Fighting Obesity:

What Works, What's Promising

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By

Elliot A. Segal

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I. Executive Summary

This report concludes that obesity is a national public health problem and needs a strong federal approach. The report calls for the creation of a regional collaborative that will initiate a pilot program for low-income children in the Greater Washington DC area in the zero-to-five age group, including pregnant mothers.

The obesity epidemic continues to worsen nationally, in spite of many successful evidence-based prevention/intervention programs. Most experts interviewed for this report agreed that a comprehensive program is needed incorporating nutrition, physical activity, public health prevention and services, a built environment, and human capital promotion.

Ten successful models are presented here and offer many lessons for replication.

None of the models presented incorporate all the structural and programmatic elements of a comprehensive program, and it is not clear from examining these models that any particular single element is clearly more effective than another.

All of the models recognize the importance of nutrition and most include physical activity. A focus on the built or structured environment is not as prevalent. Integrating public and/or personal health care services with obesity programs is recognized as an important goal but no model programs were identified with this component. With respect to human capital promotion, virtually none of these programs focus on the social, emotional, or cognitive development of children.

Key conclusions emerge from the models studied.

1. A significant multi-faceted program focused on pregnant women and children, birth to three years, could provide the biggest payoff to improve the health of our nation, both in the short- and long-term.

2. The Federal Government needs to overcome their current uncoordinated array of programs and take the lead role in fostering development of a comprehensive childhood obesity prevention multi-departmental initiative.

3. A key need is for Medicaid to focus on obesity particularly through the EPSDT program.

4. Success will also depend on collaboration with state and local governments and the private sector, including insurers, employers, and foundations.

II. Overview: Approach to This Study

This study was commissioned by The HSC Foundation. The goal of the study is to identify the most effective child healthy living models, particularly for preventing and/or reducing obesity for young children. To identify the most effective programs, relevant literature and a number of experts were interviewed. Three conclusions emerged. One was that a successful program should be as comprehensive as possible. The second was for the program to focus on prevention and begin with children as young as possible. Third, the program should be evidence based.

In interviewing experts, a near unanimous suggestion was that a comprehensive program would be best and have the most lasting impact. This opinion was proffered by many who were operating some of the most successful programs that were not comprehensive. The successful programs identified generally have a major focus on nutrition or physical activity. Most of the programs focus on children beginning at age five or older.

In spite of the fact that there are many seemingly promising programs, the problem continues to get worse. In fact, the most recent annual Trust For America's Health (TFAH) study "F as in Fat 2009" (July 2009) found that 23 States had increased obesity rates in the last year.

Overall the spread of the epidemic is occurring faster than the solutions as evidenced by the increases in the population of overweight, obese, and morbidly obese individuals. More importantly the problem is not just affecting the adult population but evidence is accumulating that children are at risk and are the precursors of an even larger impending epidemic. Low income and minority children are the likeliest to become obese.

In describing programs, most experts indicated that impact would be greater if interventions were targeted to children below the age of five. A recent study (April 2009) found over 20% of 4 year olds obese, with the highest numbers among minority populations, further buttressing the need to start programs at early ages. Also, this early age group was identified as a very difficult group to reach and was generally ignored for that reason. Many experts further suggested pregnant mothers as the best entry point.

Additionally, recent evidence by economists focusing on the importance of human capital development has found beginning at birth, or even better also including pregnant mothers, is critical for improving outcomes for low income disadvantaged children. James Heckman, Nobel Prize laureate, has produced a significant body of evidence that the greatest return on investment results from focusing attention on social emotional, as well as cognitive skills beginning at birth. He also points to the need for positive physical development. This leads to individuals who are healthier and become productive members of society and are less likely to become dependent on government support.

The models selected cover a wide spectrum of approaches. Overall, there are dozens of promising programs that demonstrate component program elements that belong in a comprehensive anti-obesity

effort. Most experts indicated that integrating public and/or personal health care services with obesity programs is an important goal but no such model programs were identified.

The programs identified have some evidence based success, with varying degrees of the strength of the evidence. Most have been built as part of a number of academic based studies with control populations. Many of the positive results were not dramatic. Most of the studies have not had long term follow-up to measure lasting impact.

Based on the literature and the opinions of experts, all generally agreed that the most effective programs for preventing or reducing obesity among young children should have five key elements.

1-Nutrition: Almost all programs recognize the importance of nutrition and offer programs of varying focus and for different target populations.

2-Physical activity: Nearly all programs recognize the importance of physical activity and offer programs of varying foci and for different target populations.

3- Public health prevention and health services: Not many programs offer targeted prevention services and very few include targeted approaches that can lead to reducing chronic illnesses that result or are exacerbated by obesity.

4-Built environment: Built environments encompass the buildings, spaces, and products created or modified by people. Some programs develop strategies to modify schools, workplaces, parks, and particularly transportation systems (e.g., safer streets, bike paths).

5- Promoting human capital: Providing for social-emotional-cognitive skill development for infants as well as healthy physical development. There do not appear to be any childhood obesity efforts that design programs that factor in advantages of promoting child human capital.

III. The Study

Through nominations by experts and a review of the literature, ten of the most promising obesity prevention programs were identified. They included as many of the key elements of success as possible. In order to better understand the models, the following issues were explored. Representatives from all of the programs reviewed and edited the findings. These characteristics help to measure the scale, scope, involvement, levels of success, and financial stability of the model. These are:

1. Collaborations and partnerships
2. Funding sources and sustainability
3. Successful methods and strategies
4. Family Involvement
5. Program duration
6. Technical assistance support
7. Operating costs
8. Staffing levels
9. Organization structure
10. Measurable outcomes

IV. The Models

A number of different model programs were identified. They cover a wide spectrum of approaches. These include:

1. A Federal program directly to local centers; mostly covers pre-school children with growing focus on zero to threes;
2. An NGO, which with over 2,000 local affiliates, focuses on age 6 and above;
3. A State Health Department centered program combining a number of components being stitched together to focus on obesity - strong data with a denominator;
4. A State-local model where the state has constructed an infra-structure and is piloting the program elements in schools in a locality;
5. An Operating Foundation that primarily focuses on a state;
6. A Municipality that has tied together many city agencies to develop a coordinated program with a strong built environment;
7. A Local Not-for-Profit Coalition with a major effort built around food and nutrition programs with expanding outreach consulting;
8. A Children's Hospital Housed Organization focusing on developing 10 vanguard communities within Chicago;
9. A School of Public Health providing evidence supported programs to schools in Texas; and
10. A University-Affiliated Program providing strong support and particularly a strong physical activity model, expanding nationally.

Model #1: A National-Local Model
U.S. Health and Human Services (HHS): Head Start and Early Head Start
I Am Moving, I Am Learning (IMIL) Program

Overview: This program originated in West Virginia and Virginia as a Model Obesity Program serving low income minority children.

Head Start is a national program that promotes school readiness by enhancing the social and cognitive development of children through the provision of educational, health, nutritional, social and other services to enrolled children and families. Head Start receives approximately $7 billion dollars annually and has over 900,000 participating children at over 18,000 centers. *I Am Moving, I Am Learning (IMIL)* is a program for addressing childhood obesity in Head Start children. IMIL seeks to increase moderate to vigorous physical activity every day, improve the quality of movement activities intentionally planned and facilitated by adults, and promote healthy food choices every day.

1-Collaborations/partners: The Federal Head Start program, administered through the Department of Health and Human Services (HHS), initiated a program to prevent obesity beginning with a pilot program. The collaborator/partners were initially the West Virginia Head Start Association and 17 Head Start programs in Virginia and West Virginia beginning in 2005. The initial program has expanded substantially. In addition, a new Little Voices initiative was launched. The program is directed at infants and toddlers. In 2008, Little Voices partnered with Choosy Kids, LLC and the Wolf Trap Institute.

2-Funding sources and sustainability: The funding source is Federal funds. Funds are provided directly from HHS to Head Start programs. The initial program IMIL funding was provided to the West Virginia Head Start Association to deliver statewide training.

The program is currently on firm financial footing built into ongoing Head Start funding and growing very rapidly. Major new funding for Head Start and Early Head Start was included in the 2009 Stimulus allocation. The Office of Head Start recently funded the National Center for Physical Development and Outdoor Play. This program called Head Start Body Start will support the ongoing development of IMIL.

3-Successful methods and strategies: The program began with 17 Head Start programs in Virginia and West Virginia. In 2005 there were 88 classrooms. By 2008 the program was expanded to 500 centers.

Obesity prevention is the primary goal. Three primary objectives are:

Increase time for physical activity to meet national guidelines for physical activity;
Improve the quality of structured movement experiences facilitated by teachers and adults; and
Improve healthy nutrition choices for children every day;

The intent is to have the program continue to grow. In fact, HHS launched a new initiative in 2008, Little Voices for Healthy Choices. The program is being piloted in 24 Early Head Start Centers and homes. IMIL staff provides ongoing technical assistance.

The purpose of Head Start Body Start mentioned above is to increase physical activity, outdoor play, and healthy eating among Head Start and Early Head Start Center children, families, and staff. The National Center will assist Head Start programs in creating healthy learning environments, both in and outside the classroom, through structured and unstructured physical activity that leads to the physical, cognitive, social and emotional development of young children and reduces obesity and its associated costs.

The National Center for Physical Development and Outdoor Play has three main objectives:

1-Administer and support *sub-grants for construction or improvement of playgrounds and outdoor play spaces* at Head Start Centers;

2-Provide *resources, training, and technical assistance* to Head Start and Early Head Start grantees; and

3-Inform and assist the Office of Head Start in *setting national priorities and developing policies.*

The program goal is for children attending Head Start and Early Head Start programs to increase their regular amounts of moderate to vigorous physical activity and healthy eating to realize improved physical health (including reduced incidence of overweight and obesity) and healthy physical, cognitive, social, and emotional development. Strategically, the National Center has established an Advisory Board to include national experts in motor development, early childhood movement, playground design and safety, and adapted physical activity. The Board also includes representatives of National Head Start Association (NHSA), National Association for the Education of Young Children (NAEYC), plus representatives of Centers for Disease Control and Prevention (CDC), divisions of Nutrition, Physical Activity, and Obesity (DNPAO) and Adolescent and School Health (DASH)

4-Family and community involvement: The Head Start program requires family involvement. Head Start Performance Standards require programs to build relationships with parents as early as possible from the time of child enrollment and to create ongoing opportunities for parent involvement throughout the time children are in Head Start. Further, Head Start Performance Standards require programs to help parents become active partners in accessing health care for their children, making community services more responsive to their family needs, and transitioning their children into school. Fifty percent of the IMIL programs identified a community organization as a partner.

5-Program duration: The IMIL program began in 2003 and was launched first in West Virginia in 2005. The IMIL program now appears to be firmly incorporated into several national Head Start programs. Head Start is a fixture program of the U.S. Government. The recent funding of the National Center for Physical Development and Outdoor Play adds to the potential further development of IMIL.

6-Technical assistance support: Local Head Start staff receives intensive two and one half day training plus ongoing support from the HHS Regional Technical Support Assistance System. Early Head Start has a national resource center to provide technical assistance operated through a contract with the Zero to Three, a national non profit organization. The Head Start Body Start National Center will coordinate the continued training of grantees in IMIL as well as developing modules to supplement and expand the initiative.

7-Operating costs: Current estimates are that the Office of Head Start has invested several million dollars in IMIL to date and resources will continue to grow for the IMIL Head Start initiative and related obesity programs.

8-Staff: A number of HHS staff centrally and in regional offices is dedicated to providing funds and technical assistance to support the IMIL program.

9-Organizational structure: HHS Head Start has a fixed organizational structure carrying out the program statutory provisions. Organizationally, Head Start has provided grants or contracts to organizations such as Zero to Three, NASPE, and AAPAR to carry out components of technical assistance including components of obesity prevention programs.

10-Measurable outcomes: Mathematica Policy Research evaluated the structure and organization of the program in 2007 in Region III at 53 locations. With respect to Federal technical assistance the evaluations were positive. Some aspects such as family outreach appear to have sustainability issues. Evaluation of the training was rated positively. Physical activity programs were implemented higher than nutrition programs. Fifty percent of the programs identified a community organization as a partner. Staff was deemed enthusiastic but managers were not always deemed as devoting sufficient time to the program. Going forward, the new National Center has engaged Paul Wright of the University of Memphis to provide a full evaluation to determine the effectiveness of the Center's initiatives.

Model #2: A National-Local Non-Governmental Organization (NGO) Model: YMCA of the USA's (Y-USA); An NGO

Overview: YMCA of the USA's (Y-USA) Activate America is addressing the nation's growing health crisis by redefining the YMCA experience to better support health seekers - Americans of all ages who are struggling to achieve and maintain well-being of spirit, mind, and body. Not only are YMCAs changing the way they work inside their facilities to influence and motivate health seekers to make positive changes, but also they are taking an active role in their communities to help support approaches that make it easier to overcome barriers to healthier living. This later work is the "Healthier Communities" work of Activate America.

1-Collaborations: Y-USA believes that all sectors of our communities and nation must come together to advance a common strategy to remove the barriers and increase the opportunities for physical activity and healthy eating for all. More than 100 YMCAs are involved in Activate America's Healthier Communities Initiatives which focus on collaborative engagement with community leaders, how environments influence health and well-being, and the role public policy plays in sustaining change. Through these initiatives, YMCA's convene community leaders from government, business, public health, schools, transportation, academia, and other sectors.

2-Funding sources: Since 2004, Y- USA has committed nearly $50 million to support the work of Activate America. The funds come from a mix of private foundations, corporations, government agencies, and YMCAs.

The Healthier Communities Initiatives are primarily funded by the Centers for Disease Control and Prevention (CDC) and the Robert Wood Johnson Foundation (RWJ). In the past, PepsiCo Foundation, Kellogg's Corporate Citizenship Fund, Kimberly-Clark Corporation, and Pharmaceutical Research and Manufacturers of America (PhRMA), have provided support for the annual Pioneering Healthier Communities (PHC) conference. Local YMCAs obtain support from a variety of sources, including government and foundation grants and corporate donations.

3-Successful methods and strategies: Activate America is a two-pronged approach that focuses both internally and externally. Internally, innovative YMCAs are adapting to the changing needs of their members and communities. Through changes in programming, staffing, and the physical environment, these YMCAs are seeking to foster and support sustained relationships with individuals and families who want to experience greater total health and well-being. As a result, members are becoming more engaged and are having better success reaching their goals.

The external work focuses on how YMCAs can work in communities to remove barriers to healthy living. This work consists of the Healthier Communities Initiatives and the Community Healthy Living Index, a comprehensive tool to help communities assess opportunities for healthy living in a variety of settings, including worksites, schools, neighborhoods and communities.

4-Family and community involvement: Millions of families participate in YMCA programs. Through Activate America, YMCA's are uniting with the public and private sectors in developing and replicating evidenced-based programs that will strengthen the health of America's kids, families and communities. In 2008, Y- USA developed Healthy Family Home, which helps families create a healthier home environment. In addition 720 YMCAs offer family exercise programs. In 2009, the Harvard School of Public Health created the *Food and Fun Afterschool Curriculum* for YMCAs. *Food and Fun* is a nutrition and physical activity curriculum designed to encourage children and their families to develop healthy eating habits and the desire to lead active lives.

5-Program duration: In 2004, Y-USA launched Activate America, the YMCA's response to our nation's growing chronic disease crisis. Currently more than 500 YMCA's are participating in the Activate America process.

Y-USA launched the Healthier Communities work, a component of Activate America, in July 2004. With support from the CDC and corporate and foundation donors, Healthier Communities Initiatives drive policy, structural, and environmental change in communities to promote healthy lifestyles. Thirteen communities were announced to lead this project for the first year (2004). In 2005, 20 communities were initiated, another 13 in 2006, and 18 new communities were selected in 2007. In 2008, 17 new YMCAs and their communities were selected, bringing the total number of communities to 81. Another 31 YMCAs will be selected over the summer of 2009.

In addition, 20 communities participate in Action Communities for Health, Innovation, and EnVironmental ChangE (ACHIEVE), a project launched in 2008 to support local health departments (LHD) and YMCAs advance community leadership in the nation's efforts to prevent chronic diseases and related risk factors. ACHIEVE was inspired, in part, by Y- USA's Healthier Communities work. ACHIEVE is meant to build on the success of PHC as well as formalize the relationship between YMCAs and local/state health departments. ACHIEVE is supported by the National Center for Chronic Disease Prevention and Health Promotion at the CDC.

6-Technical assistance support: Y-USA provides technical assistance and support to YMCAs for both the internal change process as well as the Healthier Communities Initiatives. Activate America receives expert advice from Harvard School of Public Health and Stanford University School of Medicine

Expert advisors for the Healthier Communities Initiatives include Action for Healthy Kids, Active Living by Design, Alliance for a Healthier Generation (AFHG), American Hospital Association, American Planning Association, Centers for Disease Control and Prevention, Director of Health Promotion Education (DHPE), Food Research Action Center, National Association Chronic Disease Directors (NACDD), National Association of County and City Health Officials, National League of Cities, National Park Service (NPS), National Recreation and Park Association, Partnership for Prevention, Robert Wood Johnson Foundation, Save the Children, Society for Public Health Education (SOPHE), Stanford Prevention Research Center, and Trust for America's Health (TFAH).

In turn, Y-USA provides technical assistance to local YMCA's.

7-Operating costs: On average, operating costs for the work of Activate America that focuses on internal transformation have been $3 million per year over the last three years.

The external Healthier Communities work is carried out through a cooperative agreement with the CDC. Through this agreement, Y-USA receives several million dollars per year (approximately $3 million), to carry out two separate healthy community initiatives (PHC and ACHIEVE). Y-USA also was awarded $6.8 million over five years from the Robert Wood Johnson Foundation in 2008 to take its healthier communities work to a state-wide level in six of the states that have the highest childhood obesity rates. YMCA's participating in the Healthier Communities Initiatives often raise money locally to help implement their plans. Local Y's are autonomous and have their individual budgets and operating costs.

8-Staffing levels: There are about 300 staff members at Y-USA with 29 full time staff dedicated to Activate America and 31 part time staff from local YMCAs. Each YMCA that participates in both the internal and external work also designates individuals to work in these initiatives. Overall, YMCA's employ about 20,000 full time staff with tens of thousands more part-time staff and more than a half million volunteers.

9-Organizational structure: Y-USA has a core central staff that provides support to local YMCAs. This staff works on the internal change process and with those communities who are selected to join the Healthier Communities Initiatives. The local Y's have autonomy to shape their plans to reflect community needs.

10-Measurable outcomes: Y-USA seeks to evaluate the effectiveness of its work. It is difficult to measure initiatives that drive behavior change. It also generally takes time to identify specific health outcomes. Because the focus of the Healthier Communities Initiatives is policy and environmental change, it also takes longer to see an impact.

Communities currently participating in PHC and ACHIEVE have had success in influencing built environment programs such as community walking and pedestrian safety, plus access to fresh fruits and vegetables, and improving physical education requirements in schools.

One tool Y-USA is using to help communities measure outcomes is the Community Healthy Living Index. This is an assessment tool developed by Y-USA in collaboration with experts from Stanford Medical School, Harvard School of Public Health, and Washington University. It helps communities assess opportunities for physical activity and healthy nutrition in a variety of community settings and allows communities to create an action plan to address gaps. Communities can assess and reassess at regular intervals to measure progress.

Another measure of positive outcome is the steady significant rise in the number of local YMCA's participating in the program. Gaining additional CDC and RWJ support provides credence that two major National funding sources believe the program is worthwhile.

Model #3 A State Model:
Rhode Island: KIDSNET

Overview: Currently, no State has developed a comprehensive anti-obesity program, if a comprehensive program is defined as combining five components (see Overview above). States are generally in early stages of long-term campaigns.

In this context, Rhode Island has an Initiative for Healthy Weight that has partnered with KIDSNET, an integrated child health information system housed in the Department of Health. This type of program should be considered an essential component of a comprehensive obesity program because it can help provide surveillance and facilitate provider interventions.

KIDSNET is Rhode Island's confidential, computerized child health information system. KIDSNET serves families, pediatric providers, and public health programs like the Immunization Program and WIC (Special Supplemental Nutrition Program for Women, Infants and Children). The purpose of KIDSNET is to help make sure that all children in Rhode Island are as healthy as possible by getting the right health screening and preventive care at the right time. KIDSNET also serves as Rhode Island's childhood immunization registry. KIDSNET started collecting information from all births in Rhode Island on January 1, 1997. KIDSNET also obtains information about children born out of state if they see a Rhode Island participating doctor or receive services at a KIDSNET participating program.

About 13,000 children are born in the state every year. As of June 2009, KIDSNET had information from 287,489 children in the system.

Since 2000, preventing obesity and related chronic diseases has been a priority for the Rhode Island (RI) Department of Health. Rhode Island was one of the first six states to receive funding from the U.S. Centers for Disease Control and Prevention (CDC) to develop a coordinated obesity prevention infrastructure. The Department of Health started the Initiative for a Healthy Weight (IHW) program to lead the state in making it easier for Rhode Islanders to eat smart and move more.

1-Collaborations/Partners: The Department of Health Initiative for Healthy Weight has collaborations with the RI Public Health Association and the New England Coalition for Health Promotion and Disease Prevention (NECON), to specifically address the obesity epidemic in Rhode Island. The NECON/Harvard School of Public Health Strategic Plan for the Prevention and Control of Overweight and Obesity in New England was chosen as a model for the nation at the National Obesity Action Forum on June 5-6, 2006, in Bethesda, Maryland. Over 100 experts worked on task forces for this report.

KIDSNET, the data collection component of the IHW, at this time does not focus specifically on obesity. However, KIDSNET participates in a learning collaborative run by the Public Health Informatics Institute that brings together states and jurisdictions working to integrate child health information. Through this group, the Department of Health has begun work toward establishing national standards for the electronic exchange of height, weight and body mass index (BMI).

KIDSNET facilitates the appropriate sharing of data with providers, parents, and other child health programs and preventive health services. A key collaboration is the linkage with the Federal WIC program for pregnant mothers and children through age five. WIC has been shown to be among the most cost effective programs saving substantial Medicaid outlays and promoting future optimum human capital beginning with children at birth. Besides WIC, other collaborators who have access to KIDSNET include home visitors, Head Start and preschool nurses, and school nurses.

2-Funding sources and sustainability: Sustainable funding for KIDSNET has been explored by the Rhode Island Department of Health, including consultation with a health economist at the CDC. The key funding sources are the Federal Immunization Program and two state accounts (immunization and newborn screening) that restrict use of some funds for general KIDSNET use. Maternal Child Health programs that participate and benefit from KIDSNET, including the Initiative for Healthy Weight, also contribute funding for system maintenance and development that supports programmatic needs. Non-categorical funding is considered essential for ongoing sustainability.

3- Successful methods and strategies: A major component of the KIDSNET program is the comprehensive data base of all children in the State. All good public health programs strive to have a reliable denominator and KIDSNET now has that for all children since 1997. Further, because of the WIC data partnership component, most low income children can be identified.

The Rhode Island program can identify child weight at birth, can monitor change in height and weight for children in WIC, and has the potential to allow for continuing monitoring of all children. More importantly, pediatric providers and family practitioners who see children have access to the data in KIDSNET. They are able to access WIC, immunization, and other preventive health data. The vast majority of pediatricians are program partners.

The Initiative for a Healthy Weight (IHW) focuses on policy and environmental change to make healthy eating and active living easier for all Rhode Islanders. IHW works in multiple settings.

Community Settings: IHW works closely with communities to identify assets and barriers to healthy living and provides technical assistance and training to help communities develop and advocate for policy and environmental changes. A recent success was increasing the number of stores in two low-income communities that accept WIC vouchers. As a result, fruits and vegetables, whole grains, and low fat dairy products are now more readily available under the new WIC food package.

School Settings: IHW works closely with the Healthy Schools Coalition on state-level school policy change initiatives. Legislative successes include the passage of a healthy snacks and beverages law which requires that school vending and a la carte provide only water, milk, 100% juice, and foods that meet certain nutritional criteria and a new law that requires that schools implement physical education in line with evidence-based curriculum standards.

Healthcare Setting: IHW has partnered with Hasbro Children's Hospital to pilot a project which will enhance pediatricians' ability and confidence in identifying, counseling, and appropriately referring

patients who are overweight or obese. Tools such as BMI charting may be integrated into the KIDSNET system to assist pediatricians.

With this solid foundation, RI has moved to implement the award winning NECON Strategic Plan.

4-Family and community involvement: KIDSNET serves families, providers, and public health programs. The Rhode Island Department of Health has a long history of engaging parent consultants in program development through a Parent Consultant Program currently administered by the Rhode Island Parent Information Network. Parent consultants were involved in the early and ongoing development of KIDSNET and remain available to both KIDSNET and the IHW. WIC, which currently covers over 25,000 in Rhode Island, specifically serves pregnant and postpartum mothers. WIC offers several family centered educational programs and materials. These include several nutrition educational services jointly used by WIC and Head Start, early childhood reading programs geared for WIC, and state sharing of infant/child health and nutrition resources. Further, WIC statutes mandate parent involvement.

5-Program duration: The first building block for the KIDSNET program began in 1997 with the establishment of the data collection. The integration of the current multiple building blocks for a comprehensive obesity prevention program is under development. IHW was developed from 2002 through 2004 and has established several measurable outcomes. The partnership between IHW and KIDSNET formally began in 2009 with a long term goal of electronic collection of height and weight data on children.

6-Technical assistance support: KIDSNET was developed by outside technical vendors. Current technical support including maintenance, data base administration, and new development is a responsibility shared by an outside technical vendor specializing in public health information technology and informatics (HLN Consulting) and the State of Rhode Island Division of Information Technology. Further technical support has been provided by colleagues in other states through the Connections Community of Practice learning collaborative facilitated by the Public Health Informatics Institute.

7-Operating costs: The roughly $1 million operating costs of the program are integrated into the operating budget of the State Department of Health from a variety of funding streams, both state and federal. Because KIDSNET serves as Rhode Island's immunization registry, a significant portion of funding comes from federal support through the Immunization Program. State vaccine accountability funds (assessed from insurers) provide another significant funding stream. Other federal grants, such as the U.S. Centers for Disease Control's Early Hearing Detection and Intervention and the U.S. Department of Health and Human Services State Systems Development Initiative, also contribute to KIDSNET. A small portion of funding also comes from the state newborn screening budget.

In addition, CDC provided funds to the State Department of Health to build the IWH program. IHW provides funding to KIDSNET to develop the capacity to collect, report, and disseminate height, weight and BMI data.

8-Staffing levels: The State Department of Health includes 9 staff persons to administer the KIDSNET program, with an additional four contract employees. An IT consultant provides maintenance, data base administration, and development support for four employees. In addition, there are four IHW staff persons focusing on obesity prevention.

9-Organizational structure: The IHW is part of the Division of Community, Family Health and Equity, the division that houses the maternal and child health programs including WIC. KIDSNET is part of the Center for Health Data and Analysis, a unit of the State Department of Health that supports data, epidemiology and information needs for the department.

10-Measurable outcomes: The Department of Health has developed an electronic exchange of height, weight, and body mass index (BMI). This work is now being proposed as a national standard. In 2001, Rhode Island established the Initiative for a Healthy Weight (IHW). The program established Goals and Strategies; including long term, intermediate term, and short term objectives. Long term goals were set for 2012 and intermediate were set for 2010. Short term goals were set for areas such as nutrition, physical activity, and breast feeding; including objectives for schools, communities, and health care. The results should provide quantification measurements of programs underway.

Model #4 A State Local Model
Healthy Kids – Las Cruces:
A community wide obesity prevention project in Las Cruces, NM

Overview: The New Mexico Department of Health (DOH) is piloting a community wide childhood obesity prevention effort in partnership with the City of Las Cruces, local stakeholders, and eight state government departments. *Healthy Kids Las Cruces* connects and builds on a cross-section of community and state efforts to motivate children and youth to eat healthier and be more physically active.

Healthy Kids Las Cruces puts the New Mexico Plan to Promote Healthier Weight into practice. First, it focuses its efforts on behavior outcomes identified in the plan: 1) increase physical activity; 2) increase fruit and vegetable intake; 3) increase breastfeeding; 4) reduce TV and other screen time; 5) reduce sweetened beverage consumption; and 6) and reduce portion sizes. Second, it places special emphasis on efforts targeted to low-income populations, especially those accessing the Food Stamp Program, TANF, Social Security, and private food assistance networks. Third, its intervention model adheres to the plan's socio-ecologic perspective.

Healthy Kids Las Cruces focuses on creating healthy environments in five community settings: the built environment, the educational system, food system, healthcare system, and families and community.

<u>The five year vision for each setting is listed below:</u>

1. Built Environment: Create a safe, accessible, and adequate Las Cruces infrastructure that expands opportunities to increase physical activity and promote healthy eating in the built-environment for children, youth, and families.

2. Educational System: Create an environment where LCPS students have the opportunity to participate in daily physical activities, make informed and healthy choices in selecting food items from school vending machines and in the cafeteria line, and are exposed to fresh fruits and vegetables in schools.

3. The Food System: Create a Las Cruces community where healthy foods are more available, accessible, affordable, marketed, and demanded by consumers, especially low-income consumers. Healthy foods are defined as nutrient-dense, locally produced, minimally processed, humanely raised, and/or seasonal.

4. The Healthcare System: To create a system in which the children, youth, and families of Las Cruces understand, have access to, and utilize health maintenance and wellness education services as they relate to obesity prevention.

5. Families and Community: Create public awareness on ways to eat healthfully and be active and increase opportunities and support for regular community activities that motivate children, youth, and families to be physically active and make healthy food choices.

1-Collaborations and partnerships: *Healthy Kids Las Cruces* is a collaborative state and local effort of nearly 50 local leaders representing government, education, healthcare, human and social services,

agriculture, non-profit and faith-based organizations, academia, foundations and businesses, and more than 40 state agencies in 8 state departments. Key local partners include: the Mayor's Office, the City of Las Cruces, Las Cruces Parks and Recreation, Las Cruces Metropolitan Planning Organization, Dona Ana County Cooperative Extension, Las Cruces Public Schools, La Clinica de Familia, Inc., Rio Grande Medical Group, Public Health Region 5 Office, and Con Alma Health Foundation.

Key state partners include members of the New Mexico Interagency Council for the Prevention of Obesity. Created in the fall of 2006, the DOH-lead Interagency Council is charged to 1) build greater alignment across state programs to create sustainable, consistent, and collaborative efforts and messages that increase physical activity, improve nutritional well-being, and prevent obesity; 2) partner with the private sector to strengthen and support obesity prevention efforts; 3) build community-wide obesity prevention programs; and 4) develop policies for obesity prevention. Currently, Interagency Council voting members represent more that 40 state programs across the following eight state departments: Aging and Long Term Services Department; Children, Youth, and Families; Department of Agriculture; Department of Health; Department of Transportation; Energy and Natural Resources; Division of State Parks; Human Services Department; Indian Affairs Department; and the Public Education Department.

In addition, the Interagency Council has five affiliate (non-voting) member organizations: the New Mexico Healthier Weight Council, NMSU Cooperative Extension Services, NM Food and Agriculture Policy, Envision, and American Heart Association.

2-Funding sources and sustainability: In November 2007, DOH was awarded a $100,000 grant from the National Governors Association. This funding provided the seed money to begin building a coordinated and comprehensive state-wide childhood obesity policy agenda. About $40,000 of the NGA funding was used as start-up money for *Healthy Kids Las Cruces*. *Healthy Kids Las Cruces* continues to sustain itself since DOH, the City of Las Cruces, the Las Cruces Public School District, community leaders and the New Mexico Interagency Council have agreed to continue their support and to expand *Healthy Kids Las Cruces.* There is no indication that stakeholders support is weakening. In fact, the *Healthy Kids Las Cruces* model is being replicated in Chaves County, New Mexico. Further, Las Cruces stakeholders have agreed to act as mentors to the Chaves County effort.

3-Successful methods and strategies: There appear to be four key structural elements that lead to *Healthy Kids Las Cruces'* success:

High-level State Leadership: The New Mexico Interagency Council for the Prevention of Obesity reports to the Health and Human Services Cabinet Secretaries and the Director of the Interagency Council resides in the Office of the Secretary, DOH. This gives the director authority to move across divisions and bureaus in DOH and across different Health and Human Services Departments. The result is a unified vision for *Healthy Kids New Mexico* and an increased number of collaborative efforts and sharing of resources to create healthy environments.

A Strong Local and State Collaborative: Both state and local leaders were included from the beginning to work collaboratively in the development and implementation of the program. In December 2007, DOH helped develop a five year vision, goals, and action plan. Together state and local leaders set priorities for the first year *Healthy Kid Las Cruces* was launched in April 2008.

A Model of Process: The *Healthy Kids Las Cruces* model creates a process in which a diverse group of local leaders, in partnership with state partners from the NM Interagency Council, connected and built on a cross-section of local and state efforts to create healthy environments to motivate children. Local determination rather than imposing a pre-determined set of activities likely will result in better and more enduring participation by community members.

The state has established the overall framework and process for the development. Two state criteria guide local leaders in this development. One, efforts require increased healthy eating or physical activity behaviors. Two, the plan requires at least three community settings selected from: built-environment, community at large, education, food system, healthcare system, and workplace.

A Coordinating Mechanism: A positive program component is coordination from DOH's Public Health Regional Office in Las Cruces. The Las Cruces regional director commits resources and staff time to build, support, and coordinate the activities identified in the action plan. The Health Promotion Team becomes the nerve center tracking the progress of activities, keeping groups on task, building cooperation and synergy across groups, and at times providing staff or resources to activities requiring additional support.

4-Family and community involvement: The focus of *Healthy Kids Las Cruces* is to build family and community engagement in multiple Las Cruces settings. These include: The Mayor's Fitness and Nutrition 5-2-1-0 Challenge. To meet the challenge elementary students must daily eat at least 5 fruits and vegetables, spend no more than 2 hours watching TV or playing video and computer games, get at least 1 hour of physical activity, and eliminate sodas from their diet.

Passport to Health: Children are encouraged to participate in activities that support healthy eating, physical activity, and learning. Their passports are stamped once they've completed a healthy activity for one hour. Walk and Roll to School events encourage children to walk, skateboard, or ride bikes to school. These efforts help to expand Safe Routes to School.

Family Events at Schools: For example, Conlee Elementary sponsors, with over 2 dozen community organizations, several community events promoting healthy behavior.

5-Program duration: *Healthy Kids Las Cruces* was initially funded with about $40,000 seed money from an NGA grant awarded to the Department of Health in November 2007. The initiative has continued to operate and expand without any new funding. DOH was just awarded a four year CDC grant in which a part will be used to provide additional resources to *Healthy Kids Las Cruces* and expand the initiative to other communities.

The model is currently being replicated in Chaves County New Mexico and CDC funds will be used to assist Healthy Kids Chaves County start-up. DOH will likely request state funds to continue its Healthy Kids Healthy Communities' efforts and replicate the model in other parts of the state and in tribal communities.

6-Technical assistance support: State level technical support is provided from more than 40 state agencies that are represented in the NM Interagency Council. In addition, DOH's Las Cruces office, as well as the local partners, provides additional technical support.

7-Operating costs: The first year operating cost was about $40,000 from an NGA grant to hire college and graduate school nutrition and physical activity students plus in-kind contributions of staff time from state agencies and local groups. Based on a conservative estimate of key partners in-kind time and effort there was more than a four fold return on the $40,000 investment.

8-Staffing levels: Except for the hiring of the students, DOH did not hire any additional staff to launch the effort. Much of the effort was contributed by existing DOH staff. Over time, job responsibilities had to be re-prioritized to support *Healthy Kids Las Cruces.* The new CDC grant which begins July 1, 2009 will provide funding for one to two staff members to support the initiative in Las Cruces and one staff member in Chaves County.

9-Organizational structure: DOH's Region 5 Office is the current lead agency of the implementation in Las Cruces. The Regional Director dedicated resources and staff time to build, support, and coordinate the community-led activities identified in the first year action plan. The Health Promotion Team has become the nerve center tracking the progress of activities, keeping groups on task, building cooperation and synergy across groups, and providing staff or resources to activities requiring additional support.

10-Measurable outcomes: The program has established several goals. One is structured upon school evidence based programs (primarily the CATCH program) that have been deemed effective. Initial results have shown students improve muscle strength, and physical activity (14%). First year results showed a three percent cardiovascular improvement among second, third, and fourth graders. In fifth graders, there was a 5.5 percent improvement in fitness knowledge and a 6.5 percent increase in positive attitudes toward fitness. Additional specific evidence for the success of this effort is not yet available.

The program has produced several positive outcomes. These outcomes include an estimated four-fold leveraging of the $40,000 initial investment, an increase of new programs at Conlee School and its community, active involvement in the Passport to Health program and an educational website, plus several Built Environment programs (eg. over 12 walking trails).

The school program now provides fresh food to over 7,000 children, recess before lunch has increased, and edible gardens have been created. Plus wellness, a new course and a fitness-nutrition market have been initiated. Food system enhancements include cooking demonstrations, local farmer's markets, and

a community garden. Healthcare services include obesity training sessions for pediatricians, nurses, school-based health center staff, and other health care personnel.

Model #5 An Operating Foundation:
The Nemours Child Care Collaborative

Overview: In Delaware, 29% of children between the ages of two and five are already overweight or obese. With 54,000 children enrolled in licensed child care programs, these programs offer unique opportunities to provide both a healthy environment throughout the day while children are in the program, as well as a way to offer educational materials and support to families to encourage healthier behaviors when children are at home. In order to combat the growing childhood obesity epidemic, Nemours Health and Prevention Services (NHPS) has taken a multi-level approach to implementing policy and practice changes that will support young children in licensed child care settings to eat healthier meals, reduce their amount of screen time, and participate in moderate to vigorous physical activity.

1-Collaborations and partnerships: NHPS has worked with the Office of Child Care Licensing (OCCL) to include regulations that affect all licensed child care; center based, family, and after school. The objectives are to reduce sedentary behavior and promote healthy eating and physical activity.

NHPS and the Delaware Child and Adult Care Food Program (CACFP) have collaborated to adopt nutrition regulation changes for new best practice standards and polices for the State of Delaware. NHPS and CACFP co-authored *Best Practices for Healthy Eating: A Guide to Help Children Grow Up Healthy,* which was disseminated through NHPS training with all of the CACFP Sponsors in 2007 and again in 2008. As of July 1, 2008, the CACFP implemented regulations governing nutrition that have been adopted by OCCL.

NHPS has worked to integrate healthy eating, physical activity, and screen time reduction to reach all child care providers where they are trained and educated. These include state regulatory agencies, community organizations, and state community colleges.

It was found that classroom teachers needed activities for their lesson plans to engage the children in learning about healthy foods, and they needed activities to involve children in moderate to vigorous physical activities in meaningful ways. With the needs and challenges of the classroom teacher in mind, NHPS worked the Sesame Workshop, by the creators of Sesame Street, to produce a tool kit of activities for the three-five year old classrooms. NHPS works with University of Delaware faculty to develop activities for infant and toddler classes. Videos produced for the Learning Collaborative motivate providers about the urgent concern of children's obesity, and provide examples of the power of role modeling by child care staff when they engage children in family style meals or lead vigorous but fun physical activities. These tools include the Sesame Street Toolkit, *Healthy Habits for Life.*

2-Funding sources and sustainability: NHPS is a division of Nemours, one of the nation's largest pediatric health systems, operating the Alfred I. duPont Hospital for Children and outpatient facilities throughout the Delaware Valley and northern and central Florida. Nemours mission is "To provide leadership, institutions, and services to restore and improve the health of children through care and programs not readily available, with one high standard of quality and distinction regardless of the

recipient's financial status." Overall, Nemours employs 4,100 professionals with an endowment of over $3 billion.

NHPS was established to develop new approaches to children's health as a long-term endeavor for Nemours. Operating Children's hospitals and health systems, Nemours also uniquely incorporates advocacy and community outreach components to their mission. This includes an expansive and sustained investment in children's health promotion at the population level.

NHPS' vision is optimal health and development for all children, with an underlying premise that the systems that care for, educate, socialize, and support children must evolve to achieve this vision. The first health issue on the NHPS agenda is childhood overweight and obesity. The funding for NHPS is predominantly internal and appears sustainable.

3-Successful methods and strategies: To combat childhood obesity, NHPS attempts to integrate the complex interplay between children and the touch points in their lives. These include their parents or caregivers, health care providers, community entities such as schools and child care programs, and societal factors, such as the built environment and access to healthy food. Nemours chose four settings — schools, childcare, community/youth-serving organizations, and primary care —as focus areas because they are where children spend much of their time and where there are opportunities to transfer health information appropriate to the setting. By focusing on improving healthy eating and physical activity practices in a variety of community settings, NHPS increases the likelihood that children are exposed repeatedly to prevention initiatives and that behavior change will ultimately result. Nemours is convinced that this broad-based approach is more likely to be successful and sustainable over time than any single intervention. To support its community partners, NHPS provides a range of activities including coalition building and collaborative learning opportunities, toolkits, curricula and policy updates.

NHPS' strategy is optimal health and development for all children, with an underlying premise that the overall system that cares for, educates, socializes, and supports children must change to achieve this vision. OCCL regulations reflect the *5-2-1-Almost None* formula. The approach includes:

- For every three hours a child is in a program, 20 minutes of moderate to vigorous physical activity will be planned and implemented.
- While awake, infants are limited to 30 minutes of time spent in swings, strollers, and other confining equipment.
- Use of TV, videos, video games, etc. is prohibited for children under age two and limited to no more than one hour for older children. Parent permission is required for use.
- Nutritional standards are met such as use of water, low-fat milk, no sugar-sweetened beverages, whole grains, fruits and vegetables.

These regulatory changes supported by NHPS for Delaware licensed child care facilities have resulted in significant healthier nutritional standards, mandated time for moderate to vigorous physical activity, and reduced screen time. Revisions were made to center based, afterschool, and family-based care.

4-Family and community involvement: NHPS takes a leading role to help people understand the causes and health implications of obesity and the best ways to promote healthier lifestyles among children and families.

The child care programs help children and their families establish healthy habits. Child center programs implement individualized action plans tailored to the needs of the children and their families. For example, Delaware Tech Child Development Center specifically engages parents in promoting healthy eating by requiring that a child bring a healthy, packed lunch. Parents are invited to participate in center activities. Family events including family farmer markets have also been established.

5-Program duration: The Alfred I. duPont Testamentary Trust was established in 1935. NHPS was created over five years ago and reaches over 100,000 children in Delaware with messages of healthy eating and physical activity. NHPS sees its role as one of a catalyst, "planting the seeds for better health" by working with community partners to reach children in a variety of settings through policy and practice changes. NHPS is incorporated within Nemours, so that the NHPS program initiatives are likely to continue.

6-Technical assistance support: Beginning in 2005, NHPS staff worked with four large child care centers that served as pilot sites for the healthy eating and physical activity model. From the knowledge gained from this pilot, a learning collaborative model was developed and implemented to incorporate a blended technical assistance system. Leaders from these four pilot sites now serve as faculty and mentor 28 new programs serving children and families across Delaware.

NHPS' five-session, 12 month collaboration model provides knowledge and a wider network within the child care community, support for engaging staff, effective tools for training within each center, and empowers leadership teams by offering a blueprint for change.

NHPS has worked to highlight the importance of healthy eating, physical activity, and screen time reduction to reach all child care providers, specifically:

NHPS recognizes that programs need tools that they can readily use to make changes in their child care environments. In some cases, center directors needed sample policies to incorporate into their parent handbooks.

- NHPS provides technical assistance to the child care centers through the learning collaborative model with a blended technical assistance system to support increasing knowledge and planning for healthy change;
- NHPS works with state regulatory agencies to include healthy eating and physical activity in CACFP sponsored trainings, required OCCL orientations for new providers, and required basic certification programs;
- NHPS collaborates with state community colleges to include healthy eating and physical activity in required classes for degree programs.

7-Operating costs: The costs for undertaking and maintaining the obesity programs are included in the operating budget of Nemours. NHPS has also received limited outside funding.

8-Staffing levels: NHPS has a total staff of approximately 80 professionals. NHPS staff is geared to gather information regarding evidence-based programs and provide the information to child health professionals, physicians, educators, legislators, advocates, and the public to help them incorporate positive changes to prevent childhood obesity. With respect to Delaware child care centers, NHPS staff provides direct, hands-on technical assistance, contributes significant time to help establish center initiatives, strategies, goals, and structure, and helps to advocate for targeted policy and practice changes that will support high impact interventions and sustainability.

9-Organizational structure: Nemours is a not for profit operating Foundation. NHPS, a division of Nemours, is focused on child health promotion. NHPS has concentrated associate work in the four sectors where children live, learn, and play—child care, primary care, school, and the community—to impact the greatest number of children, with high impact sustainable strategies, in the shortest amount of time. NHPS works with over 200 community partners in order to change the health status and well-being of children.

10-Measurable outcomes: NHPS is utilizing the Delaware Survey of Children's Health (DSCH), a population-based survey that draws upon a representative sample of Delaware households with children through age 17. The survey provides important information on parents' attitudes, knowledge, beliefs, behaviors, and perceptions regarding health issues surrounding healthy eating, physical activity and other aspects of children's health including height, weight, and body mass index (BMI). The survey allows NHPS to analyze the changes to this knowledge, belief, and perception for children in child care and is expected to create new outcome measurements.

NHPS has been involved in a series of direct observations of child care centers to measure how well the new policy and practice changes are being implemented. Through these observations success was noted in three major areas:

- Knowledge: More centers are recognizing the problem of obesity and the impact on the positive trajectory for development by implementing healthy eating and physical activity and concepts of "sometime" or "anytime" foods to the center and staff personal lives.
- Food selection changes: Increased use of soy and wheat products and meatless meals with protein; less juice; more water; and better informed food shopping by reading labels.
- Increased physical activity: More outside, free play time; more activity in the classroom with sessions before lunch, yoga before naps, music and movement.

Model #6 A Municipality-Somerville
Shape Up Sommerville:

Overview: Shape Up Somerville (SUS) is a comprehensive city wide campaign to increase daily physical activity and healthy eating through programming, physical infrastructure improvements, and policy work. Somerville appears to be among the most advanced and sophisticated Built Community effort in the Country. The SUS campaign targets all segments of the community, including schools, city government, civic organizations, community groups, businesses, and other people who live, work, and play in Somerville. There is a Coordinator and Director working on active and healthy living programs supported by the Health Department and a Taskforce that is a collaboration of over 11 initiatives and 25 stakeholders involved in working on various interventions across the city.

The program appears to be fully grounded with several components operating simultaneously. There is a firm commitment to outside independent program evaluation to determine what is working well and what needs to be changed or abandoned. The task force structure allows for continuous development of new initiatives. Key future opportunities exist by involving physicians, nurses, WIC, and children zero to five. Shape Up Somerville's target population with the *Healthy Kids, Healthy Communities* grant is 3-18 years old.

1- Collaborations and partnerships: The program began in 2003 funded by the Centers for Disease Control and Prevention, (CDC). Shape Up Somerville: Eat Smart. Play Hard was a 3-year (2003-2005), environmental change intervention designed to prevent obesity in culturally diverse, high-risk, early-elementary school children; essentially for 1st to 3rd graders. The focus was before-, during-, and after-school environments, interventions were focused on increasing the number of physical activity options available to children throughout the day and on improving dietary choices. In addition, several collaborations have been initiated including arrangements with four city agencies and Tufts University. The partnership included Groundwork Somerville and the Massachusetts Alliance of Portuguese Speakers.

2-Funding sources and sustainability: The program received an RWJ grant ($400,000) in 2008. In 2003, Somerville received a 5-year Active Living by Design grant to promote physical activity through partnership and planning. Tufts University received a substantial 5 year grant that served to design the SUS undertaking. In 2007, The Institute for Community Health (ICH) undertook a 2-year case study.

SUS has a Department of Health Staff Coordinator and Director which generally means the program is now incorporated into ongoing city functions and should be sustaining.

Somerville active living efforts have learned to cultivate opportunities for sustainability that do not cost money but do demand staff time and flexible institutional leadership to support them.

3-Successful methods and strategies: SUS is based on a successful evidence community-based environmental approach to obesity prevention. Interventions take place in various settings such as

before, during, and after-school as well as the home and community to reach children throughout the day. The program is built upon several initiatives.

These include:

- School Food Service
- Teachers teaching and-School Curriculum
- After School programs using a new curriculum
- Parent, City Employee, and Community Outreach
- Restaurants
- Walkability and Safe Routes to School
- Extension of the Community Path
- Master Planning and Complete Streets
- Transit Oriented Development with light-rail trains (2010-2016)
- School Nurses and Pediatricians
- Policy Initiatives
- Farmers markets and community/school gardens.

In addition, a comprehensive wellness policy has been adopted and numerous task forces have been created. One task force focuses on children below age 5. Another is a WIC outreach initiative including nutrition education and awareness. Plus there is a public health education messaging task force.

The Active Living by Design (ALbD) partnership successfully collected assessment data and secured financial and in-kind resources to increase infrastructure and support for active living.

4-Family and community involvement: Families are involved in a variety of outreach ways. Newsletters are sent home. Parent forums are held in four languages. There are a number of community events, plus local media outlets, health tips, family events, parent-teacher sessions, and healthy food coupons.

Community activities include farmers markets, physician and nurse training, plus several community coalitions.

5-Program duration: The program has been operating for seven years and appears firmly grounded. The program is entrenched in the City Department of Health.

6-Technical assistance support: SUS receives ongoing significant technical assistance from Tufts University, CDC, and RWJ among others especially to continue to evaluate program outcomes. Shape Up is also supported by the State's Department of Public Health.

7-Operating costs: The City Health Department has a coordinator and director. There are other operating costs associated with food stamp outreach, equipment at farmer's markets, and expenses for a grant writing team to seek outside funds. There are significant in-kind contributions especially from task force participants. Extended partners also share project resources in the form of grants and funding support managed outside the Health Department.

8-Staffing levels: The City Health Department has a Coordinator and Director. The City budget also added a bike/pedestrian coordinator. The Schools and Parks Department provides significant resources to the program.

9-Organizational structure: Somerville operates the SUS program. The task forces have at least 11 program components coordinated by the City. These include programs for WIC (nutrition education and awareness) and public health education messaging. Overall SUS has several partner organizations particularly related to the "Built Environment" initiatives. In addition to several city agencies, partners include the YMCA and the Boys and Girls Club of Middlesex County. In the area of Food Systems there are a number of partner Farmers' Markets as well as Shape Up approved restaurants.

10-Measurable outcomes: A significant proportion of program students moved out of the overweight category measured against comparable demographic communities. They gained weight at a slower rate than the control population. A 2007 published study compared three different populations of first through third graders. Students in the intervention group had significantly lower BMI's than the controlled group. Subsequent studies have found lower levels of obesity when compared with similar populations. On average, Somerville students were gaining a pound less per year, when compared to a control population.

Model #7 A Nonprofit Organization: The Food Trust
A Philadelphia Schools Initiative, Plus More

Overview: The Food Trust is a Philadelphia-based nonprofit organization whose mission is to ensure that everyone has access to nutritious, affordable food. Since its founding in 1992, The Trust has become a regional and national leader in developing innovative programs to reduce the burden of childhood obesity and other diet-related diseases in underserved communities. With a staff of 65 full-time employees, the organization provides programs and services to increase access to nutritious food in underserved areas, educate children and adults about the importance of healthy diets, and build sustainable communities where everyone has access to healthy, affordable food. Recognizing that underserved urban areas are most challenged by problems of food access and poor nutrition, the Trust targets its programs primarily to low-income, inner-city residents. The Trust primarily serves residents in the Greater Philadelphia area, but several Trust programs have become national models that are expanding to other states. The Trust provides consulting and technical assistance to nonprofit groups and other organizations nationwide.

The Trust's core programs include: the School Nutrition Education Program, which provides classroom nutrition education and healthy eating activities for about 50,000 students in 100 schools in the Philadelphia area; the Farmers' Market Program, which operates a network of 30 farmers' markets, mostly in low-income neighborhoods; the Kindergarten Initiative, which works with young children to encourage healthy eating habits and understanding of nutrition and agriculture; the Healthy Corner Store Initiative, which works with urban youth and corner store owners to sell fresh food and healthy snacks in urban bodegas; the Supermarket Campaign, which encourages supermarket development in underserved areas; the Regional Farm-to-School Network, which provides support to starting farm-to-school programs in the six-state area; and the Recreation Center Program, which provides nutrition education in afterschool and summer camp programs for urban youth.

1-Collaborations and Partnerships: The Food Trust achieves its mission through collaborations with diverse stakeholders, including school districts, teachers, government agencies, public health professionals, emergency food providers, public officials, urban planners, and health researchers. With its partners, The Food Trust has become a leading advocate for public policy changes to assure that children have access to affordable, nutritious food, and education about making healthy food choices. For example, The Trust spearheaded major policy reforms leading to significant improvements in the nutritional quality of beverages and snacks served to the 217,000 students in the School District of Philadelphia. The Trust formed the Philadelphia Coalition for Healthy Children. As a result of this effort, the School District of Philadelphia adopted one of the nation's toughest anti-soda bans, replacing sugary soft drinks in school vending machines and cafeterias with low-fat milk, water, and 100% fruit juices. The Trust also created and led the Comprehensive School Nutrition Policy Task Force, a coalition of more than 40 groups and individuals who developed nutritional standards for school snacks and beverages. This policy has been adopted district-wide, and now snacks served in Philadelphia public schools must meet strict nutrition standards for fat, sugar, and sodium.

2-Funding sources and sustainability: With an annual operating budget of approximately $5.2 million, The Food Trust has a diversified revenue base that includes support from state and federal government agencies, foundations, corporations, and individual donors. Through the USDA Food Stamp Program, The Trust receives annual funding to provide nutrition education in low-income communities, including approximately 100 schools in the Philadelphia area and 32 Philadelphia recreation centers. The agency also provides consulting services nationally, which further contributes to its sustainability.

3-Successful methods and strategies: The Food Trust's core strategies include nutrition education programs for children and families, public policy work to increase healthy food access in underserved communities, and research to document and disseminate best practices. For example, the Supermarket Campaign works with industry leaders, public health experts, and civic leaders to develop public policy solutions to encourage fresh food retail in underserved communities. In Pennsylvania, this work led to the creation of the Fresh Food Financing Initiative (FFFI), a $120 million public-private partnership that promotes development of fresh food retail in underserved communities by reducing financial barriers for supermarket operators. In the last four years, the FFFI has helped develop 68 supermarkets and fresh food outlets in underserved rural and urban areas throughout Pennsylvania, creating or retaining 3,700 jobs in those communities, and providing more than 400,000 residents with increased access to healthy food.

Many of these program elements have been replicated nationwide, a testament to successful methods.

4-Family and community involvement: Trust staff members encourage parents and families to create a healthier food environment at home by learning to shop for, prepare, and enjoy nutritious foods for family meals and snacks. Trust staff members educate parents at hundreds of Back to School nights, school-wide health fairs, and other educational events, such as school field trips to local farms and special events, classroom cooking workshops and student-run School Markets, where youth prepare and sell fresh fruit salads and smoothies to parents and the school community. The Trust also reaches out to parents and family members through regular communications, such as the Kindergarten Initiative's *TastyTalk Newsletter*, which provides healthy eating news, tips, and recipes for families in this signature Food Trust program.

Most Trust programs are community-based, engaging partners such as school staff, parent groups, local businesses, and community agencies. For example, the Healthy Corner Store Initiative works with a network of 40 corner store owners in low-income neighborhoods in Philadelphia, providing them technical assistance and support to stock and market fresh produce and other healthy foods. As part of this effort, The Trust also works with more than 1,200 urban youth, engaging them in leadership activities to advocate for healthier food in their communities, such as growing produce in urban gardens to be sold at corner stores.

5-Program duration: Food Trust programs in underserved communities are ongoing in 100 public schools, 32 recreation centers, and 30 farmers' markets, ensuring consistent delivery of nutrition education and increased access to healthy food—components that are critical to comprehensive obesity

prevention efforts. The Trust has expanded the geographic scope of some programs beyond Philadelphia. For example, the Kindergarten Initiative now operates throughout Pennsylvania under the auspices of a state legislative initiative (the PA Healthy Farms, Healthy Schools Program), and, through separate funding, in parts of New Jersey and Missouri. The Supermarket Campaign operates throughout Pennsylvania under the Fresh Food Financing Initiative, which the Trust manages with its partner organizations. The Supermarket Campaign also is being replicated in New Jersey, New York, Illinois, and Louisiana.

The program appears to be evolving into more program areas and is being incorporated into initiatives nationwide. The Trust programs appear firmly entrenched and their duration seems assured.

6-Technical assistance support: The Food Trust has a non-profit consulting arm to provide technical assistance to school districts, nonprofit organizations, foundations, municipalities, and other organizations working to increase healthy food access and prevent childhood obesity. To provide guidance to others interested in program replication, The Trust has developed a number of toolkits. These free resources, available on the agency's Web site (www.thefoodtrust.org), include the Healthy Beverage Toolkit, the Healthy Schools Toolkit, the Kindergarten Initiative toolkit, and the Greening Grocery guide. Trust staff also co-author articles for professional journals and are frequent presenters at regional and national conferences.

7-Operating costs: The agency has an annual operating budget of approximately $5.2 million. The Food Trust is a 501 (c)(3) nonprofit organization and its federal 990 tax return is publicly available.

8-Staffing levels: The Food Trust has a full-time staff of 65 employees. The agency is assisted by about 20 part-time volunteers, including college and graduate student interns.

9-Organizational structure: The Trust is overseen by a 15-member board of directors. Staff members work in teams to implement the school-based Nutrition Education Program, Farmers' Market Program, Supermarket Campaign, Healthy Corner Store Initiative, Recreation Center Program, and other programs. Management is supported by staff in finance, development, communications, human resources, and evaluation.

10-Measurable outcomes: The Food Trust is committed to developing a strong evidence base to ensure continuous quality improvement of its own programs and to disseminate best practices to others. Highlights of measurable outcomes from Food Trust programs include:

- *School Nutrition Policy Initiative:* This school-based nutrition policy and education program was shown to reduce the incidence of childhood overweight by 50%—offering a potential means of preventing childhood obesity on a large scale. The results were the culmination of a two-year study of 10 elementary schools in Philadelphia (5 intervention and 5 controls), conducted in partnership with Temple University's Center for Obesity Research and Education. The study focused on 1,349 students in grades 4 through 6, in schools where the vast majority of children were eligible for free- or reduced-price school meals. At the end of 2 years, only 7.5% of children

became overweight in intervention schools, compared with 15% of children in control schools. These results have focused significant media attention on the importance of school-based nutrition policies for reducing childhood obesity and improving students' health and educational attainment.

- *Kindergarten Initiative:* In partnership with Temple University's Center for Obesity Research and Education, the Trust conducted a randomized, controlled evaluation of the Kindergarten Initiative in six Philadelphia schools. The research findings showed the program to be highly effective in helping young children develop knowledge and skills for healthy eating. As a result of the program's strong outcomes, the Pennsylvania legislature in 2007 established the Kindergarten Initiative as the Pennsylvania Healthy Farms, Healthy Schools Program, which provides grants to schools statewide to implement similar programs.

- *Farmers' Market Program:* The Trust operates a network of 30 farmers' markets, serving an estimated 125,000 patrons annually. Market shoppers are surveyed annually using an 11-item questionnaire to measure impact on their food-shopping habits, produce consumption, and receipt of nutrition education. In a fall 2008 survey, nearly half reported increasing their fruit and vegetable intake since coming to the markets (49%) and most (65%) reported eating a greater variety of produce. Nearly half of new patrons (44%) reported trying fruits and vegetables that were new or unfamiliar to them since they began visiting the market.

- *Healthy Corner Store Initiative:* Ongoing research supports the continued development of this initiative. The original study found that about 50% of urban youth visited corner stores before school, 48% after school, and 38% both before and after school. Based on these findings, The Trust developed a campaign that includes nutrition education, youth leadership activities, social marketing, and technical assistance for corner store owners to sell and market healthier snacks and fresh foods.

However, even in schools with proven obesity-prevention programs, some children become overweight, suggesting that additional interventions are needed to prevent childhood obesity. Trust research has shown that particularly in urban neighborhoods, school-based obesity prevention programs are undermined by "competitive" foods from neighborhood stores, typically located a few hundred feet from the school's doors. For this reason, The Trust has worked actively to develop out-of-school programs to help prevent childhood obesity, such as the Healthy Corner Store Initiative, which encourages healthy food choices in neighborhood stores, and a citywide policy initiative to provide more nutritious snacks in afterschool programs.

Model #8 Consortium Model: A Children's Memorial Hospital-Consortium to Lower Obesity in Chicago Children (CLOCC)

Overview: The Consortium to Lower Obesity in Chicago Children (CLOCC) is a multi-level model for child obesity prevention. CLOCC is an obesity prevention program housed within the Center for Obesity Management and Prevention (COMP) at the Children's Memorial Research Center of Children's Memorial Hospital. It begins with the individual and expands out to the family, institutions, the community, and society. The coalition geographically covers the Chicago metropolitan area, with a focus on 10 vanguard communities. It facilitates connections among children and families, and includes researchers, public health advocates, practitioners, and communities.

1-Collaborations and Partnerships: CLOCC is a coalition with multiple partners. It has 1900 partners from over 700 organizations. It has initiated and or supported programs in 10 vanguard community areas of Chicago. A key unique operating arrangement for CLOCC is to utilize members of the Executive Committee building upon their expertise. All of the Executive Committee members serve as Co-Chairs of working groups, which are essentially collaborations. Institutions represented by these Co-Chairs include: Chicago Department of Public Health, Department of Children and Youth Services, Greater Chicago Food Depository, Northeastern Illinois University-Action for Healthy Kids and School of Allied Health Professionals, El Valor, Communities in Schools of Chicago, Children's Healthcare Associates, Chicago Children's Museum, Active Transportation Alliance, University of Illinois Department of Pediatrics and Department of Occupational Therapy, and YMCA of Metropolitan Chicago.

2-Funding sources and sustainability: CLOCC is funded by the Otho S. A. Sprague Memorial Institute, The Chicago Community Trust, The Michael & Susan Dell Foundation, The Michael Reese Health Trust, Polk Bros. Foundation, The Lloyd A. Fry Foundation, PepsiCo Foundation, Robert Wood Johnson Foundation, Children's Memorial Hospital, and the members of the Corporate Advisory Committee. The predominant source of funding is from foundations. The program appears to be sustainable and stable.

3-Successful methods and strategies: CLOCC awards Seed Grants and Implementation Grants, which serve as an important strategic approach. Generally, CLOCC provides seed grants twice a year. The CLOCC Seed Grant Program is designed to help investigators and organizations develop programs and research efforts to the point where they should be able to obtain funding from outside sources. To this end, researchers obtain data and results to help them obtain future funding often from Federal program sources.

Program Implementation Grants are a funding initiative that provides "mini-grants"(generally $4,000) quarterly to develop and implement programs within the ten community areas where CLOCC has made a commitment. These areas are Englewood, Humboldt Park, Logan Square, Lower West Side, North Lawndale, Rogers Park, Roseland, South Chicago, West Garfield Park, and West Town.

The Program Implementation Grants go to community organizations to promote the key CLOCC goals of nutrition and physical activity.

Essentially, the CLOCC strategy is to serve as a convener, a coordinator, a connector, a broker, and a sort of matchmaker. There are quarterly meetings where hundreds attend. Information is provided and exchanged. In support of these activities, CLOCC is data driven, essentially a clearinghouse, and provides a variety of online services such as a program inventory and instruments that allow, for example, measurements of physical activity for research and evaluation.

CLOCC partners are the entities that undertake program initiatives. For example, there are a number of Chicago wide programs offered by the Chicago Department of Public Health and Hospitals. The Chicago Public Schools run a Head Start program that includes a mandate to address health and nutrition needs. CLOCC mini-grants that demonstrate success can be the impetus for partners to initiate programs. A further goal of the grants is to stimulate programs at the State and Federal levels.

4-Family and community involvement: Family involvement is an integral part of the program. There are a significant number of publications available, with more than 12 specifically geared to parents; some are CLOCC generated, several are free, and most are from government sources.

Working with neighborhood organizations and helping the targeted communities obtain resources is a major CLOCC effort. Bringing partners together adds a synergy to potentially mount a critical mass for a program.

One unique community effort is the Community Organizing for Obesity Prevention (CO-OP) developed in the predominantly Puerto Rican section of Humboldt Park in partnership with the Puerto Rican Cultural Center, the Sinai Urban Health Institute, and CLOCC. The strategy is to mobilize community organizations, develop a menu of intervention strategies, promote healthy eating and physical activity, and link clinical practices to community programs. A steering committee serves as a broker to deeper investment by the partner organizations. One key focus is linking health care providers and health promotion programs. The partners are working to expand the model to other communities.

5-Program duration: CLOCC began in 2002. The program continues to grow in terms of participating organizations and partners. There are currently over 1900 partners from over 700 organizations. The program appears firmly entrenched.

6-Technical assistance support: Essentially CLOCC is a technical assistance organization. It provides multiple resources for its partners. *5-4-3-2-1 Go!* is the cornerstone of CLOCC's social marketing campaign and contains recommendations for children to promote a healthy lifestyle.

CLOCC has 7 working groups. These include Healthy Communities, Government policies, School Systems, Early Childhood, University partnerships, Arts and Culture, and Clinical Practices. These all provide technical assistance and strategic advice to promote programs.

For example, the Clinical Practices Working Group has a network of pediatricians. It provides nutrition and obesity education. Information includes a compendium of neighborhood resources, including sources to assist in clinical management.

7-Operating costs: CLOCC has an annual budget of approximately $1.7 million. It addition to staff expenses CLOCC provides the seed and implementation grants for researchers and community groups to get started. It also underwrites the quarterly meetings, often with over 200 people.

8-Staffing levels: There are approximately 20 staff and staffing remains essentially stable. The Executive Committee structure provides a significant in-kind contribution to the assets of CLOCC.

9-Organizational structure: CLOCC is housed within Children's Memorial Hospital. It has an Executive Committee and an External Advisory Board. It also has a Corporate Advisory Committee which provides CLOCC with leadership support in the development of projects of shared interest. The business skills and resources they contribute complement the public health and medical perspectives. Contributed resources are provided within clear parameters that assist programs but do not influence CLOCC policies.

10-Measurable outcomes: CLOCC is data driven and has constructed tools that measure physical activity, useful for research and evaluation. Several of the Seed Grants provide findings that assess programs underway and often insights into strategies to design programs in the future. The appendix has a list of the studies. These studies include use of church based facilities, short term health outcomes, examining the Chicago Food Access Network, examining programs to assist clinic practices, the role of healthy cooking, clinic strategies, and measuring community walkability. One measurable outcome of CLOCC is the continuous and rapid growth of its network and the wide ranging expansion of new program initiatives.

Model #9 A School of Public Health:
Michael & Susan Dell Center for Advancement of Healthy Living,(Dell Center)
University of Texas School of Public Health (UTPH), Austin Regional Campus:
Coordinated Approach To Child Health (CATCH): A School Focus

Overview: CATCH (Coordinated Approach to Child Health) is a coordinated school health program designed to promote physical activity, healthy food choices, and prevent tobacco use in elementary school aged children. CATCH is an evidenced-based coordinated school health program that has shown proven effectiveness in promoting healthy eating, physical activity, and reducing the increase in obesity in elementary school-aged children.

1. Collaborations and partnerships: CATCH began as a randomized controlled community trial evaluated from 1991 to 1994 in 96 schools (56 intervention, 40 control). The main trial included four sites in the United States, funded through the NIH National Heart, Lung, and Blood Institute. (see Appendix)

CATCH is a coordinated school health program which builds an alliance of parents, teachers, child nutrition personnel, school staff, and community partners to create the conditions for children and their families to be healthy for a lifetime. CATCH has developed collaborations with schools systems in Texas and throughout the United States and with a range of funding organizations and has been an active participant with community coalitions aimed at promoting physical activity and healthy eating in Houston, Austin, and beyond. Twenty two additional states are now also involved.

2. Funding sources and sustainability: In 1996, at the end of the CATCH trial, researchers at UTSPH-Houston disseminated the CATCH program to Texas elementary schools using funding from the Texas Department of Health and the Centers for Disease Control and Prevention (CDC). CATCH received a $2.4 million dollar grant in 2006 from the Michael & Susan Dell Foundation to reduce the prevalence of obesity in elementary schools in Travis County (Austin) for continued dissemination and development of CATCH in Texas. It has evolved over time and now has an ongoing commercial arrangement with Flaghouse Inc., a New Jersey-based company, that publishes and distributes the curriculum and supporting materials. In addition, Flaghouse provides training and implementation support. CATCH has obtained funds from federal and state governments for dissemination of CATCH and continued research on its effects. CATCH has received support from, among others, the Texas Department of State Health Services, NIH, CDC, RWJ, National Center on Minority Health and Health Disparities, International Life Sciences Institute, Paso del Norte Health Foundation, and the Houston Endowment.

Texas has mandated coordinated school health in every elementary and middle school in Texas. Hence this mandate results in a demand for continued resources and hence likely CATCH program sustainability.

3. Successful methods and strategies: CATCH is essentially a school-based program. It has been expanded to over 2,000 schools in Texas and thousands more nationwide. The program coordinates

through four areas: cafeteria, family, classroom, and physical education. Successful implementation of CATCH requires that:

- Every school is educated in the need for and benefits of CATCH.
- Every school is trained to implement all components of CATCH.
- Logistical support is provided before and during the implementation process.
- New and revised CATCH products, training programs, and advocacy networks are developed to effectively support the institutionalization of CATCH in all schools.

T he coordination of health messages among these four component areas appears critical to creating a health promoting environment that positively impacts children's knowledge, attitudes, and behavior. Health messages and activities among classroom teachers, physical education (PE) teachers, school food service staff, students' families, and the broader school community are key features of the program. The CATCH Program specifically targets the school and home environment through the coordination of four components: the "Eat Smart" school nutrition program, the "Go For Health" K-5 and 6-8 classroom curriculum, the "CATCH PE" physical education program, and the "Home Team" family program.

A growing literature base provides evidence of effectiveness for CATCH in promoting key energy balance-related behaviors and reducing the increase in childhood obesity in elementary school children. Under the leadership of the University of Texas School of Public Health, CATCH seeks to continue to provide further research and program enhancements.

4. Family and community involvement: The CATCH Family component is designed to get students, parents, and extended family members involved in practicing and adopting healthy eating and physical activity behaviors at home. The home environment becomes an extension of the CATCH program at school. Two specific components of the family program include the "Home Team Program," in which children are assigned home-based learning activities related to physical activity and healthy eating to carry out with their parents. In addition, CATCH promotes "Family Fun Nights," which are school-based events that promote a range of interactive health promotion activities for students and family.

5. Program duration: CATCH was created as a research project in the late 1980's and early 1990's by research teams from four different universities. The purpose of the research was to develop an elementary school-based program to reduce the risk factors related to cardiovascular disease.

The program continues to grow, particularly with a Texas school mandate for health education. The law, enacted in 2001, mandates all Texas public schools to provide daily physical activity and a coordinated school health program which focuses on reducing the risk of obesity, cardiovascular disease, and Type 2 diabetes. CATCH appears to be institutionalized in Texas and is expanding into other states. Thus, program duration seems secure.

6. Technical assistance support: CATCH is essentially a technical assistance support operation. This is particularly true now that Texas schools are mandated to develop programs and over 2,000 schools participate in CATCH Texas. Technical assistance includes curriculum materials specific for teachers,

students, and parents; outreach activities for campus personnel such as food service workers; and assistance to become a CATCH Demonstration School.

7. Operating costs: CATCH is housed at the Dell Center (UTPH), Austin Regional Campus. Funding support for the 2007 fiscal year total operating budget was $2.4 million and included 37 research and demonstration projects.

8. Staffing levels: CATCH has research and training staff in Austin and Houston through the Dell Center. There are more than 25 investigators and staff currently responsible for research, evaluation, and technical assistance for program activities.

9. Organizational structure: The Dell Center CATCH team is involved in various aspects of program implementation and support, including involvement in ongoing research projects that involve training and support of schools in CATCH.

10. Measurable outcomes: The original studies serve as the evidence based outcomes that show that school efforts can be effective in curbing obesity. The results show evidence of program effects for decreasing fat consumption and increasing physical activity among children and adolescents, with evidence of student maintenance of diet and physical activity three years post-intervention.

Three key findings found reduced total fat and saturated fat content of school lunches, increased moderate-to-vigorous physical activity during PE classes, and improved students' self-reported eating and physical activity behaviors.

Over time additional studies have reinforced and buttressed the evidence. The science of CATCH and subsequent results are well documented in over 80 peer reviewed publications (see Appendix). CATCH is the model used most prevalently throughout the country. Of particular note is the "El Paso Coordinated Approach to Child Health," which is the first research study demonstrating that CATCH works to halt the increase of obesity among youth. Research on the translation of CATCH to low-income elementary schools in El Paso demonstrated a slowing of the epidemic increase of overweight or obesity in children attending CATCH schools.

With regard to cognitive findings, the PASS and CATCH study evaluated the impact of short, structured physical activity breaks during standard class time. Structured activity breaks have been found to increase children's engagement in physical activity and energy expenditure during the school day. The PASS and CATCH study was found to significantly increase students' reading and math scores.

Relative to cardiovascular studies, CATCH was found to have a significant impact on the time period children engage in physical activity during PE class. Moderate-to-vigorous physical activity during PE lessons in CATCH intervention schools was found to increase from 37.4% of PE class time to 51.9%, which met the Healthy People 2010 national PE objectives. In addition, CATCH students reported 12 more minutes of daily vigorous physical activity and ran 18.6 yards more than control students on a 9-min run test of fitness.

In addition, CATCH has a school health evaluation tool that can measure the success of wellness programs. CATCH also has tools to help schools meet the Federal 2004 Child Nutrition Act requirements.

Model #10 A University Affiliated Organization
SPARK: An Organization Affiliated with San Diego University

Overview: SPARK is a research-based organization dedicated to creating, implementing, and evaluating programs that promote lifelong wellness. SPARK approaches obesity as a public health problem which is generally unique and helps focus its programs. SPARK strives to improve the health of children and adolescents by disseminating evidence-based physical activity, physical education, and coordinated school health programs that provide a coordinated package of curriculum, on-site staff development, follow-up support, and content-matched equipment to teachers of Pre-K through 12th grade students. SPARK has a wellness component as well as a nutrition component.

1-Collaborations and partnerships: SPARK clearly solicits collaboration and partnership arrangements from universities, federal and state grants, public health agencies and organizations, private foundations, and corporations that want to improve the health of children. SPARK has more than ten academic collaborators and over 20 professional organization collaborators. The Alliance for a Healthier Generation named SPARK as their first Physical Education and After School program relationship, and recommends SPARK to their schools nationwide. The Navajo Reservation used diabetes prevention money to disseminate SPARK PE throughout the reservation. North Carolina Alliance for Health, Physical Education, Recreation and Dance chose SPARK for a statewide PE dissemination project. The New York City Department of Health and Mental Hygiene awarded SPARK a $10 million RFP to bring SPARK Early Childhood and K-8 PE and after school programs citywide. Highmark Blue Cross Blue Shield in Pennsylvania funded SPARK High School research in Pittsburgh Public Schools, and they make SPARK After School available to Boys and Girls Clubs, YMCA's, and Parks and Recreation Department throughout the state. Nike chose SPARK to write and train teachers in NikeGO PE, After School, and Head Start, and these programs evolved to be known as Nike Let Me Play. SPARK was selected by Nike as their physical activity partner in efforts to bring quality curriculum, teacher training, and equipment to hundreds of sites nationwide. SPARK supports schools and organizations that apply for and receive Carol White PEP grant awards. To date, over 100 Department of Education PEP winners nationwide have used their funds to purchase SPARK programs, particularly K-12 PE. Many universities have selected SPARK as the intervention program in their research studies, including Stanford, UCLA, Johns Hopkins, University of Arizona, and University of New Mexico.

2-Funding sources and sustainability: In June 1989, a team of researchers and educators received funding from the Heart, Lung, and Blood Institute of the National Institutes of Health (NIH) to create, implement, and evaluate an elementary physical education program that could eventually become a nationwide model. Following the first successful research grant (Project SPARK), SPARK began a dissemination phase. Today, SPARK is a collection of research-based programs that operate in four areas of emphasis: Physical Education, Early Childhood, After School, and Coordinated School Health. One of SPARK's Principals, Dr. James Sallis, has received over $6 million dollars in support of research, development, and program development of SPARK products and services. Together, SPARK principals have participated in myriad research projects including a number of nationally significant studies (M-SPAN, TAAG, PEACH, OPprA, Pathways, SCAN).

SPARK has exclusive arrangements with School Specialty, a leading supplier to the education community, and one of their business units, Sportime, a leading source of physical education equipment. SPARK coordinates their curricula, teacher training, consultation/support, and content-matched equipment so adopters receive all the "essential components" needed to facilitate environment change.

SPARK seeks outside funding from benevolent organizations, corporations, foundations, etc., who agree with SPARK's mission to counter childhood obesity and wish to support SPARK's efforts to bring their materials and services to those in need. SPARK appears to be self sustaining.

3-Successful methods and strategies: SPARK was the first to coordinate high activity content, match it with a professional development program that used unique pedagogical strategies to enhance the activities, and select specific equipment pieces for teachers to use. Additionally, SPARK provides an extensive, free, follow up support system including: a project coordinator for each adopting school, district or organization; a monthly webinar series; e-newsletter; lifetime follow up support and consultation via an 800 number and email; SPARK Star training to institutionalize concepts and methods at the site; plus a number of social networking opportunities to facilitate discussion among users.

SPARK provides a number of focused programs in schools from pre-K through 12th grade. One is their Middle School Physical Education program, which evolved from NIH funded projects M-SPAN (Middle School Physical Activity and Nutrition) and TAAG (Trial of Activity for Adolescent Girls). The SPARK Early Childhood (EC) Physical Activity program has been developed for Head Start, public and private preschools, day care/childcare providers, and WIC agencies. EC is designed to provide high activity, academically integrated, enjoyable activities that enhance motor development and school readiness skills in children ages 3-5. This is one of the few comprehensive programs nationally that focuses on children as young as three years old. This program has four major components: curricula and materials, staff training, lifetime follow-up support, and content-matched equipment selected by SPARK's EC experts for use with children of this age group.

4-Family and community involvement: SPARK has developed many materials, some of which are provided free on their website. For example, one document is "13 Ways Parents Can Help Children Be More Physically Active". It has also developed a whole package of "Family Fun Activities for Children Ages 3-5". The SPARK curriculum features "Homeplay" activities – like "homework" -- but physical activities that involve parents, friends, and family members. SPARK becomes integrated with each community by establishing collaborative arrangements with the school system. It also works with YMCA's, Boys and Girls Clubs, and offers programs for pre-school and after school programs. A component of SPARK's Coordinated School Health Initiative is their "Wellness for Staff" program. This targets all school staff including parents, and provides a full-day workshop in three, 2-hour modules: healthy eating, physical activity, and stress reduction.

5-Program duration: The original research began in 1989, and was followed by the initial dissemination effort that began during the 1993-94 school year. SPARK has grown substantially over the past 20 years,

conducting new research and creating programs from the lessons learned, working in collaboration with academic institutions on special projects, and providing their evidence-based programs to thousands of schools, organizations, and agencies throughout the U.S. and internationally. In 2008, SPARK conducted over 760 separately contracted workshops, conducted 7 Institutes, and presented their methodologies at over 60 professional conferences worldwide. In 2008, over 23,000 teachers were trained, and more than 1 million students were touched each day by SPARK programs.

6-Technical assistance support: Basically SPARKhas created a niche that offers technical assistance to entities. There are programs in just about all areas of physical activities. The arrangements vary and SPARK offers a total package to be a technical advisor, consultant, trainer, and vendor. SPARK provides four evaluation tools as part of their program. These include needs assessments, workshop evaluations, program evaluations, and lesson quality checklists. The tools and consultation on how to use them is part of any program package. SPARK offers training in advanced research instruments to evaluate other aspects of a quality program. For example, SOFIT (Systematic Observation of Fitness Instruction Time) was developed by SPARK Principal, Dr. Thom McKenzie. He and colleagues are available to teach others how to implement the research-validated tool and others. SPARK has experience assessing sport skills, academic achievement, moderate to vigorous activity, fitness, enjoyment, and sustainability.

7-Operating costs: In 2002, San Diego State University and SPARK transferred a license to disseminate to School Specialty and Sportime. School Specialty is a publically-traded company on NASDAQ. SPARK is a self-sufficient entity and receives financial support from School Specialty.

8-Staffing levels: SPARK maintains an office in San Diego, CA with approximately 25 local staff and 35 full and part time staff scattered throughout the U.S. SPARK has the capacity to manage large projects, implement statewide adoptions, and service international opportunities.

9-Organizational structure: SPARK intellectual property, trademarks and copyrights are owned by San Diego State University Research Foundation, a non-profit organization. SPARK has the ability to manage projects under this umbrella. Typical SPARK dissemination projects funnel through School Specialty, which is a for-profit organization. Dr. James Sallis was a Principal Investigator on the original SPARK and M-SPAN studies along with Dr. Thom McKenzie, a co-Principal Investigator. Drs. Sallis and McKenzie work with Executive Director, Paul Rosengard, together serving as the Advisory Board for SPARK. Dr. Sallis also directs the Active Living Research Program for the Robert Wood Johnson Foundation. Dr. McKenzie is Professor Emeritus at San Diego State University. The SPARK organization is divided into several teams: development, dissemination, and delivery, each with their own team leader/manager who is supported by the Operations Director.

SPARK brings all of their teacher trainers to San Diego annually for two days of professional growth. SPARK believes teacher training is the most efficacious component they provide and they strive to seek the best candidates.

10-Measurable outcomes: SPARK has developed a body of evidence measuring the impact of physical activity related to obesity prevention. SPARK specific student outcomes include: moderate to vigorous

activity, fitness, sport skills, enjoyment of PE, and academic achievement. Teacher outcomes include quantity and quality of instruction and sustainability.

SPARK has developed evidence-based health promotion interventions delivered through health care settings (www.paceproject.org) and schools (www.sparkpe.org). SPARK disseminates these programs, widely used in practice, to improve physical activity and nutrition. Much of this research is conducted through the Robert Wood Johnson Foundation and the NIH Heart, Lung, and Blood Institute. Dr Sallis led a physical education policy research project for The California Endowment that produced a variety of materials (www.calendow.org/Article.aspx?id-3920).

The results of studies appear to be immediately translated into activities and consulting activities of SPARK.

V. Discussion

Obesity should be viewed as a public health problem escalating to epidemic proportions. Two thirds of the U.S. population is either overweight or obese. This study identifies 10 varied models that are attempting to deal with components of the problem. All of these models are grounded in some evidence based studies that demonstrate some level of success in dealing with the epidemic.

Based on interviews with several National leaders in the field, these models appear to present the range of models being undertaken today. Many have been underway for up to twenty years, others are in early stages of implementation, and some are initiating small pilots as part of much larger goals and strategic planning initiatives.

Key lessons emerge from the models presented. For most, although launched based upon positive evidence, evaluation studies need longer timeframes to measure quantitative results. Also, obesity like smoking, drugs, and alcohol, has high recidivism rates. Thus most efforts over the next several years will generally have to be initiated based upon some evidence and a good deal of intuition, while awaiting longer term research outcomes.

All of the models presented here recognize the importance of nutrition. Many are working to bring about changes in the foods offered in schools. Others are focusing on creating better outlets for purchasing nutritious foods. Similarly, nearly all programs promote enhanced physical activity.

Focus on the built environment is not as prevalent. A few communities, such as Somerville, pay heavy emphasis on environmental improvements. Relative to prevention and health services, there are mostly minor level pilots where the impact appears to be small.

With respect to promoting human capital, there is virtually no focus on social, emotional, and cognitive development of children.

These models provide many lessons and program elements to assist the field.

Specifically, IMIL has now expanded to include pregnant mothers and children zero to three. The recently enacted American Recovery and Reinvestment Act (ARRA) provides for grants worth nearly $1.2 billion, to support Early Head Start expansion. This will allow the program to serve 55,000 more pregnant women, infants, toddlers, and their families and nearly double the number of Early Head Start participants. The Little Voices pilot may be an important vanguard program for social-emotional-cognitive obesity prevention initiatives. Another promising initiative is the funding of The National Center for Physical Development and Outdoor Play to expand the Head Start Body Start program. The National Center is a key component of the Surgeon General's Childhood Overweight and Obesity Prevention Initiative.

The Y-USA has both internal and external program initiatives. Because of the number of YMCA's nationwide, they are in a unique position to bring Healthier Communities Initiatives to over 2,000 communities. Although not YMCA's primary area of focus, many are involved in child care programs. As

emphasis begins to accumulate for obesity prevention among pregnant mothers and infants, YMCA's are a potential collaborator in such ventures.

The Rhode Island KIDSNET is a National leader potentially able to collect obesity related data by data submission from electronic medical records (EMRs). Through its partnership with IHW, KIDSNET is advocating national standards for electronic communication of height, weight, and BMI data. Such a standardized denominator is crucial for long term research and monitoring. Currently, KIDSNET allows WIC and primary care providers, including Early Head Start, Head Start, preschools, and schools access to data. Nurses at these agencies already have access to KIDSNET and represent potential partners for future obesity prevention efforts.

Healthy Kids Las Cruces has created healthy environments, built a strong state and local sustainable collaborative, and is gaining support in other communities who want to initiate a similar model. The State of New Mexico provides a model demonstrating how a well-coordinated program linking several state agencies, and housed in the Department of Public Health, can bring expertise and resources to communities who would have difficulty initiating a local program at such a scale. The New Mexico- Las Cruces model presents a relatively unique structure that lends itself to national replication.

Nemours provides the classic successful model for a foundation, namely initiating and piloting programs in an area of need. NHPS policies and practice changes in support of healthy eating and physical activity have been adopted by Delaware licensed child care centers, several Delaware public school districts, primary care physicians, and community organizations. The Delaware program is unique in focusing on child care programs, particularly children aged three to five. This approach can lay a foundation for healthy habits for life. Nemours is well positioned to add value to the national health care dialogue since it is an integrated child health system, providing high quality care, while also investing in population health initiatives to promote child health and prevent disease. The current program is also well positioned to expand initiatives to the Early Head Start population, including Medicaid eligible mothers. Nemours is also uniquely able to integrate through its health facilities obesity programs to the low income populations it currently serves.

Somerville, a municipality, has created a citywide campaign to increase daily physical activity and healthy eating through programming, and especially through physical infrastructure improvements. Somerville appears to be among the most advanced and sophisticated Built Community effort in the Country. The program appears to be fully grounded with several components operating simultaneously. There is a firm commitment to outside independent program evaluation to determine what is working well and what needs to be changed or abandoned. The task force structure allows for continuous development of new initiatives. Key future opportunities exist by involving physicians, nurses, WIC and children zero to five. Shape Up, Somerville's target population with the *Healthy Kids, Healthy Communities* grant, is for 3-18 years old. It is in a position to expand to cover children zero to three. Essentially Somerville shows what a community of approximately 80,000 can accomplish with focused and dedicated political leadership. Somerville is very opportunistic in seeking outside available built environment.

The Food Trust has become a regional and national leader in developing innovative programs to reduce the burden of childhood obesity and other diet-related diseases in underserved communities. Its success has led to the expansion of some programs beyond Philadelphia. For example, the Kindergarten Initiative now operates throughout Pennsylvania under the auspices of a state legislative initiative, and also to parts of New Jersey and Missouri. The Supermarket Campaign now operates throughout Pennsylvania under the Fresh Food Financing Initiative, which the Trust manages. As a model, The Trust appears to be evolving into more program areas and is being incorporated into initiatives nationwide. The Trust programs appear firmly entrenched and their duration seems assured.

CLOCC is one of the few models in the Country with a primary focus on children below the age of five. The program is geared to the children's caretakers, and those who work with their parents and caretakers. This is a difficult age to reach and CLOCC can clearly provide lessons for others on program results for this age cohort. The program also includes health care providers which makes it somewhat unique. A CLOCC participant, the Chicago Public Schools, run a Head Start program that includes a mandate to address health and nutrition needs. This program is also well positioned to provide important lessons, particularly for programs seeking to cover Early Head Start programs. Resource materials written by CLOCC and accumulated from others make it a national resource.

Based on its current work, CLOCC may be in a better position than most entities to undertake initiatives for children below the age of three. Housed within a major Children's Hospital should provide it with access to opportunities for focusing on improving health care services.

CATCH is primarily designed for elementary school aged children. CATCH's association with a School of Public Health offers a unique opportunity for the program to expand and evolve into a more comprehensive obesity prevention program. Currently, much of the support and training for implementation of CATCH stems from ongoing research endeavors. The basis of the CATCH model is NIH sponsored research conducted from 1991 to 1994. Program goals include preventing tobacco use, coordinating throughout the school, and extending to the home and family environment. Research has shown that poor eating habits and physical inactivity can be altered. CATCH has an ongoing commercial arrangement with Flaghouse Inc., which publishes and distributes the curriculum and supporting materials. The CATCH program is now being adopted throughout the Country.

SPARK is associated with San Diego University. It is a research based entity that seeks to create, implement, and evaluate programs that promote lifelong wellness. SPARK approaches obesity as a public health problem which is generally unique and this helps to drive the focus of its programs. Its initial evidence grew out of a 1989 NIH study. SPARK disseminates evidence-based physical activity, physical education, and coordinated school health programs into a coordinated curriculum package. SPARK has one of the few programs for children as young as three, an age cohort where mounting evidence shows greater return on investment. Of note, SPARK has an agreement with Sportime, a stock corporation. SPARK provides intellectual property and receives funding from Sportime in return.

Each of these models provides structural and programmatic elements that can be incorporated into comprehensive programs, but none alone provide all elements. It is not clear from examining these models that any particular program element is clearly more effective than others. It is clear that concentrated programs focusing on obesity can make some difference.

Most experts in the field, including many involved in these selected programs, stressed that resources necessary to combat obesity are inadequate and a comprehensive approach broader than any of the programs underway must be undertaken.

The long term chronic illnesses that are a result of, or are exacerbated by obesity are well known and the estimated costs to individuals, society, and government have been quantified. Viewing obesity as a public health problem leads to the obvious strategy of prevention. As a major factor contributing to costly chronic diseases there need to be efforts of primary, secondary and tertiary prevention. In addition to the cost burden, obesity limits the potential of a full and successful life for an individual.

Over the past decade states have begun to recognize that obesity needs to be treated as an epidemic and housed in the State Department of Health. Treating obesity as a public health problem also provides states with the potential to moderate Medicaid outlays and provide some relief to the future dire consequences of multiple chronic illnesses of seniors, and the resulting long term care costs.

Historically states have the constitutional responsibility for public health and have focused on primary prevention, although investments are usually inadequate. States generally have not undertaken major initiatives focusing on chronic illnesses, an area often referred to as secondary or tertiary prevention. This has been considered the responsibility of the health care payers or insurers. In this context Medicaid is jointly funded by the states and federal government, and is managed by the states. Recently it has become clear that future Medicaid expenditures are unsustainable for states that have to balance budgets annually. The key escalating cost driver is for elderly care for recipients with multiple chronic illnesses, often related to or as a consequence of obesity.

Many states have moved in the past few years to quantify the problems and consequences of obesity. Many have initiated programs of better nutrition especially in schools, and in promoting physical activities. Intermediate and long term goals and strategic plans are being developed and some are beginning to appropriate funds. As many assess the current available programs and link the potential of simultaneously curbing obesity and runaway Medicaid expenditures, states will likely enhance their public health programs particularly as a potential opportunity to curb future Medicaid outlays.

Beginning with pregnant mothers and infants appears to have the greatest return on investment, based upon a current and growing research base. Unfortunately, this population is the least targeted in attacking obesity in a comprehensive manner.

On a positive front, the key financial stakeholder victims of the obesity epidemic are the current major payers of health care services; namely Medicare, Medicaid, and Employers. These payers are now recognizing they are faced with unsustainable future health care increases, and obesity is a significant

contributor. In searching for ways to contain these runaway costs, it now appears inevitable that payers will search for cost effective obesity prevention programs. Some small initial steps by payers are underway, but are almost inconsequential compared to the scope of the problem.

States are administrators/managers of Medicaid and financial partners with the Federal Government. States also administer several public health programs, as they face the enormous growing long term expenditures, particularly institutional care.

With clear positive cost benefit outcome evidence, it is prudent for states to take the lead in curbing obesity. The most cost effective programs need to begin with pregnant mothers and children zero to three. For example, pre-natal care and nutrition consultation and education have demonstrated positive outcomes for healthier children. A comprehensive strategy would combine maternal and child health, Medicaid (especially EPSDT) and other public health programs, WIC and other USDA programs, with regulatory incentives for child development centers (using such models as Early Head Start) and community health centers. This would provide essential health prevention, enhanced human capital, and the potential for cost savings.

The Federal Government, particularly with Medicare and Medicaid cost escalations, needs to foster the development of prevention and cost containment programs. The Department of Health and Human Services (HHS), the U.S. Department of Agriculture (USDA), the Department of Education (DOE) , and potentially the Department of Interior (Parks and Recreation) could create such a comprehensive obesity initiative to slow Medicare and Medicaid outlays, curb obesity, and improve the life success of our children. Most of the Medicare savings will be long term, but substantial Medicaid savings can be immediate for lowering institutional care needs for children with physical or mental disabilities.

Corporations underwriting Employer Health Plans and health insurers can also be well served with programs that will result in a healthier, more productive work force. Since most large employers essentially self fund their health plans, they need to incorporate evidence based cost saving obesity prevention programs into their conventional “wellness” programs. Health insurers should do the same.

In sum, a significant multi-faceted program focused on pregnant women and children aged zero to three needs to be developed. Done correctly this strategy can provide the biggest pay-off to improve the health of our nation, and promote more productive individuals, both in the short term and the long term.

VI. Recommendations

1. Establish a consortium/collaborative that will initiate a pilot program for low-income children in the Greater Washington DC area in the zero-to-five age group, including pregnant mothers.

2. Establish a Resource Center focused on providing information and policy advocacy on available and potential Federal Government resources and programs for obesity prevention, particularly those focusing on pregnant mothers and children from birth through five years of age.

4. Promulgate Federal regulations with financial support that require that Medicaid plans include obesity prevention goals, strategies, and programs with additional financial rewards for quantifiable results.

VII. References and Resources

Included here are resources, references and websites that relate to the ten selected models plus key government, foundation, and other sources. Many of these references include the scientific papers that are sources of evidence based findings.

I. The Ten Models

All the models in this report have available web sites.

1. **Head Start-Early Head Start – IMIL**

   http://eclkc.ohs.acf.hhs.gov/hslc/ecdh/Health/Nutrition/Nutrition%20Program%20Staff/IMIL

   http://eclkc.ohs.acf.hhs.gov/hslc/ecdh/Health/Nutrition/Nutrition%20Program%20Staff/IMIL/ResearchIamMov.htm

2. **YMCA of the USA**

   http://www.ymca.net/activateamerica/activate_america_leadership.html

   http://www.ymca.net/activateamerica/activate_america_leadership.html#4

3. **Rhode Island – Kidsnet**

   http://www.health.ri.gov/family/kidsnet/

   http://www.health.ri.gov/media/040121a.php

4. **New Mexico – Las Cruces Healthy Kids**

   http://www.healthykidsnm.org/

   http://www.health.state.nm.us/obesity.html

5. **Nemours Child Care Collaborative**

   http://www.nemours.org/department/nhps.html

   http://www.nemours.org/mediaroom/news/2009/06/12/obesity.html

6. **Somerville: Shape Up Somerville**

   http://www.somervillema.gov/section.cfm?org=SUS&page=707

   http://nutrition.tufts.edu/1174562918285/Nutrition-Page-nl2w_1179115086248.html

7. **The Food Trust**

http://www.thefoodtrust.org/

http://www.thefoodtrust.org/catalog/download.php?product_id=114

http://www.temple.edu/medicine/school_environment.htm

8. **Consortium to Lower Obesity in Chicago Children (CLOCC)**

   http://www.clocc.net/

   http://www.clocc.net/coc/localresearch/index.html

   A listing of seed grant studies:

   http://www.clocc.net/partners/seed/fundedseeds.html

9. **Coordinated Approach to Child Health (CATCH): A School Focus**

   http://www.catchinfo.org/aboutcatchRD.asp

   New England Research Institute (Coordinating Center), Principal Investigator- Sonya McKinley, Ph.D. all publications:
   http://www.sph.uth.tmc.edu/catch/CATCH%20Publications.pdf

10. **SPARK**

    http://www.sparkpe.org/

    http://www.sparkpe.org/research.jsp

    http://www.paceproject.org

    California Endowment materials developed by SPARK:

    http://www.calendow.org/Article.aspx?id-3920

II. Selected Government Sources

Health and Human Services:

National Institutes of Health

http://www.obesityresearch.nih.gov/

Centers for Disease Control and Prevention (CDC)

http://www.obesityresearch.nih.gov/

The CDC has at least 23 obesity programs, including Lean Works

http://www.cdc.gov/leanworks/

Administration for children and Families (ACF)

http://fnic.nal.usda.gov/nal_display/index.php?tax_level=1&info_center=4&tax_subject=271

U.S. Department of Agriculture

http://fnic.nal.usda.gov/nal_display/index.php?tax_level=1&info_center=4&tax_subject=271

III. Foundations

Robert Wood Johnson

http://www.rwjf.org/childhoodobesity/

California Endowment

http://www.calendow.org/article.aspx?id=348&ItemID=348

William Clinton Foundation

http://www.clintonfoundation.org/what-we-do/alliance-for-a-healthier-generation/why-childhood-obesity

IV. Others

Alliance for a Healthier Generation

http://www.healthiergeneration.org/

FRAC

http://www.frac.org/html/hunger_in_the_us/hunger&obesity.htm

Zero to Three

http://www.zerotothree.org/site/DocServer/Vol_25_-3b.pdf?docID=1562&AddInterest=1147

TFAH

http://healthyamericans.org/obesity/

The Heckman Equation

http://www.heckmanequation.org/

http://www.heckmanequation.org/heckman -equation-slideshow

The HSC Foundation is dedicated to improving access to services for individuals who face social and health care barriers due to disability, chronic illness, or other circumstances that present unique needs. The HSC Pediatric Center, Health Services for Children with Special Needs, Inc. (HSCSN), and HSC Home Care, LLC. are supported organizations of the Foundation.

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The HSC Foundation • 1808 Eye Street, NW Suite 600 • Washington, DC 20006 • Voice: 202-454-1220 • Fax: 202-454-1251
info@hscfoundation.org • **www.hscfoundation.org**