

# Coordinating Efforts on Childhood Obesity



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*Childhood overweight is rapidly increasing in the United States. Today, over 13% of children are classified as overweight, more than double the number in 1980. This epidemic is complicated by a rise in health conditions associated with overweight, some of which are rarely found in children.*

*The National Institute for Health Care Management (NIHCM) Foundation held a forum in October 2001 to address these issues as well as improving nutrition and physical activity, highlighting the Bright Futures health supervision guides. Health plans, clinics, and community organizations discussed programs, behavioral change models, and tools for prevention.*

*The forum was part of a series entitled "Bright Futures and Managed Care," which NIHCM Foundation is conducting under a cooperative agreement with the Health Resources and Services Administration's (HRSA) Maternal and Child Health Bureau (MCHB). This Action Brief summarizes key issues and discussion from the forum.*

*"Bright Futures is a comprehensive, family-centered and community-based blueprint for health supervision that emphasizes health promotion and disease prevention in a developmental context for children."*

*-Chris DeGraw*

## OPENING PRESENTATIONS

**Chris DeGraw, MD, MPH, Deputy Director, Division of Research, Training and Education, and Project Manager for Bright Futures, Maternal and Child Health Bureau (Welcome)**

**Sally Squires, Staff Writer, Health Section, The Washington Post (Moderator for the Day)**

**Van S. Hubbard, MD, PhD, CAPT, USPHS, Director, NIH Division of Nutrition Research Coordination, and Chief, Nutritional Sciences Branch, NIDDK, NIH (Keynote Speaker)**

**Dr. Chris DeGraw** opened the forum by highlighting the MCHB's efforts to address the health of infants, children, adolescents and their families. For over ten years the Bureau has promoted the Bright Futures approach to child health supervision and incorporation of the Bright Futures tools and materials into practice. "Bright Futures is a comprehensive, family-centered and community-based blueprint for health

supervision that emphasizes health promotion and disease prevention in a developmental context for children from infancy through age 21. It's a way of conceptualizing well-child care to look at health within the context of the child's entire physical, emotional and psychosocial development," said **Dr. DeGraw**.

The cornerstone of the initiative is the **Bright Futures Guidelines for Health Supervision of Infants, Children and Adolescents**, which brings together expert consensus and evidence-based research for comprehensive care of children. Building on the guidelines, Bright Futures in Practice publications provide information and tools to address critical issues in child health. The two most recent books, **Bright Futures in Practice: Nutrition** and **Bright Futures in Practice: Physical Activity**, both address childhood weight issues.

**Sally Squires** noted the increasing incidence of obesity, particularly childhood obesity, in the United States. *The Spotlight Diet for Children*, a book she coauthored with Leonard Epstein,

*“Over 300,000 deaths per year are due to poor diet or inactivity, and close to \$100 billion a year in economic costs are associated with overweight and obesity.”*

*- Van Hubbard*

describes a scientifically proven behavioral change program to treat overweight children. The Stoplight Diet is a 16-week program targeted to eight- to 12-year-old children and their families. Foods are divided into three general categories to match the red, yellow and green lights of the well-known stoplight icon, corresponding to high calorie, moderate calorie and low calorie foods, respectively. There are no forbidden foods, just limitations on the amount of calories consumed.

The Stoplight Diet is designed so that everyone in the family, regardless of weight, can use it to learn about good nutrition. It consists of basic elements of daily monitoring, weighing, regular exercise, and lifestyle changes. The Spotlight Diet is the only program that has ten years of follow-up data to show that these basic elements work to reduce or prevent overweight and obesity.

### **National Strategies for Addressing Childhood Overweight**

**Dr. Van Hubbard** gave the keynote address on the status of childhood overweight and national strategies to address the epidemic. “Overweight” and “obesity” are defined using Body Mass Index (BMI), which measures weight and height independent of frame size and gender for adults. BMI is an individual’s weight in kilograms divided by height in meters squared.

For children, the BMI is age and gender specific, and BMI for age is the measure generally used. In May 2000, the Centers for Disease Control and Prevention (CDC) published new growth charts for children that used a BMI curve as part of the growth curves. The health care provider calculates BMI and plots where the child falls on the curve to determine weight status. The term “obesity” is not used for youth, due in part to stigma problems. “Overweight” is defined as the 95th or greater percentile of BMI-for-age. “At-risk for overweight” is defined as between the 85th and 95th percentile of BMI-for-age. **Dr. Hubbard** stressed that health care professionals need to focus on the change in growth patterns or change in percentile BMI over time and raise concerns before the child falls above the 95th percentile. He also noted that BMI is an effective screening tool but not a diagnostic tool, so it is critically important to assess an individual’s health characteristics beyond weight.

The advantages of using BMI-for-age are that it provides a reference for children and adolescents, is consistent with adult standards, and allows tracking of childhood overweight into adulthood. Research tracking children over time showed that youth with a BMI above the 85th or 95th percentile had an increased risk for overweight or obesity at age 25.

For adults there is a consistent definition of “overweight” and “obesity” to monitor status; overweight is a BMI of 25-29, and obesity is a BMI of 30 or greater, although often “overweight” encompasses all adults with BMI of 26 or greater. Trends in the last two decades reveal dramatic changes in BMI in the U.S. Data from the National Health and Examination Survey (NHANES) for adults shows an increase in the number of people with a BMI of 25 or greater, from 47% of the population in 1980 to 61% in 1999. A greater upsurge is seen in the number of individuals with a BMI of 30 or greater, rising from 15% to 27%, respectively. For childhood overweight, the increase was from 5% to 14%. “Over 300,000 deaths per year are due to poor diet or inactivity, and close to \$100 billion a year in economic costs are associated with this condition,” said **Dr. Hubbard**. Direct medical costs are approximately \$52 billion per year.

Mortality risk has been shown to rise with increasing BMI. For adults, obese individuals

### **BMI Calculation**

#### **Metric Formula:**

$$\text{Weight(kg)/Height(m)}^2 = \text{BMI}$$

#### **English Formula:**

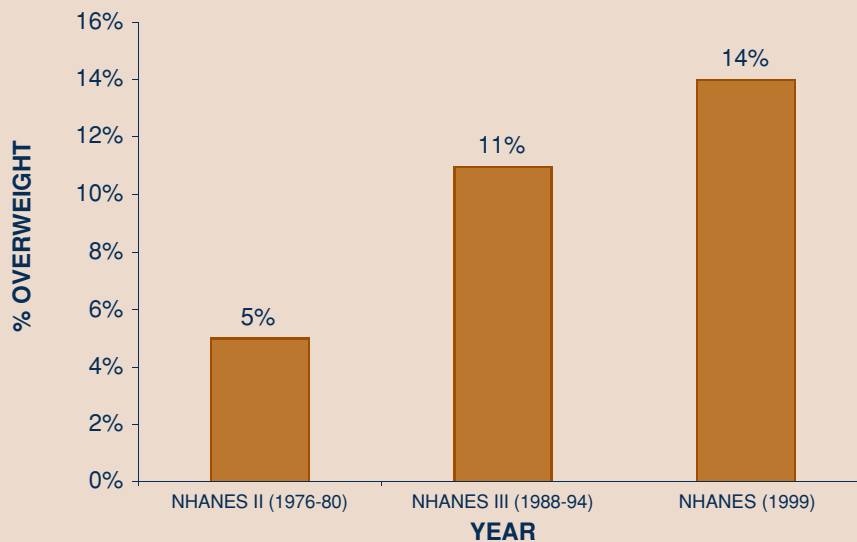
$$\text{Weight(lbs)/Height(in)}^2 \times 703 = \text{BMI}$$

### **Indicators of Status in Youth**

- Risk of overweight between 85th and 95th percentile of BMI-for-age
- Overweight  $\geq$  95th percentile of BMI-for-age

SOURCE: Dr. Van Hubbard and Dr. Bonnie Spear presentations

### Prevalence of Childhood Overweight in the U.S.



SOURCE: National Health and Examination Survey (NHANES); Van. S. Hubbard Presentation

have a 50% to 100% increased risk of death from all causes, mostly due to cardiovascular disease. Data on hypertension and diabetes shows a risk of disease associated with increasing BMI. A perceptible increased disease risk is evident in the normal weight BMI range, but accelerates once an individual's BMI exceeds 25.

The most prevalent conditions associated with overweight and obesity include sleep apnea, diabetes, gall bladder disease, asthma, hypertension, coronary heart disease, osteoarthritis, and various forms of cancer. Diabetes has been shown to follow the same pattern of increasing prevalence as overweight. "We need to do a better job of communicating the health risks associated with weight rather than just focus on weight per se," said **Dr. Hubbard**.

Obesity is a chronic disease with both biological and genetic components. Studies show that from 20% to 40% of overweight is due to genetic factors. Obesity is often treated as a subacute illness, but it requires lifelong intervention to control.

Overweight is affected by social, cultural, and environmental influences and has become a public health priority. Access to family and community support are critical for children. For

prevention and intervention strategies, modifying behaviors toward a more healthful lifestyle is essential, including increasing purposeful activity, decreasing sedentary behaviors, and improving dietary choices.

**Dr. Hubbard** offered several suggestions for reversing this increase in childhood overweight. Families and communities need to reinforce positive cultural and environmental influences on youth. Children need access to safe activity and support mechanisms. The availability of vending machines in schools needs to be restricted and general physical activity maintained. Some schools are cutting back or even eliminating lunch time, which is a health hazard and sends the wrong message to children. Healthy eating and activity should be identified as priorities. **Dr. Hubbard** called on the health care system to improve identification of a person at risk for overweight, access to care, training of the health care providers, reimbursement, and acceptance of the chronic disease model. The media needs to recognize and communicate important information and emphasize success stories. Lifelong modifications of behaviors are essential, as well as an emphasis on prevention and the health risks associated with weight.

*"We need to do a better job of communicating the health risks associated with weight rather than just focus on weight per se."*

*- Van Hubbard*

## BEHAVIORAL CHANGE TO PREVENT AND TREAT CHILDHOOD OBESITY

**Bonnie Spear, PhD, RD, Associate Professor, Pediatrics, University of Alabama at Birmingham, and Co-Director, Eating Disorders Clinic, Children's Hospital of Alabama**

**Rachelle A. Mirkin, MPH, Director, Prevention and Women's Health, Regional Health Education, Kaiser Permanente**

*“There is a 60% increase in Type 2 diabetes in youth in the last ten years, and 75% to 100% of children with the condition have a first generation relative with diabetes.”*

*- Bonnie Spear*

### ***The Bright Futures Approach to Nutrition and Physical Activity***

**Dr. Bonnie Spear** detailed the Bright Futures concepts of health supervision and prevention as well as its mission to promote and improve the health and well-being of infants, children, adolescents, families and communities. Bright Futures is dedicated to producing educational materials for health professionals and families, implementing Bright Futures content, philosophy and tools, and fostering partnerships and collaboration.

***Bright Futures Guidelines for Health Supervision of Infants, Children and Adolescents*** provides the guidelines for all health supervision and the philosophy that families matter. Health professionals need to include families in children's care because they are partners, caregivers, teachers and resources. The Bright Futures in Practice series, which provides in-depth information and tools for specific issues, currently covers oral health, nutrition, and physical activity. Guides focusing on mental health and children with special health care needs will be released soon.

The goals of ***Bright Futures in Practice: Nutrition***, and ***Bright Futures in Practice: Physical Activity*** are to improve the health and physical status of youth and establish health supervision guidelines for nutrition and physical activity. The guides also encourage partnerships among health professionals, families and communities, and increasing the families' knowledge, skills, and participation in nutrition and physical activity.

Bright Futures emphasizes both a developmental and contextual approach, looking at children by age and developmental aspects. The developmental chapters of the physical activity guide are organized by growth and physical development, strengths and issues, physical activity supervision, and desired outcomes. The physical activity issues and concerns section addresses asthma, children and adolescents with special health care needs, ergogenic aids, eating disorders, nutrition, heat-related illnesses, injury and obesity. The physical activity tools offer successful programs and coaching characteristics, resources, and CDC growth charts.

The guides may be used in various settings. Clinically, they can be incorporated into health care supervision visits, used to develop and evaluate programs, implement standards of practice, and educate children and families. For the community, they provide anticipatory guidance to families, help plan physical activity programs, and help schools incorporate health education in nutrition and physical activity. They disseminate information to policymakers, administrators and community leaders on the current accepted guidelines. The guides provide education and training to health professionals and staff, and can be used as a textbook in residency and nursing programs.

Research shows that nearly half of adolescents do not participate in regular, vigorous physical activity, and about 14% of children and adolescents do not participate in light to moderate physical activity. The physical activity book provides guidelines for developmental skills, activities appropriate for individual children, and sample interview questions that could be incorporated into a primary care visit. The guide also emphasizes BMI calculations and interpreting BMI, a critical component of assessing weight and health implications.

The guidelines include a screening for children at-risk for overweight and an in-depth medical assessment for overweight (95th percentile BMI). A screening looks at family history for disease, obesity, blood pressure, cholesterol, change in BMI, and smoking. “There is a 60% increase in Type 2 diabetes in youth in the last ten years, and 75% to 100% of children with the condition have a first generation relative with diabetes,” noted **Dr. Spear**. Weight goals are

recommended for children seven years and older, differentiating weight loss and weight maintenance. Information on nutrition is also taken, looking at eating behaviors, food choices, food resources, body image, and lifestyle changes such as vitamin and alcohol use. Tools are provided for identifying nutritional risk, such as skipping meals and consuming fast food. Factors that affect the level of physical activity are also included, such as self-efficacy, positive outcomes, and barriers to activity.

Health professionals are one part of the system in encouraging the treatment and prevention of childhood overweight, especially adapting it into primary care. The physical activity book offers guidance on what to recommend and gives examples of appropriate activities. “We need to teach physicians and primary health care providers to discuss physical activity and do preventive counseling,” said **Dr. Spear**.

### ***Get More Energy!***

**Rachelle Mirkin** presented Kaiser Permanente’s **Get More Energy!** campaign, a weight management program that uses the Bright Futures approach. Kaiser Permanente estimated its cost of obesity in Northern California in 1994 to be \$220 million, or approximately 6% of the total cost of health care for all its members. The direct relationship for overweight to many chronic conditions, as well as the association between BMI and annual rates of outpatient visits and inpatient days prompted Kaiser Permanente to focus on prevention. “Since obesity is a condition that is difficult to treat clinically in adults, we think that prevention in childhood is key,” said **Ms. Mirkin**.

Get More Energy! was implemented to increase healthy eating and activity in all members, increase physician understanding of and participation in identification and treatment of childhood weight issues with children and their families, calculate BMI for all members, and evaluate strategies and interventions. **Ms. Mirkin** emphasized the involvement of company leaders in the Get More Energy! initiative and management’s impact in reinforcing the program’s importance by stressing to providers the need to discuss weight management issues with patients and their families.

Due to the complexity of childhood weight management, Get More Energy! takes a chronic disease approach and uses a disease management “pyramid”:

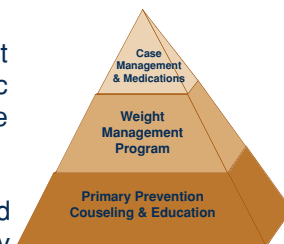


The base of the pyramid is comprised of primary prevention strategies geared to all members and families. The aim of this level is to broaden the initiative beyond the health care delivery system and into the community and schools.

- A clinical guideline requires that every member be measured periodically for height and weight and assessed for diet and physical activity patterns, and that every member have a discussion with a practitioner about increasing physical activity, eating a healthy diet, and accepting body composition. Practitioners identify children at-risk for overweight, and motivate families to make changes by highlighting the child’s BMI, educating them on the medical complications of overweight, and negotiating an approach to a healthier lifestyle. They also assess families’ readiness to change, give them educational materials, and refer them to weight management programs. **Ms. Mirkin** noted the significant impact of tailored messages in motivation.

- Tools consist of: (1) a health questionnaire that has four specific key questions related to diet and behavior change; (2) a one-page parent information sheet with the four key messages; (3) an exam room poster that highlights the messages and contains a readiness-to-change ruler to be used by the child and practitioner as a shared decisionmaking tool; and (4) an online health risk assessment for teens, “Teen Choices and Challenges.” Parents complete the front of the one-page health questionnaire and on the opposite side is a practitioner encounter form to record the exam on the same sheet.

- Staff training, which will be evaluated, consists of facility-based training including calculating BMI and motivational interviewing, academic detailing, and continuing education. Kaiser Permanente also is considering incorporating height and



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*- Rachelle Mirkin*

weight into the administrative data systems to calculate BMI automatically.



Secondary interventions focus on weight management efforts. Kaiser Permanente is working to incorporate weight management programs for overweight children and those at-risk. Currently, the company has a multi-center program in development and collaborations with academic institutions, and is studying weight management programs in Northern California.



Tertiary care consists of specific care management and medication approaches. For children with medical complications from overweight, Get More Energy! has one-on-one counseling available through the pediatrician or the endocrinologist, as appropriate. There also is a care management program for children with diabetes.

Kaiser Permanente's multifaceted approach to childhood overweight emphasizes that every child deserves to be healthy.

earlier in life, and as a consequence, lower quality of life. Highmark set out to increase prevention in the hopes of reducing costs for expensive chronic conditions and improving the health of children.

Highmark did a cost analysis of obesity based on inpatient and outpatient claims and a model developed by the American Obesity Association. Tracking 15 of the 29 conditions associated with obesity, the company spent \$230 million in 1999 on just those conditions, or 29% of the conditions' total costs for that year. Persistence of childhood-onset overweight is associated with higher rates of morbidity and mortality compared to adult-onset obesity.

Highmark has a partnership with the Pittsburgh school district forged by a common goal of preventing chronic disease by addressing overweight and inactivity. The program currently is being piloted in five schools in grades three and four, focusing on nutrition and physical education.

Highmark funding includes development of the curriculum, which integrates science-based programs, including Sports Play and Active Recreation for Kids (SPARK), Food Reeducation for Elementary School Health (FRESH), and the American Heart Association's Heart Power. The physical education component, SPARK, developed at San Diego State University, emphasizes personal development versus competition. The SPARK philosophy is to promote movement for fun and physical activity for lifelong enjoyment. The nutrition component, FRESH, developed by Johns Hopkins Bayview Medical Center, focuses on decreasing dietary fat, sugar and sodium consumption, and emphasizes the balance between caloric intake and energy expenditure. The integrated programs are the basis for a curriculum delivered by physical education specialists who give children physical education for half an hour and then a nutrition component for 15 minutes in twice-weekly 45-minute periods.

The FRESH philosophy stresses individual responsibility for good health and wellness, provides skills for making healthy lifestyle choices, and emphasizes prevention. When children understand the relationship between nutrition and its affect on the body, they are more likely to make better lifestyle choices. The

*"We hope to influence the future health of children through teaching them healthy lifestyles."*

*- Janice Seigle*

## HEALTH PLAN APPROACHES TO CHILDHOOD OBESITY

**Janice Seigle, MPM, Health Initiatives Specialist, Highmark Blue Cross Blue Shield**

**William Cochran, MD, Department of Pediatric Gastroenterology and Nutrition, Geisinger Clinic**

**Kathy Higgins, MS, Senior Director, Community Relations, Blue Cross and Blue Shield of North Carolina**

### ***Public School Partnership***

**Janice Seigle** explained efforts at **Highmark Blue Cross Blue Shield** to address childhood overweight and inactivity through a school-based nutrition and physical activity program. Preventable, modifiable lifestyle behaviors are responsible for 70% of the nation's illness burden. Childhood overweight and inactivity result in the onset of chronic diseases much

interactive class, for instance, would have children fill straws with Crisco and then try to breathe through the straws to demonstrate clogged arteries, or put three tablespoons of Crisco in a bag to show the equivalence of eating a Big Mac and french fries. **Ms. Seigle** noted that in trials, children in the FRESH program showed a 12% decrease in consumption of high sodium food, 15% decrease in high sugar food, 23% decrease in high fat food, and 27% increase in knowledge. Children in trials also decreased total cholesterol levels.

Children in trials of the SPARK program got nearly twice as much vigorous physical activity as children in traditional physical education classes and had greater levels of fitness, skills and strength. The trials also showed that children had the same or better academic achievement even though they were getting fewer academic hours per week. Highmark also expects similar outcomes in children in the pilot schools. Highmark's goal is not only improved fitness but increased physical activity in physical education classes and away from school. The company also hopes to see improved or constant academic performance, enjoyment of physical activity, positive changes in children's food choices, and increased knowledge of good health.

Over the next two school years, Highmark will fund the institution of the nutritional and physical activity program throughout the Pittsburgh district's 50 elementary schools. The new program affords an increased number of physical education classes, uniform K-5 curricula across the district, and an emphasis on health and wellness that was lacking in the past. Highmark also hopes to support community programs, and encourage family involvement to assure success of the program. "We hope to influence the future health of children through teaching them healthy lifestyles," said **Ms. Seigle**.

### ***Geisinger Health System***

In his practice with the pediatric obesity program of the Geisinger Health System, **Dr. William Cochran** serves a rural population. The pediatric obesity program has two major components: **Kid's When Every Individual Gets Healthy (W.E.I.G.H.)** and **Kid's WEIGH OF LIFE**.

Kid's W.E.I.G.H. is a preventive educational initiative. The program has multiple community partners working to implement a nutrition and health program in schools to help promote healthy lifestyle choices and prevent childhood overweight. The five major program components are: nutrition; exercise; body systems and health; self-esteem and body image; and behavior modification. Kid's W.E.I.G.H. promotes health throughout the third and fourth grade curriculum by:

- introducing nutritional and physical lifestyle changes for a healthier life;
- empowering children to make healthy nutritional choices;
- teaching children how food and activity affect their health;
- establishing healthy behaviors related to exercise and fitness;
- providing educational resources related to healthy body image;
- obtaining both height and weight measurements; and
- promoting healthy lifestyle choices and disease prevention behaviors related to drugs, alcohol and sex.

A taskforce of school district administrators, psychologists, and teachers, and Geisinger nurses, dieticians, and therapists developed the curriculum. High school students and their teachers created workbooks for elementary schools, and information technology students at Bloomsburg University developed an interactive CD-ROM for the program. In addition, "Family Nights" provide an opportunity to reinforce to the families the school program on nutrition and physical activity.

Geisinger also uses the WEIGH OF LIFE weight control program for children and adolescents, developed at Texas Children's Hospital, in its obesity clinic. The clinic is operated by a multidisciplinary team including a physician, therapist, pediatric dietician, and exercise therapist. The physician visit focuses on determining the etiology of obesity, the degree of obesity, and the presence of co-morbid conditions, as well as educating the family about the child's condition, the presence of complications and potential for future complications, and therapeutic options. The Kid's WEIGH OF LIFE program implements

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*- William Cochran*

*“Be Active Kids gives young children the tools they need to develop positive physical activity and healthy eating habits for a lifetime.”*

*- Kathy Higgins*

intensive behavior modification relating to exercise, nutrition, and education that consists of ten sessions with a therapist, three sessions with a dietician, and two sessions with an exercise therapist.

“The advantage of a comprehensive program like this is providing the health system member a consistent approach,” said **Dr. Cochran**. Health care professionals have a program to refer children with weight problems that may not otherwise be appropriately addressed. The program allows time during the physician visit to focus on the child’s needs, emphasizes a family approach, encourages frequent visits, and reinforces education to increase the probability of success.

Initial results show a strong impact. The program did experience a high drop out rate but **Dr. Cochran** noted that the more sessions a child attended, the greater the likelihood of completing the program. Of the children who dropped out, 25% had an increase in BMI at the time that they dropped out, 45% had no change, and 30% had a reduction. Of those who completed the program, 8% had an increase in BMI, 12% had no change, and 80% had a reduction.

The program also promotes health care provider education through grand rounds and lectures in various Geisinger departments and at health clinics throughout Pennsylvania.

**Dr. Cochran** hopes to improve access to WEIGH OF LIFE, as well as its outcomes and reimbursement levels. The program is attempting to expand to address overcapacity and travel distance by placing therapists in other primary care offices and clinics throughout the Geisinger system. Distance for patients to travel and cost are major factors in the drop out rate. The clinic initially received a corporate grant and continues through philanthropy funding. **Dr. Cochran** also hopes that results showing that treating obesity earlier in life can prevent some of the significant problems of high cost conditions such as diabetes and heart disease will lead to increased reimbursement.

### ***Be Active Kids***

**Blue Cross and Blue Shield of North Carolina** developed **Be Active Kids** to address dramatic declines in the health of children. In 1996, North Carolina’s children ranked 39th in the nation in health and well-being, exhibited risk factors for heart

disease as early as third grade, were less flexible, had poorer cardiovascular fitness, had a higher percentage of body fat than youth nationally, and were four times more likely to be obese than children nationally. As **Kathy Higgins** explained, Be Active Kids is an innovative, interactive nutrition and physical activity program for children in preschool.

“Be Active Kids gives young children the tools they need to develop positive physical activity and healthy eating habits for a lifetime,” said **Ms. Higgins**. The program supplies educational materials designed for a child care setting for children ages four and five. It uses colorful characters, interactive hands-on lessons, and bright visuals to teach children that healthy eating and being active can be fun.

Partnerships were crucial for the program. A team of experts developed the program and an advisory board guided the process. Professional organizations like the medical society, hospital association, and child care services association reviewed and endorsed the curriculum. BCBS North Carolina also piloted the program to fully develop the components.

Be Active Kids instituted a train-the-trainer model, first working with county cooperative extension service agents, who then trained the family day care providers, child care centers, and Head Start programs. To date, Be Active Kids has been implemented in 64 counties and trained over 1,500 providers. In total, close to 4,000 child care centers in North Carolina use the Be Active Kids kit.

The components of the kit are a curriculum notebook with 14 lessons, story script, teacher information, parent information, snack ideas, and a resource guide. It is complemented with a family-focused newsletter. Food flash cards are included to help children recognize whole fruits and vegetables. Posters for the child care facilities and teachers communicate with the children on physical activities. Other materials include a felt food guide pyramid and a story board.

Be Active Kids’ training sessions were immediately followed by an evaluation by the child care workers on how the training

supported use of the kit and implementing the program. That was followed up with an evaluation at eight weeks post-training, as well as a controlled evaluation of individual child interviews from child care centers that participated in Be Active Kids and centers that did not use the program. The post-training assessment was very positive, with more than 90% of the child care providers reporting that Be Active Kids helped increase the children's knowledge of healthy eating and physical activity, increase the children's physical activity levels, and change child care providers' attitudes about the importance of teaching children about physical activity and nutrition. Anecdotally, child care providers were implementing personal changes in their own lives as a result of teaching the children new skills.

Evaluations revealed that 70% or more of the providers use all of the components of the Be Active Kids kit, and more than 95% plan to use them in the future. Findings show that activities modeled in the training were applied significantly more than those that were not discussed, emphasizing the importance of the training. Also, the children were not only engaging in this curriculum while in school, but they were practicing the lessons at home with their parents.

In the future, the curriculum will be revised based on input from the evaluation and the peer review, and analyzed further by child care providers. New partnerships will be developed to reach more child care providers, and the program will be expanded across the state and to kindergarten classes. The University of North Carolina School of Public Health has offered to provide assessment and evaluation, the statewide public TV station wants to promote Be Active Kids, and the Department of Public Instruction has embraced Be Active Kids in its core curriculum of studies and is encouraging expansion.

## CLINICS' APPROACH TO CHILDHOOD OBESITY

**Pat Stewart, PhD, Nutrition Manager, General Clinical Research Center, University of Rochester School of Medicine and Dentistry**

**Christiane Wert, MPH, RD, Program Director, KidShape**

**Shelley Kirk, MS, RD, LD, Center Director, HealthWorks!**

### ***Strong Healthy Families***

Responding to the increasing prevalence of childhood overweight in their community, Strong Memorial Hospital in Rochester developed the **Strong Healthy Families** program for adolescent weight management. Strong Memorial Hospital had a successful adult weight management program, but physicians were struggling with ways to help overweight children and their families. As **Dr. Patricia Stewart** explained, Strong Healthy Families was initiated as a family-based intervention for adolescents.

Strong Healthy Families is a multidisciplinary program in medicine, nutrition, behavior and physical activity. The program also emphasizes group support, which proved effective for adolescents. The comprehensive program runs for 35 weeks with an on-going maintenance program. All families receive initial assessments in each of the areas, followed by interactive group meetings for both the parents and the adolescents and periodic individual sessions. There are ten weekly sessions with the behavioral leader alternating meeting with the parent group and the adolescent group, five sessions each with the dietician or exercise physiologist, and five individual sessions for the adolescents to meet with one of the discipline leaders based on where they feel they need help.

All families receive a medical assessment that entails a targeted clinical history to ensure that the children in need receive continuous medical follow-up, and to evaluate the families' beliefs and experiences related to overweight. The nutrition component teaches families about healthy eating versus restricted dieting following the Stoplight Diet approach, portion control, self-monitoring of eating, and targeted interventions on sweetened drinks and high calorie snacks as well as dining strategies.

Behavioral strategies for parents include modeling their eating habits to highlight the significant influence they have on adolescents,

*“We really help make this a family focus as opposed to isolating the child, and help them be very consistent with their approach.”*

*- Patricia Stewart*

identifying positive support for their children, maintaining consistency in approach, and setting limits for food and inactivity. “We really help make this a family focus as opposed to isolating the child, and help them be very consistent with their approach,” said **Dr. Stewart**.

Behavioral strategies for the adolescent involve self-monitoring, self-esteem, body image, problem solving skills, relationships, coping mechanisms (since food is often associated with coping), and goal-setting for realistic expectations. Of particular importance is encouraging physical activity, with suggestions for increasing daily and family activities.

In evaluating the Strong Healthy Families program, positive aspects included providing healthy snacks at meetings, class activities, multidisciplinary group leaders, group support, periodic individual appointments, separate groups for parents and adolescents, and weekly questionnaires. Challenges to address include readiness for the program, significant family disruption (50% dropped out due to family dysfunction), lack of family support, life stressors, and attendance.

The children and families preferred the weekly classes, wanted more accountability, more food records, and more weight checks. They liked the feedback because once they knew their status, they were able to respond positively.

### **KidShape**

**Christiane Wert** presented the **KidShape** pediatric weight management program in California. KidShape is a family-based program targeting children ages six to 14. “KidShape focuses on weight management. We’re not focusing directly on weight loss,” said **Ms. Wert**. The program’s goal is to promote long-term lifestyle changes.

KidShape began in 1987 in response to increasing referrals for overweight children to specialists. Since effective options for treating childhood overweight were limited, KidShape curriculum attempted to work with families from culturally and ethnically diverse populations. Community outreach activities improved health care provider awareness of childhood

overweight issues and the KidShape program. The program is available at community-based locations where families are comfortable, including churches, elementary schools, middle schools, pediatric clinics, and universities. Its current funding is through grants, private and corporate donations, reimbursement from health plans and Medi-Cal (California’s Medicaid program).

The criteria for referral to the KidShape program are tricep skinfold thickness above the 95th percentile for age and sex, infants above the 95th percentile weight and height, and child and adolescent BMI for at-risk or overweight. KidShape developed an obesity risk grid of height and weight for health care providers to determine BMI.

KidShape focuses on the multiple factors of genetics and lifestyles that contribute to childhood overweight. Many of the children seen at KidShape have medical problems such as increased height, advanced bone age, early menarche, respiratory disorders, orthopedic problems, Type 2 diabetes, hyperinsulinemia, hypertension and other conditions prevalent with overweight.

KidShape promotes healthy lifestyles for the entire family. The program requires one parent or guardian to attend with each child, and encourages others in the child’s life to attend, such as grandparents and siblings. It is an eight-

*“KidShape focuses on weight management. We’re not focusing directly on weight loss.”*

*-Christiane Wert*

### **Prevalence of Disease and Conditions Due to Obesity**

95%	Sleep apnea <sup>1</sup>
61%	Type 2 diabetes <sup>2</sup>
30%	Gallbladder disease <sup>2</sup>
25-40%	Asthma <sup>3</sup>
25%	Hypertension <sup>4</sup>
17%	Coronary heart disease <sup>2</sup>
14%	Osteoarthritis <sup>5</sup>
11%	Breast cancer <sup>2</sup>
11%	Uterine cancer <sup>2</sup>
11%	Colon cancer <sup>2</sup>

SOURCE: <sup>1</sup>Surrat PM, Findley LJ. *N Engl J Med.* 1999;340:881. <sup>2</sup>Wolf AM, Colditz GA. *Obes Res.* 1998;6:97. <sup>3</sup>Gelber AC et al. *Am J Med.* 1999;107:542. <sup>4</sup>American Health Foundation Roundtable on Healthy Weight. *Am J Clin Nutr.* 1996;63(suppl):4095. <sup>5</sup>Camargo CA Jr et al. *Arch Intern Med.* 1999;159:2582.

week program of two four-week segments, building on motivation to enroll and complete the program. Each two hour weekly class is divided into three components: nutrition, which is run by a registered dietician; group discussions with parents and students meeting separately; and on-site physical activity taught by a certified trainer or instructor. KidShape focuses on skill building and de-emphasizes competitiveness. The program also has a variety of weekly activities: food journals that allow the dietician to give the children individual feedback; and workbooks for students and parents to track class attendance, food journals, activities and participation. The student workbook also contains a reward card as an added incentive. At the end of eight weeks, a follow-up plan for the families is implemented varying from a second eight-week enrollment to re-enrollment for a particular component.

To evaluate the outcomes, KidShape takes pre- and post-measurements and has found that 87% of the children lose weight within the eight weeks. Eighty percent of those children keep that weight off up to a year-and-a-half to two years after the program. Daily fat and sweet servings were cut by a third, moderate physical activity increased ten-fold, and weekly TV viewing was cut in half.

With local, national, and international media now focused on the problem of childhood overweight, KidShape referrals and requests to expand the program have increased. It has begun pilot testing BabyShape, a program targeting children two-and-a-half to five years of age. **Ms. Wert** noted that KidShape's success is due to the family-based interaction, peer support, hands-on learning, enthusiastic teaching, and behavioral modification through goal setting, self-monitoring, positive reinforcement and positive role modeling.

### **HealthWorks!**

Facing an increasing demand from practitioners for services of childhood overweight, Children's Hospital Medical Center in Cincinnati developed **HealthWorks!**, an evidence-based program for managing childhood overweight. As **Shelley Kirk** explained, HealthWorks! uses an interdisciplinary, family-based, behavioral approach individualized for children and

adolescents, and offers group physical activity sessions and parent education classes.

The HealthWorks! interdisciplinary team comprises medicine, nutrition, nursing, psychology, exercise physiology, and administrative support. Eligibility criteria include children (ages 5 to 10) at or above the 95th percentile for BMI, and adolescents (ages 11 to 17) at or over 95th percentile for BMI with an associated medical complication, ability to function independently in a group exercise session, and a supportive adult residing with the child who also participates in the program. HealthWorks! also requires a physician referral to assure that families are partnering with a primary care provider. "It's important that our families work with a primary care provider so that we can partner with them to share information and communicate about how the family and child are faring," said **Ms. Kirk**.

Components of the program, which lasts on average five months, include:

- comprehensive initial assessment;
- group orientation on behavioral management led by a psychologist;
- treatment plan attended by the interdisciplinary team to set targeted, individualized weight management goals for nutrition, physical activity, and family support; identify symbols to track daily progress on a goals calendar; and select age-appropriate incentives;
- five follow-up visits with a dietician and nurse; height and weight are measured; dietician reviews adherence to contracted weight management goals, determines whether an incentive was earned, and makes revisions for next contract as needed;
- group physical activity offered four times a week and supervised by an exercise physiologist (attendance once a week is required);
- parent education classes; and
- reassessment of lab work, graded exercise test and DEXA scan as well as repeating the clinical assessment to provide the families with a progress report.

*"It's important that our families work with a primary care provider so that we can partner with them to share information and communicate about how the family and child are faring"*

*- Shelley Kirk*

HealthWorks! has individual family sessions for assessment, treatment plan development and follow-up visits, and then group sessions for the behavioral management orientation, physical activity and parent education classes. This hybrid model has family participation throughout the program.

Recognizing that obesity is a chronic disease, HealthWorks! has an on-going, individualized intervention phase with follow-up visits, access to group physical activity sessions, parent education classes, and periodic reassessment. The intervention emphasizes assuring that families assume more responsibility for the weight management program, identifying physical activity options available at school, home and in the community, and providing ongoing support and guidance for families using a less structured format.

Since February 1999, HealthWorks! has had over a thousand referrals. The initial phase has a retention rate of more than 50%. For those who completed the initial phase, the majority improved their weight and body mass index.

HealthWorks! is covered by Medicaid and receives full or partial coverage from 12 health plans. Reimbursement started early in the

program with the Ohio Department of Human Services covering some of the HealthWorks! program under the federal regulations for Early and Periodic Screening Diagnosis and Treatment (EPSDT) services.

“The federal EPSDT regulations state that if information gained through a basic, childhood examination suggests ‘dietary inadequacy, obesity or other nutritional problems, further assessment is indicated, including: family, socioeconomic or any community factors; determining quality and quantity of individual diets; further physical and laboratory examinations; and preventive treatment and follow-up services, including dietary counseling and nutrition education,’ ” **Ms. Kirk** quoted from a letter from the Ohio Bureau of Medicaid Policy.

Once Medicaid covered some of the services, other insurers followed. **Ms. Kirk** noted that the question of medical necessity and whether weight management is a benefit are the foremost barriers to obtaining coverage for these services. Therefore, she encourages employers to look at their health insurance plans to make sure that weight management is included as a covered service.



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