

Definitions

Rural/Urban definition: As defined by the U.S. Census Bureau, a municipality is rural when the population density within the municipality is less than 274 persons per square mile or the municipality's total population is less than 2,500 (unless more than 50 percent of the population lives in an urbanized area). All other municipalities are considered urban.

Applying the definition of rural: For this report, the Geisinger Center for Health Research has used the designation adopted by the Center for Rural Pennsylvania to define rural counties. The Center for Rural Pennsylvania identifies 48 of Pennsylvania's 67 counties as rural. In 2000, nearly 3.4 million residents called these counties home, or 28% of the state's 12.3 million residents.

Obesity/Overweight definition: According to the CDC, Body Mass Index (BMI) is a practical measure used to determine overweight and obesity. BMI is a measure of weight in relation to height that is used to determine weight status. BMI is the most widely accepted method used to screen for overweight and obesity in children and adolescents because it is relatively easy to obtain the height and weight measurements needed to calculate BMI. While BMI is an accepted screening tool for the initial assessment of body fatness in children and adolescents, it is not a diagnostic measure because BMI is not a direct measure of body fatness. Overweight is defined as a BMI at or above the 85th percentile and lower than the 95th percentile. Obesity is defined as a BMI at or above the 95th percentile for children of the same age and sex.

Competitive foods: Foods and beverages which are offered at school, other than meals and snacks served through the federally-reimbursed school lunch, breakfast and afterschool snack programs. These may include snack items such as chips, cookies, ice cream, etc.

References:

Dehghan M, Akhtar-Danesh N, Merchant AT. Childhood Obesity, Prevalence and Prevention. *Nutr J.* 2005 4:24.

Khan L, Sobush K, Keener D, Goodman K, Lowry A, Kakietek J, Zaro S. Recommended Community Strategies and Measurements to Prevent Obesity in the United States *MMWR* July 24, 2009 / 58(RR07);1-26.

Koplan JP, Liverman CT, and Kraak VA; Committee on Prevention of Obesity in Children and Youth, editors. *Preventing Childhood Obesity: Health in the Balance* Washington, DC: National Academy Press, 2005.

Liu J, Bennett KJ, Harun N, Zheng X, Probst JC, Pate RR. Overweight and Physical Inactivity Among Rural Children Aged 10-17: a National and State Portrait South Carolina Rural Health Research Center, 2007.

<http://www.iom.edu/Object.File/Master/22/606/FINALfactsandfigures2.pdf>

Müller MJ, Mast M, Asbeck I, Langnäse K, Grund A. Prevention of obesity--is it possible? *Obes Rev.* 2001 Feb;2(1):15-28.

Olshansky SJ, Passaro DJ, Hershov RC, Layden J, Carnes BA, Brody J, Hayflick L, Butler RN, Allison DB, Ludwig DS. A Potential Decline in Life Expectancy in the United States in the 21st Century. *The N Engl J M* 2005; 352:1138-1145.

GEISINGER
CENTER FOR HEALTH RESEARCH

November, 2009

RURAL HEALTH POLICY INSTITUTE THE POLICY REPORT

CHILDHOOD OBESITY RATES INCREASE NATIONALLY

According to the *New England Journal of Medicine* (March 17, 2005) "Unless effective population-level interventions to reduce obesity are developed, the steady rise in life expectancy observed in the modern era may soon come to an end and the youth of today may, on average, live less healthy and possibly even shorter lives than their parents." Healthy People 2010 identified overweight and obesity as 1 of 10 leading health indicators and called for a reduction in the prevalence of overweight/ obesity among children and adolescents. The nation has made little progress toward the target goal for year 2010 of 5% prevalence of childhood overweight or obesity.

According to the Centers for Disease Control (CDC) the prevalence of obesity among children has doubled or tripled, depending upon the age of children, in the past 35 years. Between 1970 and 2004 school-aged children 6-11 years old had prevalence increasing from 6.5% to 17.0%. For those aged 12-19 years, prevalence increased from 5.0% to 17.6%. The health consequences of obesity for children are significant and long lasting. Children who are overweight or obese are more likely to have diseases such as high blood pressure, high cholesterol, and Type 2 diabetes as they enter young adulthood. Children who are overweight or obese are at a greater risk for asthma, gastric reflux, liver disease, joint damage, and appear to be more likely to be depressed or anxious.

Childhood Obesity: A Rural Epidemic

In a May 2007 report, more than 13% of Pennsylvania children were reported to be obese (body mass index greater than or equal to 95th percentile adjusted for height, age and gender). Nearly 30% of Pennsylvania children were reported to be overweight (body mass index greater than or equal to 85th percentile for height, age and gender) placing Pennsylvania at 28th in the nation. Utah ranked the best at 51st in the nation with 21% of their children overweight.

Geisinger Health System's electronic health record has data available on thousands of children throughout Pennsylvania. According to these data, one out of every four school aged children and adolescents are obese, with the highest prevalence occurring among children ages 10 to 12 years old.

During the 2005-2006 school year, the Pennsylvania Department of Health required students in kindergarten through fourth grade to have Body Mass Index (BMI) calculations performed as part of school health screenings. In 2007-2008 the department required students in grades K-12 to have annual BMI calculations. The information is then communicated to parents with an explanation of the definitions of healthy weight, overweight and obese. Parents are encouraged to share the findings with their children and discuss the information with a family healthcare provider. Currently, eleven states require BMI measurement in schools.

The days of idyllic and pastoral lives in rural places, where children work on the

Continued on the next page

GEISINGER
CENTER FOR HEALTH RESEARCH

CHILDHOOD OBESITY IN RURAL AREAS: TAKING ACTION

- Childhood Obesity Rates Increase Nationally
- Childhood Obesity: A Rural Epidemic
- Why has Obesity Increased?
- The Economics of Obesity
- Pennsylvania on the Right Track
- Policy Strategies

The Policy Report is published periodically for the Geisinger Center for Health Research. Additional copies of this report or other reports from the Geisinger Center for Health Research are available at http://www.geisinger.org/research/centers_departments/rural_policy/. Citation of the source is appreciated.

Questions or comments may be directed to Dr. Sharon Larson at sllarson@geisinger.edu or Mark Reisinger, mreisinger@geisinger.edu or 717.909.3377.

Childhood Obesity: A Rural Epidemic

Continued from front

family farm and play hard in the outdoors are past. According to a national report, nearly one half of rural children in Pennsylvania did not participate in after school sports programs; and one in three children in rural Pennsylvania is considered to be physically inactive, comparable to their urban counterparts. Recent studies have found that childhood obesity prevalence is rising faster in rural communities in Pennsylvania, as well as several other states.

In data collected by school districts, overweight and obesity among children in school is most likely to happen in rural counties. In 34 counties in the Commonwealth of Pennsylvania, 35% or more of children attending public schools in the county are overweight or obese. Among these 34 counties, 29 are rural.

Among the six Pennsylvania counties with >40% of children overweight or obese, five are rural counties. The Geisinger Rural Health Policy Institute Map for this policy report (included here) provides a clear demonstration of the significance of rural residence on childhood obesity in Pennsylvania.

Why has obesity increased?

The rise in childhood obesity is due to a complex set of interactions between social, environmental and policy-based contexts that influence the way that children and their families as well as other institutions in which children are engaged, make choices about nutrition and physical activity. These decisions have created an adverse environment for maintaining a healthy weight in children and adults. Some of the environmental, social and policy issues that impact this issue include:

- Community designs that are not 'walkable' due to lack of sidewalks and traffic flow issues
- Pressures on families to minimize food costs—particularly during difficult economic times, preparation time, and other family factors that result in the use of convenience foods high in calories and fat
- Reduced access and affordability to fresh fruits, vegetables, and other nutritious foods
- Reduction of time spent before, during and after school in physical activity
- Increase in sedentary screen time (e.g., television and computer time) instead of playing outdoors

Geisinger Center for Health Research has worked closely with many school districts in the state regarding childhood obesity (as well as school health policy in more general terms). A consistent concern expressed by schools has been the reduction in physical activity programming within most districts. Some school districts report that students receive

physical education only two out of four quarters in a school year, while others report that students average fewer than 40 minutes of physical education in a six-day cycle of classes. This is clearly inconsistent with the recommendation that children receive 150 - 225 minutes of physical activity programming per week at school. Competing demands of a child's academic curriculum results in time reduced for physical activities as physical activities are not included in schools' performance criteria. Pennsylvania ranks eighth in the nation in state rankings of the proportion of children who fail to meet physical activity guidelines.

There is significant evidence that children do not physically play as much as in past times. In a recent report from the University of South Carolina, findings demonstrate that children do not play at a healthy level. Nearly 30 percent of the nation's children failed to meet the recommended physical activity levels, including participation in moderate to vigorous exercises for at least 20 minutes three or more days a week. Moreover, 40% did not participate in any after-school sport teams or lessons. About half of the nation's children spend at least two hours a day using the computer for non-educational purposes, playing video games and watching television. Parental inactivity also contributed to children's risk for inactivity.

The Economics of Obesity

Obesity and overweight are costly for the U.S. healthcare system. It is estimated that approximately one-third of healthcare costs are directly or indirectly related to weight health issues. Others have suggested that as much as 6% of healthcare expenditures nationally may be attributed to direct care for obesity. As the young generation of children currently meeting criteria for obesity and overweight age into adulthood, these expenditures are expected to increase.

Most clinicians and researchers interested in the problem of childhood obesity believe that the key strategy for addressing the current epidemic is prevention – a less costly option than costs associated with treatment of obesity, overweight and other co-occurring conditions.

PENNSYLVANIA ON THE RIGHT TRACK

Pennsylvania is one of 27 states that has nutritional standards for competitive foods sold in school cafeterias and vending machines, as well as limits on when and where competitive foods may be sold. Pennsylvania has requirements related to physical and health education. However, the extent to which these are enforced is open for debate.

Pennsylvania has been among the first states to enact strategies for collecting data in schools. These data provide the capacity to estimate prevalence of obesity and overweight.

POLICY STRATEGIES TO PREVENT CHILDHOOD OBESITY

The state cannot be responsible for decisions made by families in their own homes. However, state government has considerable capacity to support health strategies that promote better choices by individuals and families. Moreover, state policy makers are well positioned to be certain that policies and regulations are meaningful and enforceable.

Communities should be encouraged to implement strategies that reduce obesity and overweight, particularly for children. The CDC recommends specific community level strategies including:

- Increasing availability of healthy food and beverage choices in public venues
- Promoting smaller serving sizes in public venues—an example of this may be found in "Take half home" promotions in restaurants
- Limiting advertising of less healthy foods and beverages
- Increasing support for breastfeeding in light of evidence that suggests children who were breastfed as infants are less likely to become overweight or obese.
- Improving community infrastructure to promote walking and biking
- Developing coalitions and partnerships to promote wellness in every community

Additionally, state policy makers should take steps to ensure that every child in Pennsylvania is supported and encouraged to engage in daily physical activity and access to healthy food choices. Physical activity can be promoted by:

- Developing education policies that value physical education—for example, fitness assessments that are reported in the same manner as other student and school/district assessments
- Promoting walk to school programs such as the walking school bus—a program that provides supervised walking to school in lieu of busing.

- Providing after-school physical activity programs for all children
- Promoting parent education regarding screen time, physical activity and other health-related issues. These programs should be designed to meet the needs of busy parents and engage parents from all walks of life.

While Pennsylvania has enacted some of the finest school nutrition programs in the nation, there is considerable opportunity for additional policy approaches including:

- Continued efforts to educate parents and children about nutritional decision making
- Continued reinforcement of policies related to non- and low-nutritive foods in school related activities

Finally, policy makers should consider the utility of BMI measurements in schools. There are questions about the validity of this measure for assessing obesity among children. Researchers continue to assess the most efficient and accurate measurement strategies for assessing weight-related health among children. Anecdotally, it appears that parents may not seek healthcare advice regarding the BMI reports sent home on behalf of their children. Additionally, there have been reports of the stigmatizing nature of this report home and its potential effect on children's emotional health and well-being. Measurement programs may be most useful when consistent data collection and metrics are in place in school programs to address the health education and health maintenance issues associated with childhood obesity and when privacy is respected.