document is not entirely evidence-based, it represents the consensus from experts in pediatric obesity and is the gold standard of care for all practitioners evaluating and treating the obese child.

Evaluating the obese child should begin with a detailed medical examination, together with an assessment of nutrition, physical activity, and behaviors that are linked to obesity, followed by an appraisal of the degree of obesity and its associated metabolic complications. The goals of the medical exam are to identify and treat diseases associated with childhood obesity, to rule out possible underlying causes of obesity, and to assess the child's readiness for change. The focus should be on the child's entire family and any other caregivers or role models living at home.⁷ The examination should include a

family history of parental obesity, gestational diabetes, dyslipidemia (abnormal levels of fat in the blood), and cardiovascular disease, as well as type 2 diabetes.⁸ It should also gather information about any medication the child uses, because so many common medicines, such as glucocorticoids and antipsychotic medications, influence weight.⁹ A nutritional history should include the quality and portion size of the meals, when and where the child eats, and levels of satiety and fullness following a meal. It should also record the amount and quality of snacks and daily consumption of juice and soft drinks, which often replace milk in children's and adolescents' diets and are a major contributing factor to high calorie intake.¹⁰ Finally, it should inquire how often the child eats "fast food," because children who frequently eat at fast-food restaurants consume more total energy, more energy per gram of food, more total fat and carbohydrates, more added sugars, less fiber, and fewer fruits and vegetables than children who do not.¹¹

The child's activity level should also be assessed. Studies that use motion sensors show that children who spend less time in moderate activity are at a higher risk than their more active counterparts of becoming obese during childhood and adolescence.¹² Television watching and video games contribute to more sedentary leisure activities as well as to increased snacking and inappropriate food choices prompted by television advertising. Many hours of television viewing are positively correlated with overweight, especially in older children and adolescents.¹³

Overweight in both children and adolescents can profoundly affect quality of life, self-esteem, and social competence.¹⁴ Among severely obese adolescents, 48 percent have moderate to severe depressive symptoms.

Overweight adolescents often engage in significantly more unhealthy behaviors and experience more psychosocial distress than their normal weight peers.¹⁵ Because psychological disorders may cause or be related to obesity, it is important for a pediatrician to recognize them and to be able to refer a child to a therapist as needed.

Assessment of Obesity:

The Body Mass Index

The initial assessment should begin with an accurate measure of height and weight, which is used to calculate, record, and plot the child's age- and gender-specific body mass index (BMI) on the Centers for Disease Control and Prevention 2000 BMI charts.¹⁶ BMI in children provides a consistent measure of obesity across age groups, correlating with measures of body fatness in children and adolescents. Although some controversy attends the use of BMI to assess obesity in children, as detailed in the article in this volume by Patricia Anderson and Kristen Butcher, the International Task Force on Obesity finds BMI a reasonable index of adiposity.¹⁷

Early recognition of excessive weight gain relative to normal growth is an essential component of the physical examination and should be part of any visit in primary health care. In 2003, the American Academy of Pediatrics recommended that pediatricians calculate and plot BMI in all children and adolescents.¹⁸ Most health care providers, however, fail to address it in the pediatric population. A 2002 study of pediatricians, pediatric nurse practitioners, and dietitians showed that fewer than 20 percent of pediatricians assessed body mass index.¹⁹ And two recent studies indicate that screening practices for overweight using BMI during routine visits have not been adopted.²⁰ Many pediatricians, it seems clear, are overlooking

Racial Disparities in the Care of Childhood Obesity

African American and Hispanic children and adolescents have higher prevalence rates of obesity than do white children and adolescents, but they receive less care.¹ The disparity is particularly disconcerting because black and Hispanic children are at greater risk for obesity-associated complications, such as type 2 diabetes, than are white children.²

In a national survey of ambulatory pediatric visits, Stephen Cook and several colleagues report disturbing racial and health-related disparities. Blood pressure screening differed by race and insurance status, with 47.7 percent of visits of white children including such screening as against 29 percent of visits of black children. Diet and exercise counseling also varied by age, insurance type, and clinician type. Exercise counseling occurred half as often in visits by black children.³ A recent report by Karen Dorsey and several colleagues on the diagnosis, evaluation, and treatment of childhood obesity in pediatric practice also found large disparities in treatment.⁴ In their study of four pediatric clinics (two community health centers and two hospital-based clinics) in New Haven that are serving an urban population with many racial and ethnic minorities insured by Medicaid, they report that providers may be under-diagnosing girls, children who are Hispanic, those insured through Medicaid, and those living apart from their biological parents. The authors also document a lack of testing for diabetes or lipid disorders among this at-risk population of children. Efforts should be invested to understand and correct these racial disparities.

Health professionals of different ethnic backgrounds should develop and implement ethnicity-based management programs for children and adolescents with diverse ethnic, racial, and cultural backgrounds. The United States has few black and Hispanic obesity specialists, nutritionists, and exercise physiologists, and the enormous racial and ethnic gap in providers must be filled. Pediatricians must also address these health disparities in the community through other means, such as working with the local news media. The state of Illinois has recently proposed three pieces of childhood obesity legislation that are likely to be enacted soon. The first urges the U.S. Department of Agriculture to update nutritional labels for foods distributed through the Supplemental Nutrition Program for Women and Children (WIC). The second requires each school board in the state to establish a school district office of nutrition to help prevent childhood obesity. The third urges the state board of education to develop guidelines showing how schools can meet standards for saturated fat in school meals and provide healthy alternatives. Many other states are also working in the same direction, and more legislation to prevent and treat childhood obesity is likely.

1. C. L. Ogden and K. M. Flegal, "Prevalence and Trends in Overweight among U.S. Children and Adolescents, 1999–2000," *Journal of the American Medical Association* 288 (2002): 1728–32.

2. A. L. Rosenbloom and others, "Emerging Epidemic of Type 2 Diabetes in Youth," *Diabetes Care* 22, no. 2 (1999): 345–54.

3. Stephen Cook and others, "Screening and Counseling Associated with Obesity Diagnosis in a National Survey of Ambulatory Pediatric Visits," *Pediatrics* 116 (2005): 112–16.

4. Karen B. Dorsey and others, "Evaluation and Treatment of Childhood Obesity in Pediatric Practice," *Archives of Pediatric and Adolescent Medicine* 159 (2005): 632–38.

obesity during well child visits. Why such screening practices have not been adopted is unclear. In a recent report from the U.S. Preventive Task Force in the journal *Pediatrics*, Evelyn Whitlock and several colleagues concluded that the existing evidence is insuffi-

cient to recommend for or against routine screening using the BMI for overweight in children and adolescents in primary care settings.²¹ But the report should be interpreted carefully: according to an article by Nancy Krebs in the same journal, the report should

not lead to complacency but rather serve as a call for action.²² Despite the uncertainties and controversy surrounding BMI's use in pediatrics, assessing children's BMI and BMI percentiles beginning at age two can prompt health care providers to address weight-to-height ratios during well child visits and should be part of the routine physical exam.

Assessment of Obesity-Related Diseases

To identify the obesity-related diseases that are being seen increasingly in children, laboratory tests should include a fasting lipid profile, which measures cholesterol and triglyceride levels, a liver function test, and fasting glucose and insulin levels.²³ A consensus panel of the American Diabetes Association recommends that overweight children with two additional risk factors, such as a family history of type 2 diabetes, race or ethnicity (American Indian, African American, Hispanic, or Asian Pacific), signs of insulin insensitivity, or hypertension, be considered for further testing.²⁴ Another consensus report finds that patients with obesity-related diseases, such as type 2 diabetes, hypertension, polycystic ovarian syndrome, dyslipidemia, nonalcoholic steatohepatitis, and sleep apnea, will require the expertise of the pediatric endocrinologist, cardiologist, gastroenterologist, and pulmonologist.²⁵ These conditions are described in detail in the article by Stephen Daniels in this volume. Children with these conditions should be cared for within specialized obesity clinics.

Current Specialized Treatment Programs and Interventions

Surprisingly little evidence-based, high-quality research exists on interventions to treat childhood obesity. A summary of the research behind obesity interventions for both adults and children was published in April 2004 in the *British Medical Journal*.²⁶

Most of the effective treatment programs have been carried out in academic centers through an interdisciplinary approach that combines a dietary component, behavioral modification, physical activity, and parental involvement.²⁷ L. H. Epstein and his team at the State University of New York at Buffalo have been in the forefront of developing programs that reduce adiposity in childhood through this multidisciplinary approach. The most important finding of these interventions may be that relatively modest but sustainable changes in lifestyles may have more long-term impact on obesity than radical regimens that enable patients to lose weight rapidly but not to maintain their new, lower weight afterward. In perhaps the only successful long-term intervention, Epstein used such behavioral strategies as contracting, self-monitoring, and social reinforcement with obese children and their parents to limit consumption of fatty foods and to increase exercise.²⁸ Although research has demonstrated that intensive group programs can be successful, such programs have yet to be translated to primary care centers. In the absence of well-established, office-based evaluation and treatment programs, the Maternal and Child Health Bureau and the National Center for Education in Maternal and Child Health have issued recommendations for the obese child's evaluation and treatment that are strongly based on comprehensive interventions like those Epstein developed.

Dietary Components of Treatment

Most lifestyle intervention programs in children use a diet that mildly restricts calories. The classic example is the Traffic Light Diet, which color-codes foods as green, yellow, and red to signal whether they are safe to eat in any quantity (green), require moderation and caution (yellow), or should generally be avoided (red). Combining comprehensive

obesity-treatment programs with the Traffic Light Diet can significantly change eating patterns.²⁹ Indeed, one study found that the diet continued to affect the eating habits of children five to ten years after treatment began.³⁰ Diets more restricted in calories, including high-protein diets, are used rarely and only in more severe forms of obesity. Given their potential danger, they should be implemented under strict medical control, possibly in a clinical setting.

Thus emerging data would suggest that eliminating carbonated drinks or other sugary drinks from the diet can significantly reduce caloric intake and obesity.

Interest is also growing in whether low-carbohydrate diets can help reduce adiposity in adults.³¹ A recent study showed that obese men and women lost more weight and had more significant reductions in plasma triglyceride concentrations on a low-carbohydrate diet than on conventional low-fat diets.³² And limited evidence suggests that the nature or quality of ingested carbohydrates may modulate weight gain in childhood. Although the relationship between carbohydrates and weight gain is still highly controversial, studies by D. Ludwig and several colleagues strongly link consumption of sugar-sweetened drinks with obesity.³³ Thus emerging data would suggest that eliminating carbonated drinks or other sugary drinks from the diet can significantly reduce caloric intake and obesity.³⁴ But low-carbohydrate diets should not be used for children and adoles-

cents until more information is available regarding their effects on insulin resistance and their long-term effects on weight and metabolic health.

Role of Physical Exercise

Physical activity is a critical component of obesity treatment in both adults and children. Increasing the caloric expenditure of obese children may not only accelerate their weight loss, but also make it easier to maintain weight changes. Exercise in the absence of dietary intervention, however, has not been found to affect weight significantly. And for the obese child, exercising can be difficult. Few studies have explored the effects of aerobic exercise on children's body weight and cardiovascular fitness. Nor is much information available regarding the effects of resistance exercise on children's metabolism and body weight. But because the capacity for voluntary exercise declines with the increasing severity of obesity, resistance exercise may prove more effective than more strenuous aerobic exercise. As yet there are no evidence-based guidelines by which to design exercise programs for obese children. Epstein and his team have suggested reducing sedentary behaviors as an alternative to increasing physical activity, an interesting approach that may be helpful both in treating and in preventing obesity. Inactivity can be decreased in many ways, usually most successfully when a parent is involved. The best example is reducing the time that the child spends watching television.³⁵

Pharmacologic Approaches in Pediatrics

Many experts in pediatric obesity argue that behavioral treatment alone is ineffective, particularly in the case of severe obesity. Few if any guidelines exist for using medications in treating child obesity. In general, however, experts suggest that children and adolescents

with a BMI greater than the 95th percentile for age and sex and with obesity-related medical complications that may be corrected or improved through weight reduction should be considered for intensive regimens, including medication.³⁶ Most medications approved for weight loss in the United States either suppress appetite or reduce nutrient absorption. A third emerging therapy is not aimed directly at controlling weight but rather targets insulin resistance to reduce the metabolic complications associated with obesity.

The Food and Drug Administration (FDA) approved sibutramine (Meridia), an appetite suppressant, for weight loss and maintenance in conjunction with reduced caloric intake in adults and adolescents older than age sixteen.³⁷ R. I. Berkowitz and several colleagues provided the first randomized, placebo-controlled trial of sibutramine in treating obese adolescents.³⁸ The double-blind study followed eighty-two adolescents with a BMI of 32 to 44 for six months, and then all patients received the drug without being blind to the treatment for another six months. Including sibutramine as part of a comprehensive behavioral program resulted in greater weight loss in obese adolescents than the traditional behavioral treatment alone, but the weight loss plateaued after six months of therapy. Serious side effects, such as hypertension and tachycardia (rapid heart rate), were reported in nineteen out of forty-three youngsters; in five, the drug dose had to be reduced or discontinued. The study found no major improvement in insulin resistance and dyslipidemia. A. Matos-Godoy and several colleagues also evaluated the efficacy and safety of sibutramine in a six-month double-blind, placebo-controlled trial in sixty obese adolescents.³⁹ Unlike the Berkowitz study, it found no clinically significant changes in blood pressure.⁴⁰ Both studies concluded

that sibutramine should be used for weight loss in adolescents and children only on an experimental basis until more extensive safety and efficacy data are available.

In future tests of sibutramine in children and adolescents with severe obesity, researchers could experiment with different strategies. For example, introducing the drug after a period of weight reduction with traditional approaches may reduce the potential for such side effects as hypertension.

Orlistat (Xenical), a drug that decreases nutrient absorption, cuts intestinal fat absorption by up to 30 percent. The FDA approved its use in children older than age twelve. A multicenter, one-year randomized, placebo-controlled trial in 539 obese adolescents found that those who used orlistat lost weight and had significantly greater reductions in BMI and body fat than those given the placebo.⁴¹ But the two groups saw no significant differences with respect to changes in lipid or glucose levels. The explanation for the failure of lipid and glucose levels to improve may be that the body weight loss was small (5 percent). Although researchers do not yet know how much BMI must be reduced to provide short- and long-term health benefits in children and adolescents, the above study would suggest that small changes in weight do not affect the metabolic risk factors.

The third class of drugs used in treating obesity are those that target insulin resistance, which, along with the associated high insulin levels, are often present in obese children and adolescents and which vary with the degree and severity of overweight. Both disorders may not only contribute to the metabolic complications of obesity but also accentuate weight gain in children and adolescents by

promoting lipid storage. Thus targeting insulin resistance may have a dual effect—preventing further weight gain and improving the associated metabolic complications. Metformin, for example, is used in treating type 2 diabetes.⁴² It is approved for adolescents. Only two small studies have used metformin in a randomized trial in obese adolescents.⁴³ Both found small but statistically significant effects on BMI and significant effects on fasting blood sugar, insulin, and lipids. The studies are encouraging and should be repeated in a larger sample and for a longer duration.

When possible, it is always best to treat obesity without using drugs. Unfortunately, however, once both adult and child patients have lost weight, their efforts to maintain their new weight often fail. That so many people regain weight after stopping medication clearly suggests that obesity is a chronic condition that requires continuous treatment. And even though environmental factors have played an important role in childhood obesity's dramatic rise over the past two decades, clearly there is a genetic component to body weight. Indeed, recent data suggest that 5 percent of cases of severe obesity in children younger than ten are due to genetic mutations.⁴⁴ These children and adolescents need multiple strategies, including drugs, used in combination in a carefully designed treatment program.

Research over the past decade has dramatically advanced knowledge about the molecular mechanisms regulating body fat and the central regulation of energy intake. Ultimately, for the severe forms of obesity, the future lies in developing new and more effective medications. Researchers should continue to investigate the causes of childhood obesity and to refine obesity's classifications and diagnoses based on health risks.

Surgical Approaches

Surgery is used to treat obesity in adults only when patients are severely obese (or their BMI greater than 40) or when they have a BMI greater than 35 together with severe obesity-related health complications. In the Swedish Obese Subjects (SOS) Study, a large study evaluating surgery's efficacy, patients were equally divided among surgical and non-surgical groups.⁴⁵ After two years, the surgical patients had lost 28 kilograms (62 pounds); those in the control group, 0.5 kilograms. After eight years, the average weight loss was 20 kilograms in surgical patients and 0.7 kilograms in controls. Thus overall, surgery promoted substantial, prolonged weight loss in patients with severe obesity.⁴⁶ Results in the relatively few published surgical trials in obese children and adolescents seem to parallel those of adult trials.⁴⁷ Nevertheless, evidence-based guidelines should be developed for surgery as a treatment of childhood obesity.

Primary and Specialized Care

Chronically obese children are increasingly being referred to pediatric endocrinology centers, often years after the onset of obesity. A study by T. Quattrin and several colleagues found that most of the children who were referred to specialists had developed obesity in their preschool years, when preventive measures are likely to be most effective, if implemented. Two years after the first visit to the specialist, only 38 percent of the children were less overweight than they were on their first visit.⁴⁸ The study concluded that such referrals are ineffective, and efforts should go, instead, to developing and making available to pediatricians early family-based, behavioral lifestyle intervention programs. The study's primary point, however, was not to address where the child should receive care but to emphasize that effectively treating obesity in children and adolescents requires a well-

designed, multifaceted intervention program. Given the chronic nature of obesity, frequent visits for treatment are indispensable. The traditional, sporadic, every-six-months visit that a normal primary care practice provides is not adequate. Because many obese children and adolescents also suffer from one or more metabolic complications, the role of the pediatric endocrinologist is critical in the multidisciplinary approach to the problem. Both pediatricians and patients must realize that the goal of treatment is not the initial weight loss alone but also weight management to achieve the best possible weight for improved health. The growing prevalence of childhood obesity indicates an urgent need to develop effective strategies for prevention and treatment.

How Well Equipped Are Pediatricians to Handle “Adult” Diseases?

The typical medical complications of obesity, once confined to adulthood, are now emerging in childhood.⁴⁹ During the past decade, pediatricians were confronted with unusual diseases like type 2 diabetes, nonalcoholic fatty liver disease, and polycystic ovary disorder.⁵⁰ To slow or reverse the increase in childhood obesity and its associated health risks, it is necessary to treat childhood obesity as soon as it is detected. Given the limits to treating long-standing obesity, early pediatric interventions to limit excessive weight gain in preschool and preadolescent children appear to be the best way to tackle the problem. The most effective way to prevent complications of obesity in teenagers and adults is to introduce, model, and reinforce healthful behaviors and lifestyles early in childhood.

Because so many children suffer from overweight and obesity, such interventions are most appropriately based in the primary pedi-

atric care setting, preferably with the support of registered dietitians and structured intervention programs. Especially when caring for the younger child, managing excessive weight gain should be the province of the primary care pediatrician. Although, as noted, few overweight children are now actively treated in the primary care setting and many are referred to specialists, the epidemic of childhood obesity and the paucity of pediatric obesity subspecialists have overwhelmed special-

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ized treatment programs' capacities to handle the demand for their services.

Because almost all children receive their health care in primary care settings, developing effective and feasible strategies for preventing and treating childhood obesity in primary care settings offers an important opportunity for addressing this major public health problem. Giving the primary care provider a major role in preventing the onset of childhood obesity and in intervening promptly to correct excessive weight gain is critical. As noted, however, primary care pediatricians lack the training to care for obese patients. Few have time to assess, intervene, and monitor progress related to the child's dietary, behavioral, and physical activities, especially when the doctors are generally not

reimbursed by third-party payers either to provide services themselves or to employ a multidisciplinary team within their practices to provide appropriate services.⁵¹ The clinical system is well prepared to treat acute conditions but not chronic conditions like obesity.

Changing the Role of the Primary Health Care Provider: A Solution to the Prevention and Treatment of Childhood Obesity

The number of obese children and adolescents is large and growing. These young people are in need of intensive intervention, but clearly the burden is too large to be borne by specialty physicians. Thus the primary care provider's role must be changed.

As leading authorities on the health of children in their communities, pediatricians could play a unique role both in increasing community awareness of the problem of overweight and in identifying promising approaches that deserve additional testing.⁵² Realizing that primary care centers are not now effectively preventing and treating obesity, the field needs to move forward. Although consensus on the best strategies for prevention and treatment is still evolving, the American Medical Association (AMA) has begun to take action. Working with the Council on Scientific Affairs (CSA) and other associations and experts, the AMA issued a report in 2004 on the epidemiology of obesity and the problems it causes.⁵³ The report included recommendations on labor force and training, on costs and reimbursement, and on racial disparities in treatment.

Labor Force and Training

Among its recommendations the AMA urges physicians, managed care organizations, and other third-party payers to recognize obesity as a complex disorder that involves appetite

regulation and energy metabolism and that carries with it risks of various diseases. The AMA is working with federal agencies, medical specialty societies, and public health organizations to educate physicians about how to prevent and manage obesity in children and adults, including basic principles and practices of physical activity and nutrition counseling. It advises that such training should be included in undergraduate and graduate medical education and offered through accredited continuing medical education programs.

The AMA directs physicians to assess their patients for overweight and obesity during routine medical examinations and to discuss with their at-risk patients the health consequences of further weight gain. If treatment is indicated, physicians should encourage and facilitate their patients' weight-maintenance or reduction efforts or refer them to a physician with special interest in managing obesity. Physicians should also become knowledgeable about community resources and referral services that can help them manage obese patients.

The AMA urges federal support for research to determine the causes and mechanisms of overweight and obesity; the long-term safety and efficacy of voluntary weight maintenance and weight-loss practices and therapies, including surgery; and the effectiveness of interventions to prevent obesity in children and adults and of weight-loss counseling by physicians. Finally it encourages a national effort to educate Americans about the health risks of being overweight and obese and to provide information about how to achieve and maintain a preferred healthy weight.

Cost and Reimbursement

To promote reimbursement for care, the AMA exhorts federal agencies to work with

organized medicine and the health insurance industry to develop coding and payment mechanisms for the evaluation and management of obesity. Reimbursement for obesity treatment is one of the great anomalies of the U.S. health care system. Despite the health risks associated with obesity, patients get little support from health insurers. The low reimbursement rates preclude the long-term financial feasibility of weight-management programs without other support or a significant proportion of patients who can pay for care “out-of-pocket.” One study of 191 children in a hospital weight-management program found a median reimbursement rate of 11 percent, with variations from 0 to 100 percent.⁵⁴ Many insurers will not cover weight-loss treatments unless the patient has an obesity-related condition such as diabetes or hyperlipidemia.

Although the reimbursement problem has been and continues to be a critical barrier to treating child and adolescent obesity, signs of change are beginning to appear. The American Obesity Association (AOA), an advocacy organization, has committed itself to expanding insurance coverage for obesity treatment. And state policymakers are slowly beginning to allow Medicaid treatment options for their low-income citizens. This year, two of four bills introduced were enacted into law. In Iowa, Governor Tom Vilsak signed into law a bill that requires the state’s Medicaid program to develop a strategy for providing dietary counseling to child and adult Medicaid enrollees by July 1, 2006. Counseling and support will be offered to assist enrollees in developing a personal weight-loss program. And Colorado’s governor, Bill Owens, signed a measure establishing an obesity treatment pilot program for Medicaid beneficiaries who are older than fifteen and have a BMI equal to or greater than 30. On the private side, five

states introduced legislation requiring insurers to provide or offer coverage for surgical procedures used to treat obesity.

In keeping with the guidelines of the National Institutes of Health and other organizations, obesity should be recognized as a disease and should receive coverage for its treatment just as other diseases do. Third-party payers should reimburse practitioners for preventive counseling and management

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programs for children that are known to be cost-effective.

The Future of Pediatric Obesity

The key to successfully treating childhood obesity ultimately lies in developing and funding a targeted research agenda. At the top of that agenda should be basic research into the biology and physiology of regulating appetite during the various developmental stages of childhood. Research should also focus on the mechanisms that regulate body fat distribution during adolescence as well as gender and ethnicity differences in body composition and fat distribution. Other key research areas include the differing susceptibility to weight gain during childhood and

adolescence; the underlying changes in physical activity at puberty; more clinical studies on the efficacy of specific prevention and treatment programs; and the effort to move from efficacy to broad effectiveness.

Until recently, childhood obesity has been considered a clinical problem for specialist pediatricians. Now, however, the problem must be approached in a more global manner. The public health community must consider the urgent need to institute preventive programs. Given the reluctance of policymakers to institute changes, particularly those that are unpopular or expensive, it is important to establish objective evidence of the beneficial impact of any preventive or treatment programs. To stop the epidemic of childhood obesity, acting on all levels—medical, social, political, and educational—is fundamental. A broad range of action would include conducting nutrition education campaigns, regulating the marketing of junk food

to children, eliminating energy-dense foods and sodas from schools, and promoting physical activity.

In an outstanding 2003 editorial in the *Archives of Pediatric and Adolescent Medicine*, Leona Cuttler, June Whittaker, and Eric Kodish suggested forming a national pediatric obesity panel under the aegis of the National Institutes of Health, the Centers for Disease Control and Prevention, or the Institute of Medicine.⁵⁵ Including representatives of major stakeholders, the panel would shape policy, analyze the best practices through rigorous evaluation, disseminate information accrued, revise policy at regular intervals as new information is gained, and become a central trusted voice. Under such a panel's leadership, the United States could transform its approach to treating childhood obesity and ultimately stem the epidemic that threatens so many of the nation's children.

Notes

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