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Healthy Kids, Healthy Families: A Collaborative Program to Address Childhood Overweight

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Abstract: *Healthy Kids, Healthy Families* is a program of outreach and research that has been developed to address treatment and prevention of the childhood obesity epidemic through a family-centered, multidisciplinary approach. The American Dietetic Association recommends community-based and environmental interventions as the most feasible methods to support healthful lifestyles for the greatest numbers of children and families (Ritchie, Crawford, Hoelscher, & Sothern, 2006). *Healthy Kids, Healthy Families* was developed as an innovative, collaborative program to help children and families maintain healthy weight, through impacting the systemic medical and psychosocial aspects of overweight in children. The program involves in-home, family-based intervention followed by multi-family group education and community outreach.

Program Rationale

Michigan State University (MSU) Departments of Food Science and Human Nutrition and Family and Child Ecology colleagues have developed a family-centered program that addresses nutritional and psychosocial aspects of childhood risk for overweight (body mass index for age $\geq$ 85th percentile but less than the 95th percentile) or overweight (body mass index for age $\geq$ 95% as defined by Centers for Disease Control Growth Charts, in Medicaid populations. Support for the *Healthy Kids, Healthy Families* program has been provided by the Michigan Department of Community Health, Medicaid, and MSU internal funding sources.

Childhood obesity has become an epidemic in the United States, with serious health and social consequences for millions of children. Medicaid alone now serves some four million overweight children (National Governors Association Center for Best Practices, 2002). The percent of

children who are overweight (defined as Body Mass Index-for-age $\geq 95^{th}$ percentile according to the Centers for Disease Control and Prevention Growth Charts) continues to increase. Over 12 and a half million U.S. youth (ages 2-19) are overweight, which is over three times the number from 1980. Another 15 percent are considered at risk of becoming overweight (a BMI-for-age between the 85^{th} and 95^{th} percentiles) (Centers for Disease Control and Prevention, 2006; National Center for Health Statistics, 2007).

Health professionals are struggling to halt the dramatic increase in childhood overweight. In addition, there is a critical need for effective strategies for addressing the treatment of overweight in youth. Some consider childhood overweight to be the most serious and prevalent nutrition disorder in the United States -- the consequences of which are both acute and chronic (Rocchini, 2003). Overweight children and adolescents are at increased risk for cardiovascular disease, hypertension, pseudotumor cerebri, orthopedic problems, early onset of puberty, sleep apnea, steatohepatits, cholelithiasis, polycystic ovary disease, and type 2 diabetes (Must, & Strauss, 1999; Sorof, 2002). In addition, children who are overweight are at elevated risk for low self-esteem and depression (Mustillo, Wothman, Erkanli, Keeler, Angold, & Costello, 2003).
Obesity in adulthood is often preceded by overweight in childhood (Whitaker, Wright, Pepe, Seidel, & Dietz, 1997). The National Institutes of Health have reported that overweight and obese adults are at increased risk for a number of physical ailments such as high blood pressure, type 2 diabetes, coronary heart disease, stroke, osteoarthritis, obstructive sleep apnea and respiratory problems, and some types of cancer (National Institutes of Health, 1998). Type 2 diabetes, which was once considered an adult disease, has been increasing in prevalence in youth during the last few decades and was categorized as an epidemic by the Surgeon General in 1998 (Centers for Disease Control and Prevention, 1998).

There is concern that the rising trends of overweight in youth will exacerbate the already increasing rates of type 2 diabetes in youth. With the development of type 2 diabetes at documented ages as young as 5 years, it is possible for the complications of diabetes and their implications such as blindness, kidney disease, stroke, nerve damage, hypertension, cardiovascular disease, and limb amputations to fully develop by ages 20 to 30 years especially if the disease is not identified or poorly managed or controlled (Glasser, & Jones, 1998). These problems could potentially lead to decades of compromised quality of life and decreased productivity.

In addition to the growing concern associated with type 2 diabetes, the American Diabetes Association has identified a condition called pre-diabetes. Pre-diabetes is defined as blood glucose levels that are higher than normal, but not yet high enough to indicate a diagnosis of type 2 diabetes. Although the implications for children are unclear, we do know that 25 to 75 percent of adults with pre-diabetes develop type 2 diabetes within ten years without lifestyle changes (Health and Human Services, 2002). However, research has shown that by taking action to manage blood glucose when diagnosed with pre-diabetes, one can delay or prevent type 2 diabetes from ever developing (Anonymous, 2002).

In addition to the physical implications, children who are overweight can suffer from increased psychological stress. Overweight children are at increased risk for peer group discrimination leading to low self-esteem, poor body image and depression. Studies have also shown that

obese persons are less likely to be admitted to college and are at greater risk of maintaining a lower economic status (Dietz, 1998).

The determinants of overweight in our children are multi-factorial including:

- having overweight parents,
- eating diets high in fat and sugar,
- watching many hours of television,
- being of African American, Hispanic American, or Native American descent, and
- coming from smaller or poor families (Green, & Krueter, 1991).

We know that television, computer and video games contribute to children's inactive lifestyles, food choices and overweight or obesity risk (Cheng, 2005; Salmon, & Campbell, 2006). Evidence demonstrates that overweight and obesity in adults and their associated health problems have significant impacts on the health care system. A recent study focused on state-level estimates of total, Medicare and Medicaid obesity-attributable medical expenditures. Obesity-attributable Medicaid expenditures for Michigan were estimated to be $882 million (total state level estimate was $2.9 billion) (Finkelstein, Fiebelkorn, & Wang, 2004). Michigan has consistently ranked in the top ten states for problems of overweight, and children are increasingly presenting with overweight-related health issues such as type 2 diabetes, hypertension and hyperlipidemia (Freedman, et al., 1999; Sinha, et al., 2002).

In a recent Position Statement, the American Dietetic Association recommended community-based and environmental interventions as the most feasible methods to support healthful lifestyles for the greatest numbers of children and families (Ritchie, Crawford, Hoelscher, & Sothern, 2006). Our strong belief is that a well-designed public health intervention to help children and families maintain a healthy weight will have meaningful impacts on the health of families. *Healthy Kids, Healthy Families* was developed as an innovative collaborative program that addresses both the medical and psychosocial aspects of overweight in children. The program involves direct service provision of an in-home, family-based intervention followed by multi-family group education in the community. The program is currently being delivered by a trained MSU Extension paraprofessional in three Michigan counties.

Program Description

The project team consists of university researchers from the Departments of Food Science & Human Nutrition and Family & Child Ecology. The team is currently working with MSU Extension and the medical community in three Michigan Counties to offer and evaluate the impact of the *Healthy Kids, Healthy Families* program. Additional connections for program referrals have been made with public schools and child protective services in these counties. Each of the three counties was targeted for the public health intervention because of the growing needs in those communities. For example, Medicaid cases for those less than 18 years of age in two of the selected counties is over 35 percent (compared with 25 percent statewide) and the median household income in one selected county is at $35,363 (compared to a state average of $44,667).

The curriculum was developed to address health, nutrition, cognition, and cultural and family dynamics aspects of childhood overweight. A series of six multi-family group and four in-home family sessions for families with overweight children were developed. These sessions provide

basic nutrition and health information, and serve as a support for participants and their families for effective lifestyle changes. The sessions include information about goal setting and behavior change as well as practical and application skills, while facilitating community connection, family structure, and group support.

The model for collaboration between clinical and community programs developed by the research team was invested in positive change for those participating in *Healthy Kids, Healthy Families*. In partnering counties, physicians and other health care providers had identified childhood obesity as a growing problem in their community. The research team worked with health care providers to determine whether the program was appropriate for each community and how recruitment of families into the program should be handled. Partnerships with a total of four medical clinics in the three selected counties were established.

Research assistants in each of the partnering clinics were identified and trained to assist in patient recruitment and data collection. The trained research assistant is responsible for identifying children who are overweight or at-risk for overweight (using BMI percentiles). The research assistant introduces the program, obtains consent, places families into either a control or intervention group, collects necessary lab data, and refers families to the local MSU-Extension office. A Program Associate (MSU-Extension paraprofessional) was hired and trained to deliver the program. The trained MSU-Extension Educator performs an initial evaluation with the family in their home or in some other convenient location. The trained MSU-Extension Program Associate (or paraprofessional) then begins a series of one-on-one home visits with each of the families. After the home visits are complete, the families join a series of six multi-family group sessions. Families return to the clinic for follow-up data collection. Materials were developed to assist clinics with recruitment. Incentives for participation (e.g. back packs, pedometers, gas cards, balls, movie tickets) were made available to families who were referred to the program.

The program recently commenced in each of the three counties. The research team meets regularly with medical personnel at the clinics to address issues with recruitment. Because the clinics are very busy, eligible families are often missed when they come into the clinics. The research team increased coordination with health care professionals to investigate the possibility of hiring Research Assistants to focus only on recruitment for this project. Unfortunately, due to budget constraints, most Medicaid funded projects in Michigan were cut. *Healthy Kids, Healthy Families* has reinstated efforts to secure funding to continue to deliver and test the curriculum.

An important program objective is to examine whether this intensive collaboration between clinical and community programs can positively impact clinically relevant indicators in children. In order to determine the effectiveness of the intervention in improving the health of participants, the research team has identified several clinical indicators that are being collected at baseline, six months, and one year following participation in the program to assess risk for pre-diabetes, diabetes and heart disease. Psychosocial and behavior change data are also being collected to assess program success in improving healthy behaviors and the quality of lives of participants and their families.

MSU-Extension offices throughout the state have requested permission to use the *Healthy Kids, Healthy Families* curriculum. In fact, as childhood overweight increases throughout Michigan,

we have recognized a growing interest in this program because the availability of material to address the problem especially at family and community level is scarce.

Initial Project Findings

At this time, one entire session (consisting of four in-home family sessions followed by six multi-family group sessions) has been completed. Recruitment for subsequent sessions is underway, and the project team recently met with community partners to generate ideas for increased engagement of children and families. Data below provide descriptive information from the first session of *Healthy Kids, Healthy Families.*

Thirteen families were recruited into the program through collaborative efforts of the MSU Extension staff and key personnel in the Community Medical Clinics. Physicians and nurses in the medical clinics identified children based on the aforementioned program criteria. Medical staff then provided program information, obtaining consent and assent for MSU extension staff to contact each family for an initial meeting. Of those thirteen families who opted to participate, seven were placed into the intervention group and six were placed into the control group. Each of the seven families completed the home visit sessions in their entirety. However, only four families participated in both the in-home family sessions as well as the group sessions. Of the four families who participated in the in-home and multi-family group sessions, two of the youth participants were girls and two were boys. The average age of these participants was 8.75 years.

BMI percentiles were used to assess the size and growth patterns of individual children. Each of the four children, who completed the entire program, fell above the 95th percentile – indicating that these children are overweight. The National Cholesterol Education Program (NCEP) classifies children and adolescents with a total cholesterol level that exceeds 200mg/dL as being at high risk for coronary heart disease (170-199mg/dL places them at borderline risk). The mean total cholesterol level of the four program participants who completed the entire program was 193.75mg/dL. NCEP classifies children and adolescents with an LDL cholesterol level that exceeds 130 mg/dL as being at high risk for coronary heart disease (110-129mg/dL places them at borderline risk). The mean LDL cholesterol level of program participants was 133.5mg/dL.

Two non-consecutive 24-hour recalls were collected from each of the four program participants – one weekend day and one weekday were included. According to the 2005 Dietary Guidelines for Americans (DGA), girls 9-13 years of age should consume 1600-2000 calories per day and boys of the same age should consume 1800-2200 calories per day. The average caloric intake was 1987 calories. DGA also recommends that total fat intake should be between 25 and 35 percent of the total calorie intake for children and adolescents 4 to 18 years of age. The average percent of fat calories from the 24-hour recalls of program participants was 36 percent. DGA recommends that total protein intake be 34 grams per day. Participants' average protein intake was over 67 grams. Therefore the importance of engaging vulnerable families in a program that provides parents and children with skills to structure and discuss both the quantity and quality of food choices within the family context is clearly evident through initial program data.

Unfortunately due to cuts in the state budgetary constraints, *Healthy Kids, Healthy Families* lost a significant portion of funding and was completely cut from two of the three Michigan counties

before follow-up data could be obtained. In the third Michigan county, the project is in initial phases of program delivery following an added source for funding that was obtained.

Additional Project Adaptations and Findings

As the initial descriptive data demonstrated a clear need for dietary changes and preventative measures for future health-related problems, the university research team made also efforts to increase and diversify community partnerships to offer the *Healthy Kids, Healthy Families* as a local program marketed through Parks & Recreation and Youth Assistance. *Healthy Kids, Healthy Families* was then offered as a class to all interested families through the community center venue without the clinical/medical and home-visitor components. In the community center setting, *Healthy Kids, Healthy Families* continued to incorporate information on nutrition, physical activity, cognition, self esteem, culture and family dynamics. The program focus was adapted to explore aspects of prevention and program delivery, highlighting activities such as sports, family activities, aquatics, and other parks and recreation events.

In lieu of the contextual changes that included the absence of clinical data and physician referrals, the method of inquiry was adapted to elicit participant experiences through qualitative focus group findings from an additional 12 families. A focus group method was selected to evaluate the intervention in a community setting. Focus groups were conducted because they provide a venue for processing empirical material so as to interpret richness, complexity, and interpretive processes necessary for researchers to observe the ways in which people interact and construct meanings [around creating healthier lifestyles] (Kamberelis, & Dimitriadis, 2005). The focus group questions facilitated discussion on perceptions about family nutrition, physical intervention activities were discussed. Focus group findings indicated that parents and children found the program to be helpful and were satisfied with how it was offered. However, in the community setting it appeared that without medical referrals, many parents were unclear about the purpose of the *Healthy Kids, Healthy Families* group.

Satisfaction with the Intervention

- It helped enhance social skills.
  "I think it was helpful for her. I think it socially was very good for her."
- Working on communication and self-esteem was important.
  "I know it did help in make (child) feel more important to her mother, she's not as clingy to mommy at home now."
- Children expressed multiple ways that their families can help them be healthy: provide healthy foods, not allowing them to eat junk food, being physically active with them, and telling them how they are special.

Satisfaction with the Process

- Many parents were unclear about the purpose of the group.
  "I really had no idea really for sure, but I thought it was going to be something more of a type of a counseling thing for the kids."
- Most parents did not think that the program needed any modifications.
  "Probably nothing. I thought it was really good, the way you presented everything and, made it really understandable for the kids and probably for some adults too, you know."

Areas for Further Study

Efforts are underway to secure *Healthy Kids, Healthy Families* programs in their current venues and to investigate the possibility of expanding the program to additional counties. We will also facilitate additional community center focus groups during the upcoming year to determine participant and county staff perceptions of the program. Focus group data will help modify the program to better address the issues facing families with overweight children such as social support, motivation and readiness to change.

Recommendations

Over the course of program development, the Healthy Kids, Healthy Families curriculum went through a number of changes and adaptations to deal with budgetary changes. Flexibility was an essential component of bridging the program to meet the needs of varied MSU Extension demographics and additional community partners including Parks & Recreation Centers and County Youth Outreach. An overall convergence on program provision for community stakeholders who are charged with promoting health and well-being for community members is recommended. Local needs for each program were established and discussed through a series of meetings with community partners, including parks and recreation, youth assistance, medical clinics, and Extension based staff. A practice-based approach to research was essential in order to effectively engage and secure a variety of community partnerships and participants.

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