

Childhood Obesity

Advancing Effective Prevention
and Treatment



NIHCM
FOUNDATION

The national epidemic of obesity in the United States continues to raise significant concerns about the associated short- and long-term health implications, particularly in children. In addition, the economic impact of overweight and the difficulties with treatment and prevention have compelled policymakers to search for innovative health care solutions. On April 9, 2003, the National Institute for Health Care Management (NIHCM) Foundation held a forum to share information on programs, research and evidence-based efforts, and successful prevention and treatment options. The forum was part of NIHCM Foundation's cooperative agreement with the Health Resources and Services Administration's (HRSA) Maternal and Child Health Bureau (MCHB).

OPENING PRESENTATIONS

Debra L. Kibbe, MS, PHR, Associate Director, Physical Activity and Nutrition, International Life Sciences Institute Center for Health Promotion

Michael Rich, MD, MPH, Director, Center on Media and Child Health, and Assistant Professor, Harvard Medical School and School of Public Health, Children's Hospital, Boston

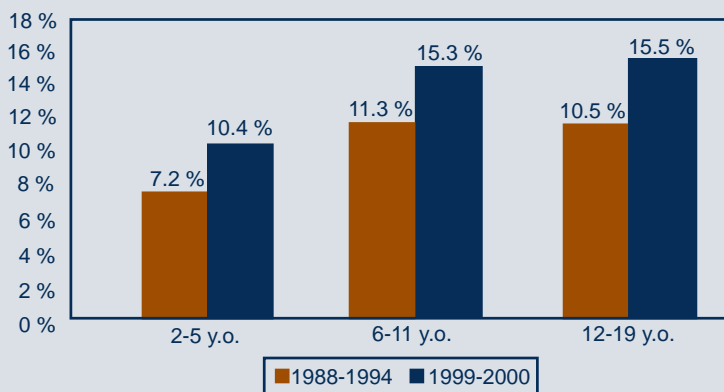
Highlighting the increasing prevalence of overweight and obesity in the United States, **Debra Kibbe** noted that it is affecting adults and children as well as all racial and ethnic groups. Specifically for children, 2 to 5-year-olds have experienced an increase in prevalence from 7% to 10% between 1988 and 2000, while overweight in 6 to 11-year-olds rose from 11% to 15%. Concurrently, 12 to 19-year-olds experienced a 5% increase in overweight, from 10.5% to 15.5%. Overweight disproportionately affects certain racial and ethnic populations, with an alarming increase in prevalence of more than 10% for Hispanic and African American adolescents between 1988 and 2000. These statistics result from the national prevalence tracking of Body Mass Index (BMI) and BMI Percentile—two measurements used to assess at-risk-of-overweight and overweight in children. BMI is an anthropometric index of weight and height that is defined as body weight in kilograms divided by height in meters squared.

Genetic, metabolic, behavioral, environmental, cultural, and socioeconomic factors must be taken into consideration when investigating the root of childhood overweight. Although many

BMI Definitions
<p>ADULT</p> <p>Overweight (OW): BMI = 25.0 to 29.9</p> <p>Obesity: BMI = \geq 30</p>
<p>CHILDHOOD*</p> <p>At-risk-of-Overweight: BMI-for-age \geq 85th to 95th percentiles</p> <p>Overweight: BMI-for-age \geq 95th percentile</p> <p><small>*ages 2 to 20 years</small></p> <p><small>SOURCE: Adapted from Debra Kibbe Presentation (Keys et al., 1972)</small></p>

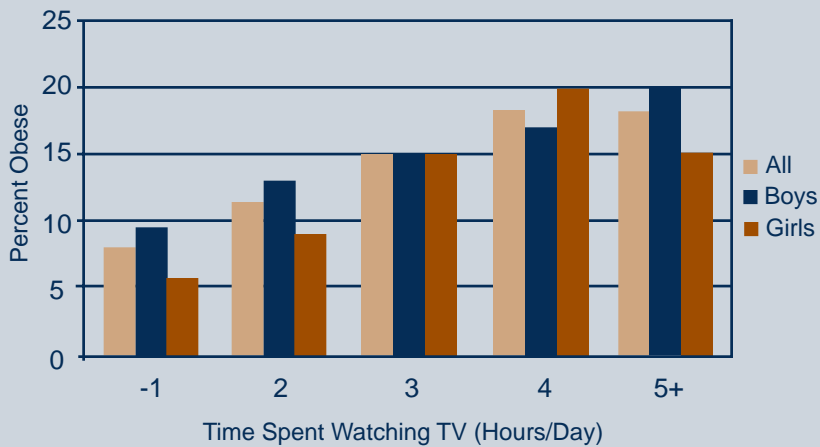
children believe their weight status is predetermined, **Ms. Kibbe** explained that “because genetically stable populations are also being affected by the increasing prevalence, we know that behavior and environment are playing a major role.” Children and parents often associate overweight with food. They need to be educated on the impact of inactivity on energy balance on weight status.

Trends in Prevalence of Overweight in U.S. Children



SOURCE: K. Flegal et al. Prevalence and Trends in Obesity Among US Adults, 1999-2000. JAMA 2002; 288(14): 1723-1727 (NHANES); Debra Kibbe Presentation

Prevalence of Obesity by Daily Hours of TV Watched U.S. Children aged 8-16, from 1988 to 1994



SOURCE: C. Crespo et al. Television Watching, Energy Intake, and Obesity in US Children: Results from the Third National Health and Nutrition Examination Survey, 1988-1994. *Arch Pediatr Adolesc Med* 2001; 155(3): 360-365; Debra Kibbe Presentation

“Technology and other environmental changes are ...contributing significantly to the increase in overweight prevalence in children mainly through the reduction of daily energy expenditure.”

- Debra Kibbe

Familial influence, physical inactivity, and technological changes are just a few examples of environmental and behavioral conditions provoking childhood overweight. Research shows that if a child has two obese parents, the chances of the child being overweight rises to 60%-80%. Generally, the older children become, the less likely they are to outgrow overweight. According to the Centers for Disease Control and Prevention (CDC), the percentage of students attending daily physical education classes declined from 42% to 29% between 1991 and 1999. Additionally, the prevalence of overweight is highest among children who watch four or more hours of television per day. Computer and video game use compound the growth. **Ms. Kibbe** stated, “technology and other environmental changes are...contributing significantly to the increase in overweight prevalence in children mainly through the reduction of daily energy expenditure.”

The short and long-term health implications of childhood overweight are astounding—for example, 60% of overweight youth have one risk factor for coronary heart disease, 25% have two or more risk factors. Short-term consequences include hypertension, Type 2 diabetes, and psychosocial effects, while long-term implications involve an increased risk for some cancers, cardiovascular disease (CVD), and adult obesity.

Similarly, the economic impact is increasing, with rising obesity-related hospital, medication, and national healthcare expenditures as evidence. Obese individuals spend approximately 36% more on inpatient and outpatient services and 77% more on medications. The economic cost of obesity-related diseases account for 5.5% to 7.8% of all national health care expenditures. Obesity-related physician visits increased 88% from 1988 to 1994 and the costs of ‘lack of physical activity’ were \$24 billion in 1995.

Prevention resources such as *Bright Futures in Practice: Physical Activity* and *Bright Futures in Practice: Nutrition* are important for educating families as well as healthcare professionals. Readiness to change, eating patterns, physical activity, and limited television viewing are all critical factors in healthy outcomes. Studies have even shown that breast-fed children demonstrate a lower risk of overweight. Energy balance becomes a key concept in education—focusing not only on excessive calorie consumption but also inadequate physical activity.

Energy intake in children ages 2-18 years has not risen dramatically between 1977 and 1996...the obesity rate among them doubled between 1990 and 2000.

SOURCE: S. Nielsen et al. Trends in Energy Intake in U.S. between 1977 and 1996: Similar Shifts Seen Across Age Groups. *Obesity Research* 2002;10(5): 370-378; Adapted from Debra Kibbe Presentation.

Treatment consistently focuses on behavioral intervention, and many programs are initiated in health care, school, and community settings. Present treatment barriers include a lack of commitment by primary care providers, lack of motivation by parents and/or patients, cost, lack of standard treatment protocols, and social factors. Because less than 20% of health care

Health Implications of Childhood Overweight

SHORT-TERM

- ◆ Hypertension
- ◆ Accelerated Growth
- ◆ Hyperlipidemia
- ◆ Hepatic Steatosis
- ◆ Type 2 Diabetes
- ◆ Abnormal Glucose Metabolism
- ◆ Sleep Apnea
- ◆ Musculoskeletal
- ◆ Psychosocial
- ◆ Asthma

LONG-TERM

- ◆ Increased risk for adult obesity
- ◆ Increased risk for CVD
- ◆ Increased risk for some cancers
- ◆ Increased health care costs
- ◆ Psychosocial issues

SOURCE: Adapted from Debra Kibbe Presentation

professionals are using BMI and BMI percentile in their assessment, there is a strong effort to promote training and education for proper assessment and screening practices.

In the future, **Ms. Kibbe** noted that partnerships are a critical action area for childhood overweight research, in addition to awareness and promotion of practices for childhood overweight prevention. A complete listing of current childhood overweight programs, interventions, and resources can be found in the overview paper prepared for the conference at www.nihcm.org/ChildObesityOverview.pdf.

Video Intervention/Prevention Assessment

Childhood obesity is often difficult to study due to self-reporting and social stigma. **Dr. Michael Rich** explained his new research technique, Video Intervention/Prevention Assessment (VIA), which overcomes these limitations by giving children video camcorders to record their lives. Thus, patients control the material and, since they volunteer the information in the form of their needs, are more willing to share real experiences.

VIA allows researchers and patients to collaborate through participant-created visual illness narratives and condition-specific reports. **Dr. Rich** explained, "We are hoping to examine obesity in this case from the inside out, from

the patient's experience, the patient's perception of what's going on, and thus get improved sensitivity and increased therapeutic engagement of the participant." Through VIA, researchers are better able to understand the physical and psychosocial environment surrounding overweight children, in addition to their relationships with family and friends.

By analyzing the day-to-day life of overweight children, patient-directed interviews with family and friends, clinician interactions, and personal monologues, qualitative data analysis from a series of different disciplines can create a "roundtable" research environment. Anthropologists, clinical social workers, psychologists, nutritionists, and physicians are better able to understand and evaluate physical activity, lifestyle, and eating patterns of the patients. "Ultimately, when patients teach clinicians what they experience and what they need, we hope that both will engage more fully in the therapeutic endeavor, and clinical care will become both more humane and more effective," said **Dr. Rich**. The psychological effects of living with overweight, as well as the attempts to deal with overweight, sexuality, and weight control are just a few of the major research findings more accurately portrayed in the video narratives. Interestingly, **Dr. Rich** also noted the tendency for adolescents to highlight the positive aspects of being overweight—such as physical dominance and being the focus of others' concern.

"Ultimately, when patients teach clinicians what they experience and what they need, we hope that both will engage more fully in the therapeutic endeavor, and clinical care will become both more humane and more effective."

- Dr. Michael Rich

VIA will help provide a better understanding of the forces that make and keep children overweight, what they need and what they want. Through patient empowerment and self-advocacy, “they are not only bringing to you a videotape, they are also bringing to you their strength, their experience, and their needs so that we can tap into their motivations to move them toward healing themselves.” More information about the VIA project can be found at www.viaproject.org.

PRACTITIONER EFFORTS

William J. Klish, MD, Chief, Gastroenterology, Hepatology and Nutrition Service, and Chief, Prader-Willi Clinic, Texas Children’s Hospital

Peter Juhn, MD, Vice President, Health Improvement Resources, WellPoint Health Networks, Inc.

Regional Obesity Prevention and Initiatives

Presenting a regional perspective of childhood overweight in Texas, **Dr. William Klish** noted that the average prevalence of childhood at-risk-of-overweight and overweight is about 40% for 6 to 18 year-olds, far above the national average of 29%. For Texas WIC children (ages 1-5), the prevalence of at-risk-of-overweight and overweight is 28%. **Dr. Klish** also noted regional differences within Texas, specifically along the Texas-Mexico border where the prevalence of at-risk-of-overweight and overweight in children is almost 54%.

Dr. Klish highlighted potentially devastating consequences through two co-morbidities, diabetes and steatohepatitis. Because 22% of Texas children are overweight, and 25% of overweight children have evidence of glucose intolerance, 5.5% of all the children in Texas are at risk for diabetes. Two studies researched the impact of Type 2 diabetes in children and

found that if children develop the disease under the age of 15, their life expectancy is shortened by 17 to 27 years.

As with Type 2 diabetes, children are now presenting with the “adult” condition “non-alcoholic” steatohepatitis, which can lead to cirrhosis of the liver. Nationally, 15% to 25% of children with a BMI greater than the 85th percentile have elevated liver functions tests. Because 38.6% of Texas children have a BMI greater than the 85th percentile, 7.7% of all Texas children should have abnormal liver function tests. Research indicates that about half of children with elevated liver enzymes have already developed fibrosis of the liver—about 4% of Texas children would too. A longitudinal study developed at the Texas Children’s Hospital followed overweight children by biopsy and documented long-term consequences of liver dysfunction. Of the 333 overweight children screened, about 15% had elevated liver enzymes, consistent with national literature. Surprisingly, however, of the 35 biopsies performed thus far, almost 75% of the children had fibrosis of the liver, the early stages of cirrhosis.

Through an understanding of the health complications and the reduction in life expectancy related to various co-morbidities, the implications of overweight become consequential. “If an answer to this obesity epidemic is not found soon, the present generation of children will not live as long as their parents.”

Focusing on present-day treatment strategies for childhood overweight, prevailing approaches such as appetite suppressants, surgical therapy, diet, exercise, and behavior modification provide limited success and experience for children. Specifically in Texas, **Dr. Klish** promotes *A Weigh of Life*—a four-month program run by a psychologist, which also incorporates dieticians’ and exercise physiologists’ perspectives. Although the program experienced a high drop-out rate, the 20% of participants who fully completed the program demonstrated significant success by losing on average 23% of their ideal body weight-for-height.

“If an answer to this obesity epidemic is not found soon, the present generation of children will not live as long as their parents.”

-Dr. William Klish

Nevertheless, **Dr. Klish** noted that the most logical approach to controlling overweight is through prevention. Major stakeholders with a role in prevention include families, the medical community, and society—through schools, city, and local government support. With funding from the CDC in October 2000, Texas formed a task force to develop its “Strategic Plan for the Prevention of Obesity” (Strategic Plan). The Strategic Plan, with clearly defined goals and associated strategies, targets children and their families (see box).

Texas Strategic Plan Goals:

- Goal 1: Increase awareness of obesity as a public health issue that impacts the quality of life of families.
- Goal 2: Mobilize families, schools, and communities to create opportunities to choose lifestyles that promote healthy weight.
- Goal 3: Promote policies and environmental changes that support healthful eating habits and physical activity.
- Goal 4: Monitor obesity rates and related behaviors and health conditions for planning, evaluation, and dissemination activities.

SOURCE: Dr. William J. Klish Presentation

As a result of the Strategic Plan, an obesity initiative has been created at the Texas Children’s Hospital to implement BMI measurement as a standard practice, and to provide patients and their families with necessary guidance for treatment and prevention of overweight. By educating and training physicians to accurately measure height and weight at all office visits, BMI calculations will be mandated and become a permanent addition to children’s medical records. With an above-normal BMI, parents will be warned about the potential for overweight and given a set of self-help prevention instructions. If BMI is above the

85th percentile, patients and their parents will be informed that a child is overweight, comorbidities will be discussed, and self-help instructions will be given, concluding with a follow-up appointment after a month’s time to reinforce the information. Finally, with an overweight child greater than the 95th percentile, the previous measures will be taken in addition to co-morbidity screening, specialist referrals, and a referral to treatment programs for more intensive therapy. Outcomes data will be collected to measure the effectiveness of the initiative and assist in planning future directions.

Health Coaching

WellPoint Health Networks, Inc., is taking a new approach for disease management called “Health Improvement Programs”. As **Dr. Peter Juhn** explained, the innovative programs combine disease management with wellness and prevention. The health plan is expanding its role to an infomediary, providing information to members and physicians that result in improved quality of care and health outcomes. The plan also has defined the new “ABCs” of health plan medical management—Advocacy, Behavior, and Concierge. Through an Advocacy role, the health plan can provide education and personal support to facilitate change in Behavior toward improving self-care and health status, as well as providing Concierge-type services to help members navigate an increasingly complex health care system.

The most evolved form of disease management is WellPoint’s Health Coaching Model (HCM). **Dr. Juhn** explained the limitations of traditional disease management programs by commenting on everyday issues with physician-patient interactions. “There are significant constraints on physician time and resources that do not allow for the in-depth counseling and assistance that are necessary for the effective management of chronic illnesses, including childhood overweight.” While physician-centric and traditional disease management programs imply passive patient interactions, HCM emphasizes a

“There are significant constraints on physician time and resources that do not allow for the in-depth counseling and assistance that are necessary for the effective management of chronic illnesses, including childhood overweight.”

-Dr. Peter Juhn

multidisciplinary team approach that includes clinical, motivational, and specialty coaches. The team and member tailor a plan to enhance the member's self-management of the chronic condition. To assist a member with change behavior, the theoretical framework of facilitative coaching is based on multiple models: adult learning theory that change occurs in stages over time; health belief model that awareness of a health threat and prevention approach will lead to change; self-efficacy that by empowering yourself you can improve your health; and social learning that groups and families can facilitate and participate in the transformation.

As a highly interactive, action-oriented, member-driven, and self-directed learning program, HCM is able to incorporate various attributes, especially goal-setting, problem-solving abilities, and rewards for behavior change, into the fundamental design of the model. WellPoint is taking advantage of the internet by using a web-based system to provide information to the Health Coaches, who then translate it for the members. The system is also used as an interactive forum for members. The benefits of the Health Coaching Model are twofold:

- ◆ The locus of the control is with the member—leads to higher participation and increases the likelihood of meaningful and sustained behavior change.

- ◆ The coaching plan and learning protocols are probative rather than didactic—assesses readiness to change, gleans member goals and evaluates and monitors progress.

Applied to childhood overweight, behavior modification is central to success. Understanding the change process, believing in the interventions, self-efficacy, social learning, and consistency with other forms of “youth coaching” provide the capability for HCM to be successful in treating childhood overweight.

For providers, WellPoint has developed several outreach activities focused upon childhood overweight. An educational guide, a physician awareness campaign and a web-based CME program provide useful resource tools for clinicians, and the High-Touch Ambassador Program coordinates the efforts of about 150 physicians in developing and communicating these and similar educational programs.

HEALTH PLAN AND PARTNERSHIPS INITIATIVES

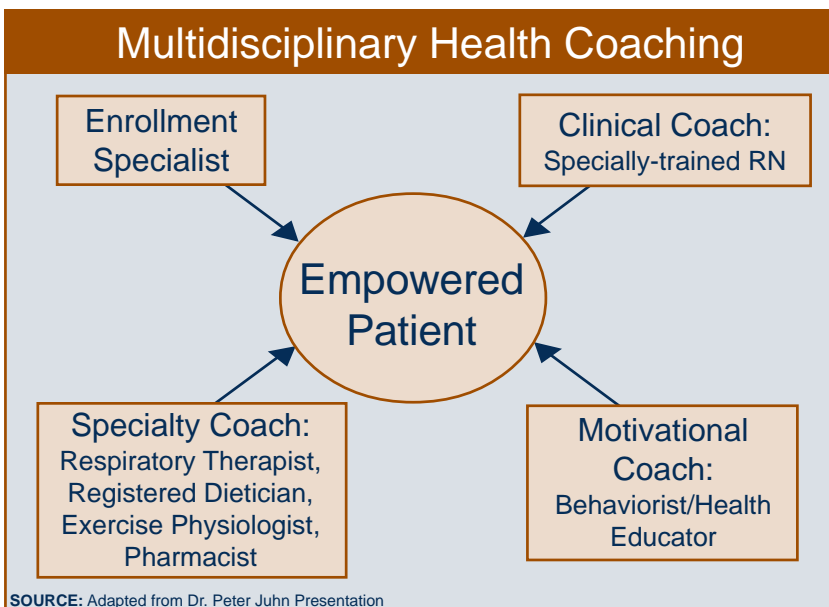
Joan Herman, President, Senior, Specialty, and State Sponsored Programs, WellPoint Health Networks, Inc.

Stephanie Patrick, Vice President, Policy Initiatives and Advocacy, American Dietetic Association

Janice E. Seigle, MPM, Director, Strategic Community Initiatives, Highmark

WellPoint Outreach Strategies

In support of the Company's commitment to empowering families and health care professionals with information and educational tools to help parents and children lead healthy lifestyles, WellPoint Health Networks developed a “Healthy Parenting Initiative”. Implemented in 2002, WellPoint engaged its



large, demographically diverse group of associates for feedback on the initiative and to determine the most crucial and significant issues to address. **Joan Herman** explained that the associates were supportive of the idea and identified key themes for Healthy Parenting, with nutrition as the top concern, followed by emotional health, involvement in schools, and safety.

Considering that nutrition was the top issue and recognizing that childhood obesity is a major contributor to chronic health conditions, the Healthy Parenting Initiative began by focusing on childhood overweight. The target audience of the initiative includes four segments of the community: health care professionals (family physicians, pediatricians, obstetricians/gynecologists, dietitians, nurse practitioners, and physician assistants), members, associates, and the public.

To assure outreach to the public at large, WellPoint is expanding collaboration between the private and public sectors. Partnering with the University of California, Los Angeles (UCLA), WellPoint is supporting development of practitioner continuing medical education to present "...minimum competencies for prevention, detection, assessment and management of overweight children." WellPoint has also collaborated with Dr. Wendy Slusser, assistant clinical professor of Pediatrics at UCLA, to develop a physician desktop reference tool. The resource gives doctors quick access to current data from scientific literature and expert work groups relating to child and adolescent obesity.

A major component of the Healthy Parenting Initiative is WellPoint's partnership with the American Dietetic Association (ADA) to create a print and web-based consumer guide, "Healthy Habits for Healthy Kids: A Nutrition and Activity Guide for Parents". The Healthy Habits guide is intended to facilitate dialogue between children, parents, and health care professionals about childhood overweight. It is a tool for parents to help children achieve healthy weight. "This isn't just about the child. If you want to be effective, the program has to be about the way the whole family looks at physical activity, what they eat, and their whole environment."

Healthy Habits Focus Areas:

1. Creating a healthy weight environment for the entire family
2. Setting realistic goals
3. Fostering a healthy attitude toward food
4. Providing a healthy, balanced diet
5. Increasing physical activity

WellPoint has distributed more than 290,000 copies of the guide to network physicians and ADA members. It is also available by download on both the WellPoint and ADA web sites—www.wellpoint.com and www.eatright.org. Additional information surrounding Healthy Parenting and free electronic copies of the materials can be found at www.wellpoint.com/healthy_parenting.asp.

American Dietetic Association

Four years ago, the ADA named obesity as its top priority of the issues facing the American public health. The ADA relies on five basic premises for obesity:

- ◆ A complex, multifactoral, chronic disease
- ◆ Prevention and treatment strategies are needed
- ◆ Multidisciplinary team responses are most effective
- ◆ Requires resources beyond those routinely provided for promoting healthy lifestyles
- ◆ A role exists for both public and private initiatives

Stephanie Patrick explained that while the public often does not see the connection between overweight and chronic disease, children and adolescents especially tend to focus on physical appearance rather than a healthy lifestyle. Parents are often disengaged from their children's eating habits and do not

"This isn't just about the child. If you want to be effective, the program has to be about the way the whole family looks at physical activity, what they eat, and their whole environment."

- Joan Herman

“Disease prevention is an idea whose time has come. And nowhere is the case more compelling than creating a culture of knowledge and care about nutrition, exercise, and health.”

- Stephanie Patrick

recognize the long-term health consequences of the condition. They also lack the knowledge to help their children control their weight and fear intervention will lead to other eating disorders. It is critical for health professionals and other adults in children’s lives to be informed and able to help. Yet studies show that many—including health professionals—feel unprepared to deal with children’s weight issues.

The ADA has initiated various resources for children, parents, teachers, and health professionals to combat these obstacles. Family-focused initiatives include: 1) producing the Healthy Habits guide in partnership with WellPoint, 2) creating a Family Nutrition and Physical Activity Screening Tool, 3) supporting Activate Partnership, which provides nutrition and physical activity information for adolescents, 4) participating in a partnership with the CDC for Healthy Lifestyles Research, and 5) working in a Healthy Start Partnership with Gerber to develop infant and toddler feeding guidelines.

Various community-focused initiatives include both nutrition and exercise components. One receiving national acclaim is the General Mills Champions Youth Nutrition and Fitness Grants Project, a partnership between ADA’s and General Mills’ Foundations, that awards 50 grants each year to communities that initiate their own programs addressing both physical fitness and nutrition. ADA publishes numerous books and professional guides on weight management for people of all ages. The Association is planning an evidence-based practice guide for children’s weight management.

Legislators in Washington and the states are beginning to focus on nutrition and physical activity for children in an effort to promote healthy weights and to prevent childhood obesity. “Disease prevention is an idea whose time has come. And nowhere is the case more compelling than in creating a culture of knowledge and care about nutrition, exercise and health.” With the schools seen as a place where a positive difference could be made, amendments to the federal Child Nutrition Act are being proposed to improve school meals, to limit access to foods and drinks with minimal nutritional value and to teach kids what they

need to make sound choices for life about eating and exercising.

Highmark Strategic Initiatives

Janice Seigle explained that Highmark’s rationale for addressing childhood overweight was in response to an analysis showing that Highmark spent \$1.1 billion on 10 co-morbidities closely associated with obesity in 2002, and over \$300 million can be attributed to obesity-related problems. From 2001 to 2002, gastric surgery expenditures alone increased 164%, from \$14.6 million to \$39.4 million. Because preventable illnesses constitute 70% of the illness burden and costs, but less than 5% of healthcare expenditures is spent on prevention, there is considerable room for development.

Highmark has undertaken a multi-pronged strategy to “create positive impact on health risk through advocacy and support of evidence-based approaches to better nutrition and increased physical activity.” The company’s *Fun to be Fit* program integrates two science-based programs, FRESH (Food Re-education for Elementary School Health) and SPARK (Sports, Play, and Active Recreation for Children), to combine both nutrition and physical education in elementary schools. In an initial pilot program, intervention schools showed significant improvements compared with control groups. For example, there was a 19, 15, and 18% decrease in the consumption of high sodium, high-sugar, and high-fat foods, respectively, through the FRESH component. Time spent in class being physically active increased as did the number of periods devoted to physical education and SPARK tenets. In the 2002-2003 school year the program was instituted throughout Pittsburgh’s 58 elementary schools, affecting nearly 22,000 children.

The Kidshape® program adopted by Highmark has shown similar success. Through nutrition education, group support, and physical activity, the pediatric weight management program for overweight children emphasizes lifestyle change, not weight loss. In initial trials of KidShape, the program’s creator, the KidShape Foundation, reports that 87% of the children

Highmark Co-Morbidity Costs

	<u>Total Costs 2002 (000s)</u>	<u>% Attributable To Obesity</u>	<u>Obesity Costs 2002 (000s)</u>
Heart Disease	\$523,369	30	\$157,011
Back Disorders	\$142,379	18	\$25,628
Breast Cancer	\$103,151	21	\$21,662
End Stage Renal Disease	\$72,582	20	\$14,516
Gallbladder Disease	\$59,837	45	\$26,927
Liver Disease	\$49,959	35	\$17,486
Hypertension	\$39,710	30	\$11,910
Sleep Apnea	\$28,476	50	\$14,238
Diabetes (primary diagnosis)	\$3,826	43	\$1,645
Total	\$1,106,121		\$306,480
Gastric Surgeries for Morbid Obesity	\$39,400		
Obesity	\$31,551		
Total	\$73,951		

SOURCE: Highmark BCBS

lost weight, 80% maintained their weight or continued to lose at a two-year follow up, there was a 51% decrease in TV viewing per week, and a seven-fold increase in physical activity per week. Highmark currently supports six Pennsylvania sites and hopes to realize similar results.

Highmark is providing grant funding for two other initiatives. Working with the Children's Health Fund, Highmark is participating in activities to increase awareness and education regarding childhood obesity and health risks that includes a local forum for community leaders and national experts, physician training, and a forum convening state legislators and community leaders to discuss a state-wide strategy. In addition, the Challenge for Healthier Schools has invited educators to create an in-school nutrition or physical education program. Nine cash grants are planned for program implementation in the 2003-2004 school year. The Challenge encourages best practices and requires an evaluation component to determine the most successful programs.

Highmark has initiated a media campaign to raise awareness, provide useful health information, and advocate solutions to assist families in dealing with overweight issues.

Through the Pennsylvania Advocates for Nutrition and Activity (PANA), Highmark is promoting its regional strategy for healthy lifestyles—safe places to play and recreate, nutritious school lunches, engaging parents, targeting research and data, identifying funding, and preparing clinicians. “You don't have to be a certain weight, but you need to be healthy and to get that connection back to weight in relation to health.”

Following the discussion, the **Honorable Joan Stern**, Maryland House of Delegates, commented on efforts at the state level. She had introduced a bill to create an Advisory Council on Obesity and Youth. The efforts of practitioners, the food industry, and nutrition and physical activity proponents would be coordinated to develop strategies. It became apparent, however, that legislators did not fully understand the issues surrounding childhood overweight and were not willing to provide the funding. Political implications, philosophical beliefs, the role of government, interaction with insurance companies, and availability of funding all must be considered to implement successful state health programs. **Delegate Stern** welcomed suggestions and feedback from conference attendees with hopes for future success in the public health sector.

“You don't have to be a certain weight, but you need to be healthy and to get that connection back to weight in relation to health.”

- Janice Seigle

SCHOOL, COMMUNITY AND FAMILY ISSUES

“Elementary school is the first time all children may be exposed to intervention. So here is where you can reach out to almost everybody.”

- Dr. Roland Sturm

Roland Sturm, PhD, Senior Economist, RAND

James Sallis, Jr., PhD, Professor, San Diego State University

William Potts-Datema, Director, Partnerships for Children’s Health, Harvard University

Obesity, Mental Health, and School Performance

Young children are an important population to study since adverse events that start at the beginning of school may permanently lower educational achievement. As a result, elementary schools provide a useful opportunity whereby a large population of children can receive intervention programs. “Elementary school is the first time all children may be exposed to intervention. So here is where you can reach out to almost everybody.” Using the Early Childhood Longitudinal Study (ECLS-K), a nationwide study sample of about 20,000 children that collected data pertaining to height/weight, parent- and teacher-reported depressive symptoms and behavioral problems, and sociodemographics, **Dr. Roland**

Sturm examined the relationships between obesity in kindergarten and mental health and academic outcomes in school.

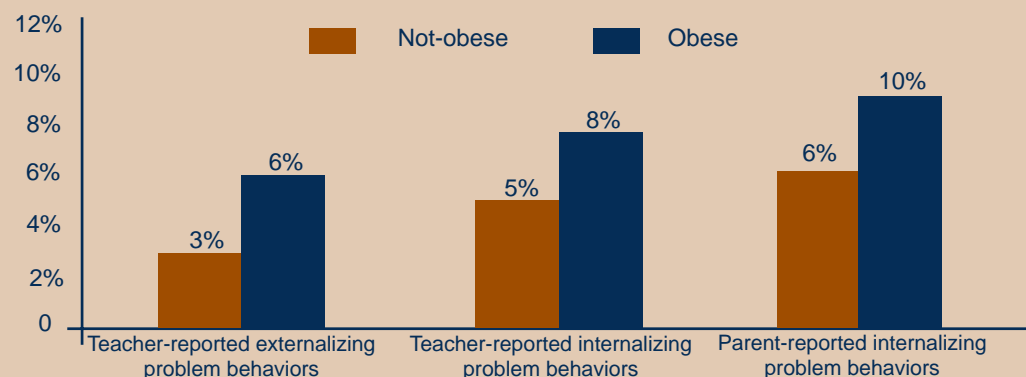
Is there an association between mental health and obesity?

Most research on the relationship between obesity and mental health has focused on adolescents or adults and no nationally representative data has been published for younger children. Using teacher-reported and parent-reported behavior problems from the ECLS-K data, while no relationship was indicated for boys, a strong cross-sectional association between obesity and mental health was evidenced for girls, both descriptively and after adjusting for sociodemographic factors.

Does mental health predict changes in obesity (or vice versa)?

Among children who start kindergarten without any teacher- or parent-reported behavior problems, overweight status in kindergarten is not a significant predictor of mental health problems at the end of two years in school. However, mental health problems among kindergartners can indicate future weight gain, especially among girls. This relationship is even stronger among already obese girls in whom teacher-reported internalizing behavior problems predict weight gain. Further, teachers can identify children at risk much better than parents.

Obese Girls Significantly More Likely to Exhibit Behavior Problems



SOURCE: ECLS-K Data, 1998; Roland Sturm Presentation

Is there an association between obesity and school performance?

Obesity may affect children's psychosocial outcomes, which may ultimately affect their readiness to learn. Obese children score significantly lower on achievement tests compared to non-obese children at the beginning of kindergarten and after two years in school, but these differences can be explained by other individual characteristics, including parental education and the home environment. However, overweight is more easily observable by other students compared to socio-economic characteristics. Its significant (unadjusted) association with worse academic performance can contribute to the stigma of overweight as early as the first years of elementary school.

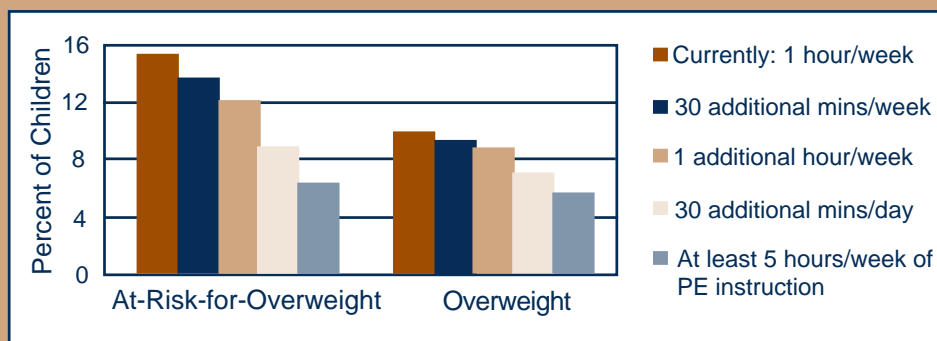
Can we identify school characteristics that reduce the risk of developing obesity over time?

The ECLS-K data suggest that physical education programs, as they currently exist across the nation, may have a significant potential for combating obesity among young children. Changes in exposure to physical education instruction between kindergarten and first grade are used to examine whether increased PE in elementary school is associated with changes in body mass index, thereby reducing selection bias present in cross-sectional examination. The percentage of obese children falls dramatically when implementing an additional hour/week, 30 minutes/day, hour/day, or at least 5 hours/week to the typical PE program.

SPARK: Promoting Physical Activity in Young People

Dr. James Sallis introduced the SPARK program of effective physical activity promotion currently being utilized by 1500 elementary

What Could Expanded PE Programs Achieve?



NOTE: Data represent simulations for declines in overweight status among girls
SOURCE: Roland Sturm Presentation

schools nationwide. The primary goal of SPARK is to improve the extent to which physical education contributes to achieving the health objectives of the nation. Because evidence indicated that students were involved in physical activity for less than 10% of class time, and little evaluation had occurred to document the health-related effects of physical education on children, the SPARK program was developed from a 5-year grant from the National Institutes of Health (NIH). "Physical education in schools is a substantial national resource. It is the only institution for promoting physical activity among kids that's going to touch basically everybody...and do widespread prevention."

SPARK Structure: There are three major components of SPARK. First, the physical education curriculum is comprised of health-fitness and sports-fitness activities to provide exposure to a variety of skills for participants, which are designed to be fun and engaging for all kids. Second, the self-management program teaches children life-long behavior skills including instruction in goal setting, decision making/problem solving, self instruction, stimulus control, and self-reinforcement. This program includes family participation. Third, in staff development sessions both classroom teachers and physical education specialists learn to implement the SPARK curricula.

SPARK Evaluation: The study involved seven schools that were randomly assigned to one of three different conditions. The first condition,

“Physical education in schools is a substantial national resource. It is the only institution for promoting physical activity among kids that’s going to touch basically everybody...and do widespread prevention.”

- Dr. James Sallis, Jr.

the control, utilized normal physical education programs taught by classroom teachers. The second condition involved training classroom teachers to implement the program. Third, certified physical education specialists ensured full implementation of the program. Fourth and fifth grade students from suburban San Diego, CA participated in the study.

Significant differences by condition were illustrated throughout the evaluation. Generally, students within the specialist-led (PES) condition demonstrated more favorable results than those in the teacher-trained (TT) condition, and both the PES and the TT conditions did better than the control (CO) condition.

- ◆ With regard to quality and quantity of PE, intervention (PES and TT) students spent at least twice as much time engaged in moderate to vigorous physical activity as control students, and they became more physically skilled.
- ◆ Thousands of ratings showed that students enjoyed all of the activity units.
- ◆ Out of five health-related fitness measures, two of the tests demonstrated significant differences. Girls in the PES condition illustrated improved times on the mile run, and PES and TT (compared to the control) girls demonstrated a significant differential in the amount of sit-ups completed per minute. Boys had similar patterns of results that were not significant.
- ◆ One and a half years after the study, trained teachers continued to provide 85% of the physical activity they were providing during the study.
- ◆ No significant out-of-school physical activity improvements were demonstrated for any of

the conditions, but students who participated more in the self-management program improved their physical activity and fitness.

- ◆ Although SPARK students spent 60 to 75 more hours in physical education classes over the two year period, SPARK students did the same, and sometimes better, than control students on standardized achievement tests. Thus, excellent physical education does not interfere with academic achievement.

Dissemination: SPARK provides curricula, training, and ongoing support for elementary physical education (Kindergarten—Grade 2 and Grades 3 through 6), early childhood programs, middle school physical education (evaluated in another NIH-funded study), and activity programs in recreational settings. The International Life Sciences Institute initiated a study to determine the sustainability of the diffusion of elementary physical education. Up to four years later, schools that adopted SPARK were found highly likely to continue use, predicted by adequate equipment, principal support, and teacher physical activity. SPARK is recognized as an Exemplary Program by the National Diffusion Network of the U.S. Department of Education. SPARK was recently licensed to SportTime to provide a better foundation for continuing success. More information about the SPARK programs can be found at www.sparkpe.org.

A Unified School Environment

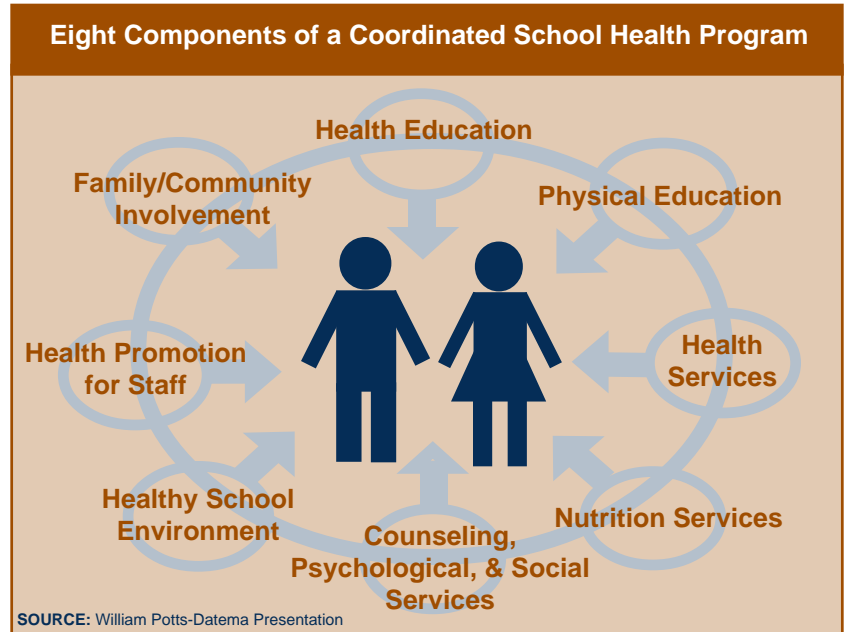
With over 53 million children attending schools every day nationwide, over 20% (including faculty, staff, and students) of the United States population is in school facilities on any given day. This provides the perfect environment to establish and maintain a healthy lifestyle. As **William Potts-Datema** said, “schools reflect society, but schools also influence society.”

Working with the New England Coalition for Health Promotion and Disease Prevention (NECON), the Harvard School of Public Health (HSPH) developed a comprehensive series of recommendations related to obesity prevention for the New England Conference of Governors.

After a review of the science, HSPH proposed the following evidence-based recommendations for schools, using the philosophy that schools should develop a unified school nutrition and physical education environment within a coordinated school health program.

The recommendations include:

- ◆ Mobilize commitment for a unified health promoting nutrition and physical education environment that encourages weight control.
- ◆ Enforce requirements and commit adequate resources to nutrition and physical education programs for pre-school through grade 12. Upgrade school food service, limit availability of soda and junk food and increase opportunities for children, faculty and staff to be physically active.
- ◆ Expand the health education curriculum to include weight control and incorporate related information and skills in core subjects. Teach children about nutrition, the importance of fruits and vegetables, how to read labels, plan and prepare meals and be a nutrition-conscious shopper and eater. Partner with farmers' market programs.
- ◆ Expand the physical education curriculum and require certified physical education instructors. Teach children to play physically active games and lifetime sports, to walk or bicycle ride for short trips and to substitute these activities for TV and other electronic media. All students should have at least one opportunity for supervised physical activity every day and weekly time with a qualified instructor as follows:
 - A minimum of 150 minutes/week for grades K through 5 or 6
 - A minimum of 225 minutes/week for middle and secondary school students
- ◆ Conduct annual evaluations using the CDC-DASH School Health Index.



Identify strengths and weaknesses and prioritize changes.

- ◆ Hold an annual meeting of regional Coordinated School Health Programs.
- ◆ Provide students with safe ways to walk or bicycle to school.
- ◆ Reach out to families. Communicate with parents about weight control, including early childhood years, and emphasize the importance of spending time with children around the dinner table, taking a walk or participating in a sport.
- ◆ Partner with companies to make recreational facilities available to communities after school and on the weekends. Pay special attention to inner-city neighborhoods and at-risk children.
- ◆ Support legislation to improve school food, nutrition and physical education, recreational facilities and before and after-school community programs.

“Schools reflect society, but schools also influence society.”

- William Potts-Datema

Other tools, the CDC School Health Index and the United States Department of Agriculture (USDA) Changing the Scene and Team Nutrition, are good resources for program assessment.

NIHCM Foundation distributed a paper, *Childhood Obesity - Advancing Effective Prevention and Treatment: An Overview for Health Professionals*, which contains a list of health care, school, and community programs in addition to web-based resources. See <http://www.nihcm.org> to download a copy of the issue paper.

Below is a list of additional resources for childhood overweight information.

NAME	WEBSITE
Action for Healthy Kids™	www.actionforhealthykids.org
American Academy of Family Physicians, <i>Evaluation and Treatment of Childhood Obesity</i>	www.aafp.org/afp/990215ap/861.html
American Academy of Pediatrics:	www.aap.org
<i>Bright Futures</i>	http://brightfutures.aap.org/web/
<i>Policy Statement: Prevention of Pediatric Overweight and Obesity</i>	www.aap.org/policy/s100029.html
American Dietetic Association:	
<i>Nutrition Fact Sheets</i>	www.eatright.org/Public/NutritionInformation/92-11722.cfm
<i>Healthy Habits for Healthy Kids - A Nutrition and Activity Guide for Parents</i>	www.eatright.org/Public/Files/wellpoint.pdf
<i>Start Healthy: The guide to teaching your little one good eating habits</i>	www.eatright.org/Public/Files/gerber.pdf
American Obesity Association, Childhood Obesity	www.obesity.org/subs/childhood
American Public Health Association:	www.apha.org
<i>Food and Nutrition Section, Childhood Overweight</i>	www.aphafoodandnutrition.org/overwt.html
American School Food Service Association	www.asfsa.org
The Body Positive	www.thebodypositive.org
Bright Futures at Georgetown University:	
<ul style="list-style-type: none"> <i>Bright Futures in Practice: Nutrition</i> <i>Bright Futures in Practice: Physical Activity</i> 	www.brightfutures.org
Center for Weight and Health University of California, Berkeley	http://nature.berkeley.edu/cwh
Center for Health and Health Care in Schools:	
<ul style="list-style-type: none"> <i>Childhood Obesity: What the Research Tells Us</i> <i>Keeping Kids Healthy: Obesity, Nutrition, and Physical Exercise</i> 	www.healthinschools.org

NAME	WEBSITE
<p>Centers for Disease Control and Prevention (CDC):</p> <p><i>BAM! Body and Mind</i></p> <p><i>National Center for Chronic Disease Prevention and Health Promotion</i></p> <p><i>Division of Nutrition and Physical Activity</i></p> <p><i>Division of Adolescent and School Health</i></p> <p><i>National Center for Health Statistics</i></p> <p><i>Fast Stats - Overweight Prevalence</i></p> <p><i>Health E-Stats</i></p>	<p>www.bam.gov</p> <p>www.cdc.gov/nccdphp</p> <p>www.cdc.gov/nccdphp/dnpa</p> <p>www.cdc.gov/nccdphp/dash</p> <p>www.cdc.gov/nchs/fastats/overwt.htm</p> <p>www.cdc.gov/nchs/products/pubs/pubd/hestats/hestats.htm</p>
<p>Child Trends Database, Overweight Children and Youth</p>	<p>www.childtrendsdatbank.org/indicators/150-verweightChildrenYouth.cfm</p>
<p>Grantmakers in Health:</p> <p><i>Weighing in on Obesity: America's Growing Health Epidemic</i></p> <p><i>Multifaceted Strategies for Addressing Childhood Overweight</i></p>	<p>www.gih.org/usr_doc/obesity.pdf</p> <p>www.gih.org/usr_doc/obesity_of_children.pdf</p>
<p>Healthy Weight Network</p>	<p>www.healthyweight.net</p>
<p>International Food Information Council Foundation (IFIC), Helping Your Overweight Child</p>	<p>www.ific.org/publications/brochures/overweightkidbroch.cfm</p>
<p>International Life Sciences Institute Center for Health Promotion:</p> <p><i>Research and Activity on Obesity and Overweight</i></p>	<p>http://chp.ilsa.org</p> <p>www.ilsa.org/misc/obesity.htm</p>
<p>Maternal and Child Health Library:</p> <ul style="list-style-type: none"> • <i>Knowledge Path: Child and Adolescent Nutrition</i> • <i>Knowledge Path: Obesity in Children and Adolescents</i> • <i>Knowledge Path: Physical Activity and Children and Adolescents</i> 	<p>www.mchlibrary.info/KnowledgePaths</p>
<p>Mayo Clinic, <i>Childhood Obesity: Parenting Advice</i></p>	<p>www.mayoclinic.com/invoke.cfm?id=FL00058</p>
<p>National Association of County and City Health Officials, <i>Building Healthier Communities: Local Nutrition and Physical Activity Programs</i></p>	<p>www.naccho.org/prod148.cfm</p>
<p>National Conference of State Legislatures:</p> <p><i>Obesity</i></p> <p><i>Physical Activity and Nutrition</i></p>	<p>www.ncsl.org/programs/health/phobesity.htm</p> <p>www.ncsl.org/programs/health/phyact.htm</p>
<p>National Governors Association, Center for Best Practices:</p> <p><i>The Obesity Epidemic - How States Can Trim the 'Fat'</i></p> <p><i>Preventing Obesity in Youth through School-Based Efforts</i></p>	<p>www.nga.org/center</p> <p>www.nga.org/cda/files/OBESITYIB.pdf</p> <p>www.nga.org/cda/files/022603Preventing.pdf</p>

NAME	WEBSITE
National Institutes of Health: <i>MEDLINEplus: Child Nutrition</i> <i>National Heart, Lung, and Blood Institute Body Mass Index Calculator</i> <i>The Weight-Control Information Network</i>	www.nih.gov www.nlm.nih.gov/medlineplus/childnutrition.html www.nhlbi.nih.gov/index.htm www.nhlbisupport.com/bmi www.niddk.nih.gov/health/nutrit/win.htm
National Nutrition Website	www.nutrition.gov
National Women's Health Information Center	www.4woman.gov
The Nemours Foundation: <ul style="list-style-type: none">• <i>How Can I Lose Weight Safely?</i>• <i>Is Dieting Okay for Kids?</i>• <i>Your Child's Weight</i>	www.kidshealth.org
North American Association for the Study of Obesity	www.naaso.org
Project LEAN	www.californiaprojectlean.org
Robert Wood Johnson Foundation, <i>Kids in Crisis: Addressing the Problem of Overweight Children</i>	www.rwjf.org/news/video/childhoodObesity.jhtml
Shape Up America!	www.shapeup.org/child.html
Society for Nutrition Education, <i>Guidelines for Childhood Obesity Prevention Programs: Promoting Healthy Weight in Children</i>	www.sne.org/Chi_Obesity.pdf
SPARK Program	www.sparkpe.org/index.jsp
The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity	www.surgeongeneral.gov/topics/obesity/default.htm
United States Department of Agriculture (USDA): <i>Changing the Scene</i> <i>Team Nutrition</i> <i>Healthy School Meals Resource System</i> National Agricultural Library: <i>Childhood Obesity: A Food and Nutrition Resource List for Educators and Researchers</i> <i>Weight Control and Obesity Resource List for Consumers</i> <i>Food Stamp Nutrition Connection Hot Topics, Childhood Overweight</i> <i>WIC Works Resource System, Topics A-Z, Childhood Overweight/Obesity</i>	www.fns.usda.gov/tn/healthy/changing.html www.fns.usda.gov/tn/Default.htm http://schoolmeals.nal.usda.gov www.nal.usda.gov/fnic/pubs/bibs/topics/weight/childhoodobesity.html www.nal.usda.gov/fnic/pubs/bibs/topics/weight/consumer.html www.nal.usda.gov/foodstamp/Topics/childhood_overweight.html www.nal.usda.gov/wicworks/Topics/Childhood_Obesity.html
Video Intervention/Prevention Assessment (VIA) Project	www.viaproject.org
Washington Business Group on Health	www.wbgh.org/programs/obesity
WellPoint Health Networks, Inc., <i>Healthy Parenting Initiative</i>	www.wellpoint.com/press_room/special_reports/health_parenting.asp

A PUBLICATION OF THE NIHCM FOUNDATION

About The NIHCM Foundation

The National Institute for Health Care Management Research and Educational Foundation is a non-profit organization whose mission is to promote improvement in health care access, management and quality.

About This Action Brief

This Brief was written with support from the Health Resources and Services Administration's Maternal and Child Health Bureau, Public Health Service, U.S. Department of Health and Human Services, under cooperative agreement No. 5 U93 MC 00143-06. Its contents are solely the responsibility of the author and do not necessarily represent the official views of the Maternal and Child Health Bureau. Tracy Vidinghoff and Therese Finan, NIHCM Foundation, prepared the Brief.