

# Alarm Sounded on Rising Obesity Rate in Babies

BY DIANA MAHONEY  
New England Bureau

Efforts to prevent childhood obesity should begin in the womb and infancy to turn the tide on the startling increase in the number of overweight and obese children in this country, according to Dr. Matthew W. Gillman.

In a study of more than 120,000 children enrolled in a Massachusetts health maintenance organization, Dr. Gillman and his colleagues at Harvard Medical School in Boston showed that the prevalence of overweight and obesity among healthy, middle-class children younger than 6 years increased by 59% between 1980 and 2001. The increase in the number of overweight infants younger than 6 months during the same time period was 74% (Obesity 2006;14:1107-12).

Results of another study found that children who were overweight very young were not likely to outgrow that "baby fat" when they were older.

In fact, the definition of "overweight" is coming into question with the introduction of new growth standards by the World Health Organization (WHO), which differ fundamentally from the Centers for Disease Control and Prevention (CDC) standards and classify more American infants and young children as overweight. It is unclear whether the U.S. medical community will adopt or adapt these new growth charts.

## Back to the Data

Children in the Harvard study were deemed overweight if their weight for body length/height was in the 95th percentile or higher. If that measure fell between the 85th and 95th percentile, children were considered at risk for overweight. With these cutoffs, 10% of the study population was overweight and 14% was at risk for overweight. For infants younger than 6 months, 6% were overweight and 11% were at risk for becoming overweight.

Although the Harvard study represented a regional population, the findings are consistent with those of two recent national nutritional surveillance systems—the National Health and Nutrition Examination Survey and the Pediatric Nutrition Surveillance System—that have documented significant increases in the prevalence of overweight children younger than 5 years old, Dr. Gillman noted.

The excessive weight trend does not stop in young children. In fact, that is where it starts. Children who are overweight as babies and preschoolers are at increased risk for being overweight or obese adolescents, according to data from another recent study that followed the growth and development of 1,000 U.S. infants over 10 years.

Using height and weight information collected at frequent intervals starting at age 2 years, Dr. Philip R. Nader of the University of California at San Diego and his colleagues showed that children who met the criteria for being overweight—defined as having a body mass index at or above the 85th percentile, compared with national statistics—at least once between the ages of 2 and 4.5 years—were five times more

likely than their average weight peers to be overweight at age 12. And the risk of becoming an overweight adolescent increased by an order of magnitude relative to the number of times the child met the overweight criteria during the elementary school years (Pediatrics 2006;118:594-601).

## The Health Consequences

The public health consequences of early excess weight gain are substantial. Epidemiologic studies over the past 15 years have demonstrated short- and long-term problems associated with overweight and obesity in childhood.

In the short term, overweight children are at risk for high blood pressure, respiratory problems, cardiovascular conditions, and early onset of type 2 diabetes. In the longer term, overweight children and adolescents are significantly more likely than their peers to become overweight adults, placing them at further risk for developing associated endocrine and cardiovascular comorbidities, as well as certain types of cancer, arthritis, and other serious problems later in life.

The rising rates of obesity and overweight in very young children that have set the stage for this unhealthy developmental cascade also have led to a shift in prevention efforts toward the identification of early factors that predict risk of subsequent obesity, which may allow for early targeted interventions.

## Early Intervention

"Excessive weight at birth and excessive weight gain in the early weeks and months appear to be particularly harmful," according to Dr. Gillman. And they also seem to be associated with certain prenatal factors. "Most evidence points to the fact that women are coming into pregnancy heavier than ever before and they are more likely to get gestational diabetes, which is a risk factor for child overweight. Also, women are gaining weight excessively during pregnancy, which is another risk factor," he said in an interview.

Efforts to mitigate the risk of overweight in babies should include interventions targeted at parents that focus on avoiding excessive weight gain during pregnancy, preventing gestational diabetes, and promoting breast-feeding, which tends to be associated with leaner babies, according to Dr. Gillman.

For babies and young children who are above the percentile curves, talk of intervention should focus squarely on the development of healthful habits. "We are not talking about weight loss in younger or even older children. We want kids to grow in a healthy manner, without putting on too much fat," said Dr. Gillman.

Toward this end, actively monitoring children's weight status is an important component of obesity prevention, although there is a lack of data available on infants in this realm. "We don't yet know the optimal weight gain during infancy for short- and long-term outcomes, so for now [physicians] and parents should aim for growth in weight for length along the percentile curves in the growth charts that doctors use," he said.

## Growth Charts

The use of growth charts has been the subject of some controversy in recent years. In the United States, most physicians rely on the CDC 2000 growth reference in which the development of an individual child is plotted against the rate of growth of the "average" American child, as determined from a limited sample.

The problem with this approach, according to Dr. Cutberto Garza, provost and dean of faculties at Boston College, is that the measure does not provide a scientific assessment of healthy growth based on a large sample of infants and children whose feeding habits and environment are consistent with good health outcomes.

A growth chart should be an assessment tool that shows not only how a child is growing but also whether the child is growing as he or she should, Dr. Garza, who chaired the WHO Multicenter Growth Reference Study from which the new standards were generated, said in an interview.

New growth standards introduced by WHO in April of this year were designed to fit this bill, he said. The goal of the study was to develop standards based on the growth and development of healthy

The resulting standards are representative of physiologic growth and include charts based on longitudinal data for infants from birth to 2 years and charts based on cross-sectional data for children from 2 to 5 years. Separate curves for boys and girls include a variety of growth indicators such as weight for age, length/height for age, and weight for length/height, as well as a body mass index standard for children up to age 5.

Eventually, velocity standards as well as attained head circumference, skin-fold thickness, and mid-arm circumference standards will be incorporated, according to Dr. Garza ([www.who.int/childgrowth/en](http://www.who.int/childgrowth/en)).

With the WHO curves, more babies and young children in the United States fall into an overweight category, compared with the CDC growth chart, possibly because a smaller percentage of U.S. babies are breast-fed, and breast-fed babies tend to be leaner than formula-fed babies.

This does not diminish the relevance of the growth curves in the United States, according to Dr. Garza. Rather, "it highlights the fact that breast-feeding is an important early risk reduction factor and should be promoted as such."

It has yet to be determined whether the United States will adopt the new WHO standard or adapt existing standards to include some of the important changes, but the possibility was put on the table in late June at a meeting of the CDC, the National Institutes of Health, and the American Academy of Pediatrics, according to Dr. Frank R. Greer, chairman of the AAP Committee on Nutrition. Any new recommendations would need to be accompanied by guidance for clinicians on how to interpret the changes, he said in an interview.

In terms of clinical application, the role of the new standards is basically unchanged, Dr. Garza stated. "It's a mistake to use anthropometric data for diagnostic purposes. The clinical uses are to assess risk to either excessive or inadequate growth and to assess responses to treatments designed to positively impact growth."

Dr. Nader said growth curves raise the idea of prevention as not such a daunting endeavor because one has time over the entire preschool and school age period to be sure that family has healthy nutrition and active play opportunities for their child.

Whether using the CDC or WHO standards, routine monitoring and assessment of a child's growth and development is an important step in the battle against childhood obesity, but simply identifying children at risk during well child visits and recommending more healthful eating and activity habits will not win the war.

"The medical system can play a big role, but it's only one site of potentially effective interventions for preventing obesity," according to Dr. Gillman. "Broader, population-based initiatives are also needed." ■



DENISE FULTON/ELSEVIER GLOBAL MEDICAL NEWS

**With the WHO growth curves, more American babies and young children fall into an overweight category.**

infants and children up to 5 years old from around the world.

In total, the investigators compiled primary growth data for 8,500 children from six ethnically and culturally diverse countries (Brazil, Ghana, India, Norway, Oman, and the United States). The children were selected based on predefined criteria for feeding practices, nutrition, and health care that have been previously associated with good health outcomes.

For the purposes of the study, breast-feeding—including exclusive/predominant breast-feeding for at least the first 4-6 months of life and continued complementary breast-feeding for at least 1 year—was considered the normative behavior for infant feeding.

The study showed that, despite individual differences among the children, the average growth across the board was similar, indicating the important influence of healthy growth conditions in early life, Dr. Garza said.