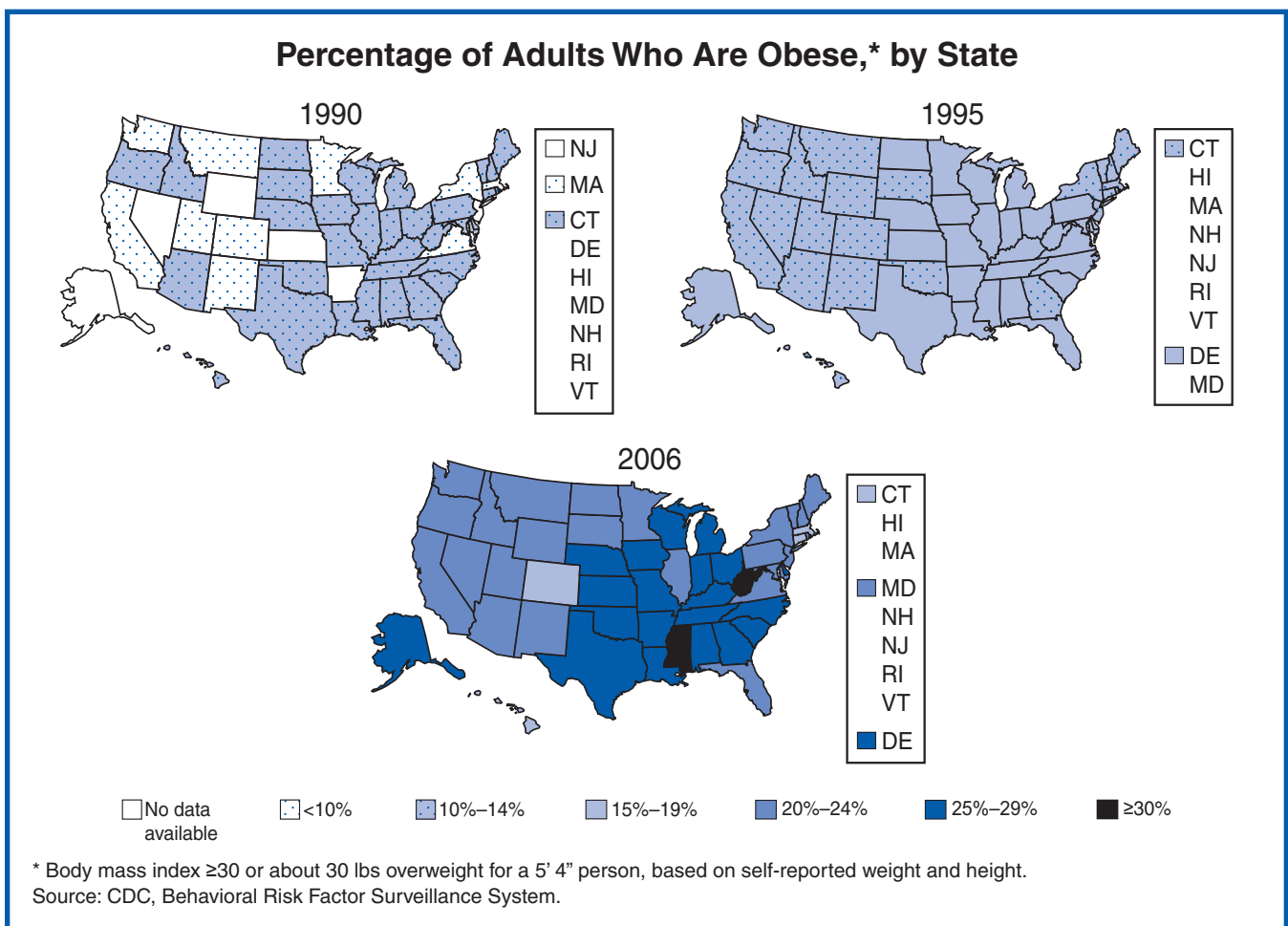


Physical Activity and Good Nutrition

Essential Elements to Prevent Chronic Diseases and Obesity

2008



“Changing the culture from one of treating sickness to staying healthy calls for small steps and good choices to be made each and every day.”

Michael O. Leavitt
Secretary, U.S. Department of Health and Human Services

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The Importance of Physical Activity and Good Nutrition

Chronic diseases accounted for 5 of the leading 6 causes of death in 2002 in the United States. The prolonged illness and disability associated with many chronic diseases also decreases the quality of life for millions of Americans. Much of the chronic disease burden is preventable. Physical inactivity and unhealthy eating contribute to obesity and a number of chronic diseases, including some cancers, cardiovascular disease, and diabetes.

The Obesity Epidemic

In the past 30 years, the prevalence of overweight and obesity has increased sharply for both adults and children. Since 1976–1980, the prevalence of obesity among U.S. adults has approximately doubled. In 2005–2006, more than 34% of adults aged 20 years or older were obese. The prevalence of overweight among children aged 2–5 years increased from 5.0% during 1976–1980 to 13.9% during 2003–2004. During the same period, the prevalence increased from 6.5% to 18.8% among young people aged 6–11 years, and 5.0% to 17.4% among those aged 12–19 years.

People who are obese are at increased risk for heart disease, high blood pressure, diabetes, arthritis-related disabilities, and some cancers. The estimated total cost of obesity in the United States in 2000 was about \$117 billion.

Promoting regular physical activity and healthy eating and creating an environment that supports these behaviors are essential to addressing the problem.

Lack of Physical Activity

Regular physical activity reduces risk and provides therapeutic benefits for people with heart attack, colon cancer, diabetes, and high blood pressure and may reduce their risk for stroke. It also helps to control weight; contributes to healthy bones, muscles, and joints; reduces falls among older adults; helps to relieve the pain of arthritis; reduces symptoms of anxiety and depression; and is associated with fewer hospitalizations, physician visits, and medications. Moreover, physical activity need not be strenuous to be beneficial. For example, adults of all ages benefit from moderate-intensity physical activity, such as 30 minutes of brisk walking most days of the week.

Despite the proven benefits of physical activity, more than 50% of U.S. adults do not get enough physical activity to provide health benefits; 25% are not active at all in their leisure time. Activity decreases with age, and sufficient activity is less common among women than men and among those with lower incomes and less education. About two-thirds of young people in grades 9–12 are not engaged in recommended levels of physical activity. Daily participation in high school physical education classes dropped from 42% in 1991 to 33% in 2005.

The Critical Role of Good Nutrition

Research shows that good nutrition can help to lower people's risk for many chronic diseases, including heart disease, stroke, some cancers, diabetes, and osteoporosis. However, a large gap remains between healthy dietary patterns and what Americans actually eat. In 2005, about 1 in 3 U.S. adults ate fruit two or more times a day, and 1 in 4 ate vegetables three or more times a day.

Good nutrition begins in infancy. Children who were not breastfed are at increased risk for overweight, asthma, and some childhood infections. Of concern for both children and adults, particularly in underdeveloped countries, is micronutrient malnutrition, which can negatively affect survival and growth for children, health and pregnancy outcomes for women, and resistance to illness for both.

CDC's Nutrition and Physical Activity Program to Prevent Obesity and Other Chronic Diseases (2006)

States funded by this program use the social-ecological model to implement interventions to address all levels of influence within a community to help residents make behavior changes.

State interventions* addressed the following five levels of the social-ecological model:

- Societal level: 20 interventions
- Community level: 39 interventions
- Organizational level: 54 interventions
- Interpersonal level: 52 interventions
- Individual level: 65 interventions

State interventions also addressed the following target areas:

- Increase physical activity: 65 interventions
- Increase consumption of fruits and vegetables: 66 interventions
- Decrease consumption of sugar-sweetened beverages: 24 interventions
- Increase breastfeeding: 14 interventions
- Decrease television viewing: 21 interventions

This program leveraged about \$1.7 million for every \$1 CDC provided.

* Some interventions addressed more than one level.

CDC's National Leadership

CDC is committed to ensuring that all people, especially those at greater risk for health disparities, will achieve their optimal lifespan with the best possible quality of health in every stage of life. With agency-wide health protection goals that support healthy people in healthy places across all life stages, CDC is setting the agenda to enable people to enjoy a healthy life by delaying death and the onset of illness and disability by accelerating improvements in public health.

The mission of CDC's Division of Nutrition, Physical Activity and Obesity (DNPAO) is to lead strategic public health efforts to prevent and control obesity, chronic disease, and other health conditions through regular physical activity and good nutrition. Our goals include the following:

- Increasing health-related physical activity through population-based approaches.
- Improving aspects of dietary quality most related to population burden of chronic disease and unhealthy child development.
- Decreasing prevalence of obesity through prevention of excess weight gain and maintenance of healthy weight loss.

With fiscal year (FY) 2008 funding of \$38 million, DNPAO has worked to reduce chronic diseases and obesity through state programs, research, surveillance, training, intervention development and evaluation, leadership, policy and environmental change, communication and social marketing, and partnership development.

In FY 2007, the Nutrition and Physical Activity Program to Prevent Obesity and Other Chronic Diseases (NPAO) funded obesity prevention and control activities in 28 states (http://www.cdc.gov/nccdphp/dnpa/obesity/state_programs/funded_states/index.htm). In FY 2008, a new funding announcement will be released. Newly funded states will address the following six target areas:

- Increase physical activity.
- Increase consumption of fruits and vegetables.
- Decrease consumption of sugar-sweetened beverages.
- Increase breastfeeding initiation and duration.
- Decrease consumption of high energy-dense foods.
- Decrease television viewing.

State efforts will include making policy and environmental changes to encourage access to healthy foods and places to be active, and strengthening obesity prevention and control programs in preschools, child care centers, work sites, and other community settings. All funded states will continue to evaluate their interventions to determine their effectiveness

and to guide future efforts. CDC is the federal health authority for the National Fruit and Vegetable Program and a founding member of the National Fruit and Vegetable Alliance. The alliance works to increase access and consumption of all forms of fruits and vegetables to improve public health. DNPAO supports this target area through scientific, partnership, and programmatic efforts. Our programmatic efforts are integrated into the NPAO program.

Progress in Obesity

CDC's efforts have helped to increase recognition of obesity as a national public health problem. During 2000–2006, the number of articles on obesity published in the national press increased from 2,000 to 6,000 (International Food Information Council). At both state and national levels, increases in the prevalence of obesity appear to be slowing. For example, the National Health and Nutrition Examination Survey found no increase in obesity prevalence among women during 1999–2006, and Arkansas reported a modest decrease in the prevalence of overweight among children. The state received support from the NPAO program.

Training and Technical Assistance

CDC provides consultation and technical assistance to numerous partners, including support to states to develop comprehensive state plans, community interventions, and leadership capacity to address nutrition, physical activity, and obesity. In 2007, CDC worked with the Center of Excellence for Training and Research Translation to sponsor a course on obesity prevention for public health practitioners, including state health departments. In addition, CDC's annual evaluation workshop included representatives from 13 states not currently receiving cooperative agreement funds.

CDC also continues to work with its longtime partner, the University of South Carolina, as co-sponsor of the Physical Activity and Public Health Courses. In addition, CDC has developed an international course with the International Union of Health Promotion and Education. These courses provide intensive training in physical activity for both public health practitioners and public health researchers.

Promising Practices

With support from CDC and other partners, an expert panel released new recommendations as part of a supplement titled *Assessment of Child and Adolescent Overweight and Obesity* in the journal *Pediatrics* in June 2007. CDC also worked with the National Initiative for Children's Healthcare Quality to develop a network to share promising practices and policies in medical settings to reduce childhood obesity (information available at <http://www.NICHQ.org>).

Capitalizing on Unique Opportunities for Research and Collaboration

State Program in Action: Arkansas

Arkansas has developed a comprehensive plan to prevent and control chronic diseases, including obesity, among its residents. The plan, *Changing the Culture of Health in Arkansas*, was developed by a coalition of representatives from many areas of health care and public health. Environmental changes that support this plan include

- The Arkansas River Trails project is creating 24 miles of new trails to link with an existing 225-mile wilderness trail and a pedestrian river bridge.
- Twenty new community gardens and 30 new farmers markets were created to increase access to fresh fruits and vegetables.
- Schools have added healthy food and drink options to vending machines, implemented healthy snack policies, changed cafeteria cooking methods to reduce frying, and added more fresh fruit to menus.

Conducting Essential Research

CDC supports research to enhance the effectiveness of physical activity and nutrition programs. For example, studies focus on the effectiveness of parent-focused strategies to reduce the time children spend watching television, the home environment and sugar-sweetened beverage consumption, the use of policy interventions to promote physical activity, and the effectiveness of breastfeeding interventions in various settings. CDC disseminates study results via publications and the Web.

Translating Research into Practice

CDC translates the results of research for practitioners and the lay public. For example, the Research to Practice Series helps health professionals stay abreast of the emerging science in nutrition, physical activity and obesity. This series provides an overview of the science on a specific topic that includes implications for public health practice. Some installments include a tool geared to a lay audience, which can be used by health professionals in practice to explain concepts correctly and provide practical tips on implementing suggested strategies. Another example of how CDC translates research into practice is *The CDC Guide to Breastfeeding*, which helps practitioners select effective breastfeeding interventions.

Promoting Work Site Health

To identify strategies that work sites can use to prevent and control obesity among their employees, CDC is conducting systematic literature reviews, evaluating current programs, and conducting demonstration projects at CDC work sites. Data collected is being translated into products that employers can use to design their own programs (e.g., an interactive Web-based tool).

Physical Activity Guidelines

Evidence-based guidelines for physical activity for youth, adults, and older adults are being developed at the national level. Partners on this project include CDC, the President's Council on Physical Fitness and Sports, and the U.S. Department of Health and Human Services' Office of Disease Prevention and Health Promotion. CDC is leading the literature review, which will provide the scientific basis for the development of the guidelines.

Monitoring Nutritional Status

Through its Pediatric Nutrition Surveillance System (PedNSS) and Pregnancy Nutrition Surveillance System (PNSS), CDC facilitates the collection, analysis, and interpretation of key indicators of child nutritional status and behavioral and nutritional risk factors for low-income pregnant women. An interactive CDC Web site trains people to use these systems.

Encouraging Global Collaboration

CDC's World Health Organization Collaborating Center for Physical Activity and Health Promotion provides global and regional leadership in building capacity for evidence-based public health practice and research related to physical activity and health. In addition, the Universal Flour Fortification Initiative creates global acceptance for fortifying flour with iron, folic acid, and other nutrients.

Future Directions

CDC and its partners will continue to create, evaluate, and modify programs, policies, and practices to prevent and control obesity. CDC will expand communication efforts to promote physical activity and good nutrition in across multiple settings and will work with states and communities on innovative strategies to promote physical activity and good nutrition. DNPAO also will work within CDC to provide consistent public health recommendations and promising practices.

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