Introduction

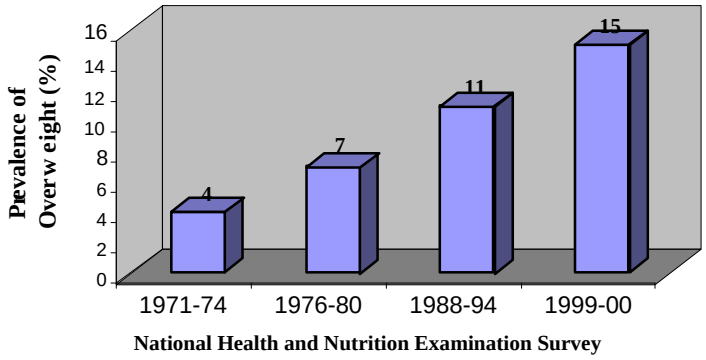
The Problem of Childhood Obesity—Why Act Now?

The prevalence of childhood obesity is increasing.

American children are gaining weight—more children and more weight than ever before. The problem is everywhere—no matter which neighborhood, state, or region you visit, American children are gaining weight faster than at any other point in our nation's history.[1] In recent testimony given before the United States Senate, Eric M. Bost, USDA Under Secretary of the Food, Nutrition and Consumer Services, said: "In the past 20 years, the percentage of children who are overweight has doubled and the percentage of adolescents who are overweight has more than tripled."[2]

The magnitude of this problem is illustrated in Figure 1. In 2000, 15% of children in this country aged 6-11 years were overweight:[3] more than 3 times the prevalence shown in the early 70's. Rates of overweight in preschool children enrolled in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) were similar, ranging from 10-16%, depending on age or ethnicity (see Figures 2 and 3).

Figure 1. Increasing Prevalence of Overweight in Children Aged 6-11 Years with Time[4]



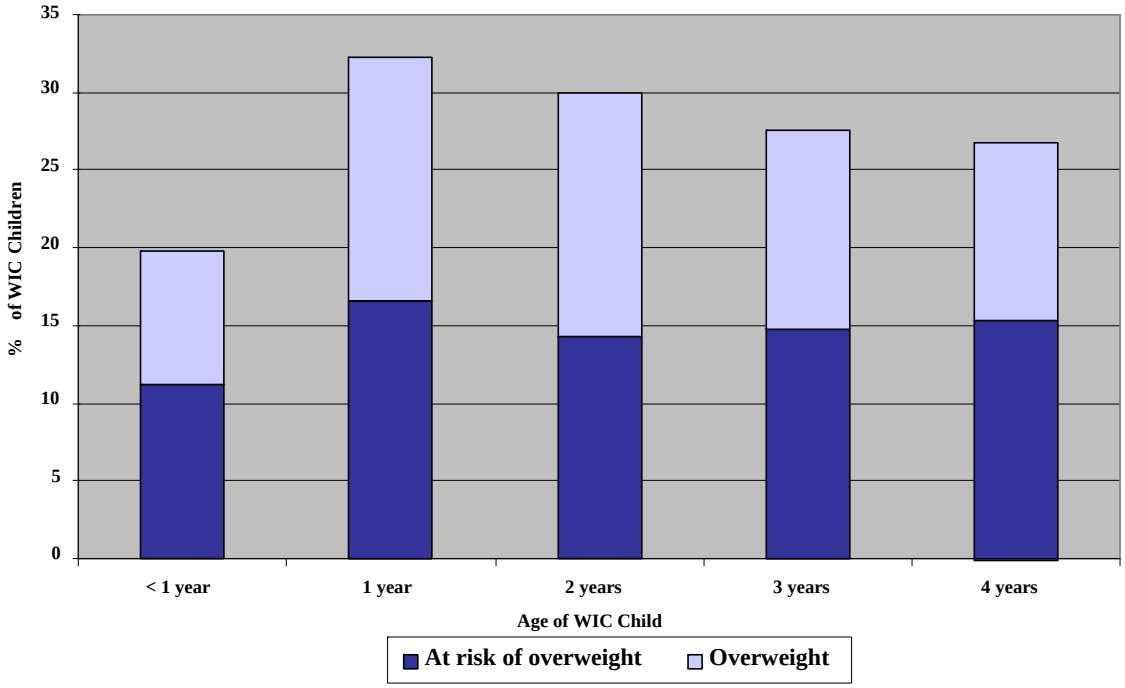
1 For a list of some important scientific articles describing the prevalence of childhood overweight, see Appendix A. When cited in this document, they are referenced by author and year of publication in the footnotes.

2 Eric M. Bost, Under Secretary, Food, Nutrition and Consumer Services; testimony before the Subcommittee on Agriculture, Rural Development, and Related Agencies on April 14, 2005. http://www.fns.usda.gov/cga/Speeches/CT041405-a.html

3 In this report, we will use the terms "overweight" and "obesity" interchangeably. "Obesity" is a lay term commonly used to describe this epidemic. The term "overweight" is used by the scientific community because it can be precisely defined by using the calculated value, Body Mass Index (BMI): body weight in kilograms divided by height (or length) in meters squared. BMI is more highly correlated with body fat than any other indicator of height and weight. Because of childhood differences in body fatness with growth and gender, no single value of BMI can be used to define the limits of healthy weight in children, as can be done for adults. To evaluate weight status in children, "BMI-for-age" is plotted on gender specific growth charts published by the CDC. Using those percentile growth charts, "overweight" is defined as a BMI-for-age at or above the 95th percentile; "at risk of overweight" is defined as a BMI-for-age from the 85th up to but not including the 95th percentile of the CDC Growth Charts. For details, see http://www.cdc.gov/nccdphp/dnpa/bmi/bmi-for-age.htm (accessed 3 June 03).

4 CDC, NCHS. "Prevalence of overweight among children and adolescents: United States, 1999-2000." http://www.cdc.gov/nchs/products/pubs/pubd/hestats/overwght99.htm (accessed 3 June 03).

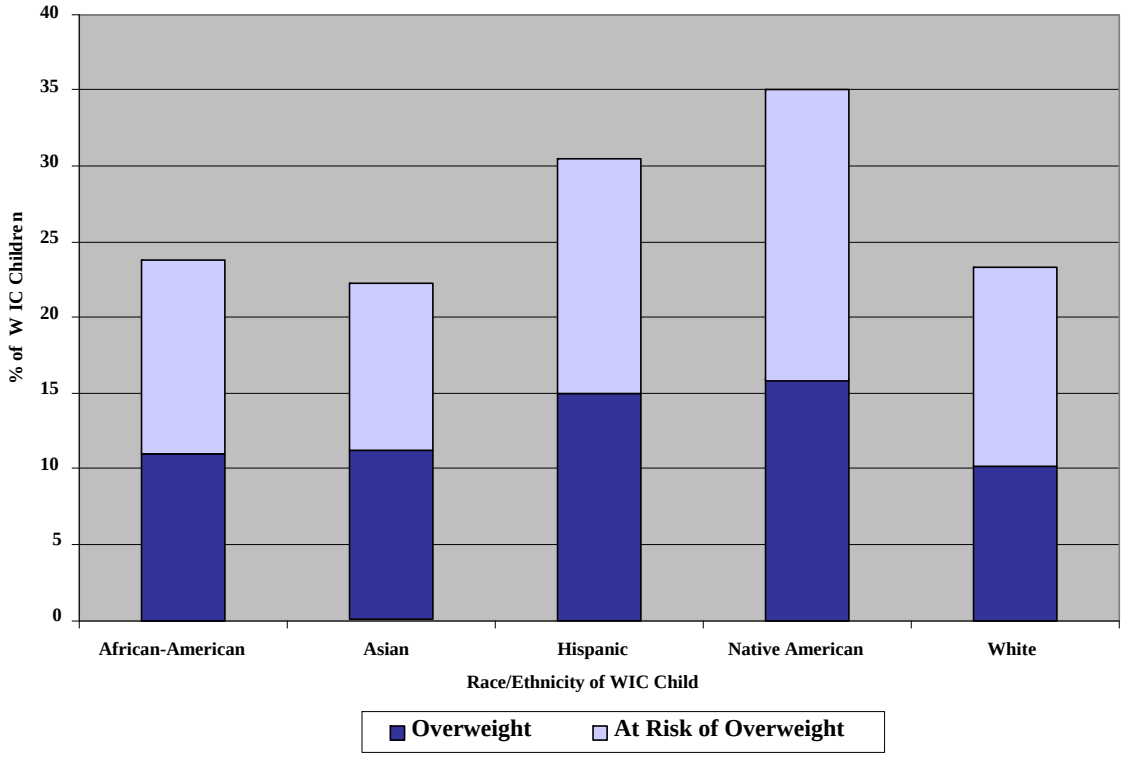
Figure 2. Prevalence of overweight and overweight risk by age in WIC children in 2000[5]



Also of concern from a public health point of view is the number of children, especially preschoolers, who are *at risk* of becoming overweight: 11-19% of children enrolled in WIC fall into the *at risk* category depending on age or ethnicity (Figures 2 and 3). Although overweight is increasing in all groups, rates of overweight vary by families' income and ethnicity, and age of child. Among children enrolled in WIC, Hispanic and Native American children have higher rates of overweight compared to other racial/ethnic groups (Figure 3).

5 See footnote 3 for definitions of overweight and overweight risk. Data in the chart are from an internal FNS analysis using participant information collected from State WIC agencies in April 2000 for the report, "WIC Participant and Program Characteristics 2000", WIC-02-PC, by Susan Bartlett, Ramona Olvera, Nicole Gill, and Michele Laramie. Project Officer, Julie Kresge. U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation Alexandria, VA: 2002. http://www.fns.usda.gov/oane/MENU/Published/WIC/FILES/pc2000.pdf (accessed 3 June 03).

Figure 3. Prevalence of overweight and overweight risk by ethnicity in WIC children in 2000[5]



The consequences of childhood obesity are long lasting and detrimental to the public health. Childhood obesity is one of the most complex health problems currently confronting the nation, with serious medical and financial implications for the future.[6] "One of the most significant concerns from a public health perspective is that we know a lot of children who are overweight grow up to be overweight or obese adults, and thus at greater risk for some major health problems such as heart disease and diabetes," said Centers for Disease Control and Prevention director Dr. Julie Gerberding.[7] The consequences of childhood obesity include physical, psychological, and social problems, as well as complications associated with obesity continuing into adulthood.

Certain chronic conditions that were once thought to affect only adults are now seen in overweight children. It has been estimated that by 5-10 years of age, 60% of overweight children have at least one biochemical or clinical cardiovascular risk factor associated with obesity and 25% have two or more.[8] The problems overweight children may experience include:

- High blood pressure
- Hyperlipidemia (the presence of an abnormally large amount of fat in the blood)

6 For a list of some important scientific articles describing the consequences of childhood overweight, see Appendix A. When cited in this document, they are referenced by author and year of publication in the footnotes.

7 "Obesity Still On The Rise, New Data Show", News Release, Oct. 8, 2002. CDC/NCHS Press Office. U.D. Dept. of Health and Human Services http://www.dhhs.gov/news/press/2002pres/20021008b.html (accessed 3 June 03).

8 Freedman et al., 1999, as cited in "National Center for Chronic Disease Prevention and Health Promotion, Nutrition and Physical Activity", http://www.cdc.gov/nccdphp/dnpa/growthcharts/training/powerpoint/slides/028.htm (accessed 3 June 03).

- Stress on weight bearing joints
- Type 2 diabetes (also called "adult-onset" diabetes)
- Breathing difficulties
- Low self-esteem
- Social discrimination

The persistence of overweight into adulthood may be the greatest health risk for overweight children. According to the Surgeon General of the United States, if the high rate of obesity in this country persists, obesity may soon cause as much preventable disease and death as cigarette smoking.[9] Obesity in adulthood is associated with an increased rate of morbidity and mortality from:

- Hyperlipidemia
- Cardiovascular disease
- Type 2 diabetes
- Certain forms of cancer

The economic consequences of the obesity epidemic for the health care system in the United States are substantial. As reported by the Surgeon General[9], direct and indirect costs related to obesity and overweight were estimated to be $117 billion in 2000. This represents an 18% increase from obesity-related costs in 1995. Costs will undoubtedly continue to increase if the prevalence of obesity increases in this country.

The Surgeon General issued a "Call to Action" in 2000.

In 2000, in recognition of and in response to the growing epidemic of obesity, the Surgeon General of the United States made a strong statement of concern and determination to address this national problem; he issued a "Call To Action To Prevent and Decrease Overweight and Obesity."[10] The Surgeon General expressed a commitment to develop new communication and action strategies directed at reducing the prevalence of overweight and obesity in this country. Two of the principles to which the Surgeon General's "call to action" was committed were:

- To identify effective and culturally appropriate interventions to prevent and treat overweight and obesity
- To develop and enhance public-private partnerships to help implement this vision

The Surgeon General expressed the conviction that "…taking action to address overweight and obesity will have profound effects on increasing the quality and years of healthy life and on eliminating health disparities in the United States. . .. Many people believe that dealing with overweight and obesity is a personal responsibility. To some degree they are right, but *it is also a community responsibility* (italics added)."

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9 U.S. Department of Health and Human Services. "The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity." [Rockville, MD]: U.S. Department of Health and Human Services, Public Health Service, Office of the Surgeon General; [2001]. Available from: US GPO, Washington. http://www.surgeongeneral.gov/topics/obesity/ (accessed 3 June 03).

10 U.S. Department of Health and Human Services. "The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity." [Rockville, MD]: U.S. Department of Health and Human Services, Public Health Service, Office of the Surgeon General; [2001]. Available from: US GPO, Washington. http://www.surgeongeneral.gov/topics/obesity/ (accessed 3 June 03).

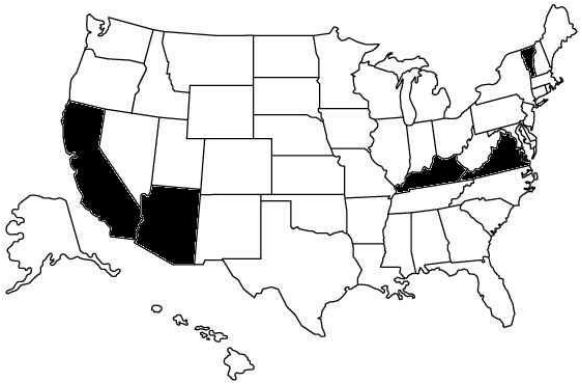
The Food and Nutrition Service Responds to the Urgent Need for Solutions—The WIC Call to Action

The Food and Nutrition Service (FNS) was among the agencies to respond early to the increasing prevalence of childhood overweight with its own "call to action." Recognizing the important role that FNS programs could potentially play in stemming the epidemic, the agency acted well before this issue was in the national spotlight and before the Surgeon General issued his "Call To Action."

FNS made available $1.8 million in fiscal year 1999 to fund cooperative agreements between FNS and five WIC State agencies to develop new, innovative strategies to prevent overweight in children, specifically targeting WIC program participants. This three-year project was called *Fit WIC*,[11] and had the following goals:

- To identify changes that State agencies and local WIC operations could make to become more responsive to the problem of childhood overweight
- To develop intervention programs for the WIC setting based on assessments of their WIC sites
- To create an Implementation Manual, based upon the states' experiences in the three-year program, to guide State and local WIC clinics and other interested health professionals and organizations in their own implementation of the programs developed[12]

Figure 3. WIC State agencies participating in Fit WIC



Through a competitive grant process, five WIC State agencies (California, the Inter Tribal Council of Arizona, Inc. (ITCA), Kentucky, Vermont, and Virginia) were provided funds to participate in the project (see Figure 3). Together, the five projects formed *Fit WIC* and worked

11 FNS originally called this project *The WIC Childhood Obesity Prevention Projects*; it was renamed *Fit WIC* by the project teams.

12 The Implementation Manual and the project materials developed by the five states have recently been made available to State and local WIC agencies and other health professionals across the country. The manual and materials are available online at the WIC Works Resource System: http://www.nal.usda.gov/wicworks/

closely with each other and with staff from FNS and the Centers for Disease Control and Prevention. Each State agency established project teams consisting of State agency staff and social scientists from local universities.[13] Each project team conducted a needs assessment of their WIC environment, clients, and staff, then developed and implemented an overweight prevention program responsive to the identified needs.

Fit WIC was a consortium of WIC State agencies and social scientists, cooperating to develop childhood obesity prevention programs responsive to the needs of local WIC agencies and their participants.

[13] See Appendix B for the list of WIC and academic professionals participating in *Fit WIC.*

The Problem of Childhood Obesity--Why Act Through WIC?

WIC is in the right place at the right time.

The Special Supplemental Nutrition Program for Women, Infants and Children (WIC), administered by the Food and Nutrition Service of the USDA, provides nutrition information, supplemental nutritious foods, and referrals to other health, welfare, and social service agencies to about 8 million low-income pregnant women, infants, and children up to age five every month. WIC participants come from all race and ethnicity groups, and include those most at risk for childhood overweight. WIC services are available throughout every state in the United States, on Indian Reservations and in U.S. territories. WIC has a positive reputation among its participants: The great majority of WIC participants indicate they are "very satisfied" with services they receive from WIC.[14]

> *WIC has widespread access to preschool children in low-income families. These children are among those at greatest risk of overweight.*

Acting to prevent overweight is the best approach.

It is well known that overweight is a very difficult problem to treat. Once individuals have become overweight, it is expensive and time consuming for them to attempt weight loss, and frequently impossible for them to sustain their weight loss. Therefore, it is critical to *prevent* weight problems before they begin.

> *Since it is difficult to lose weight and maintain weight loss, early prevention of excessive weight gain is critical.*

Early childhood is the best time to prevent childhood overweight.

Many children, especially children in low-income families, are already overweight when they reach school age. School based programs aimed at reducing overweight, while important, may come too late to effectively prevent long-term weight problems. Moreover, it has been reported

[14] U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis Nutrition and Evaluation, "National Survey of WIC Participants, 2001 Final Report", by Nancy Cole et al.; Project Officer, Julie Kresge. Alexandria, VA: 2001. This report is available on the Food and Nutrition Service website: http://www.fns.usda.gov/oane/ (accessed 22 July 03).

that preschoolers are more likely than school-aged children to modify lifestyle behaviors.[15] Reaching parents and children when they are developing eating patterns and relationships can help prevent overweight and ensure the development of healthy habits.

Reaching parents of young children is key to children developing healthy eating and physical activity habits.

15 Davis and Christoffel, 1994.

The *Fit WIC* Response—The Development of the *Fit WIC* Programs

What Was Already Known About the Causes of Overweight

At the outset of the project, the five *Fit WIC* teams reviewed and summarized current information regarding the causes and development of overweight among children.[16] Some well-documented factors included:

1. ***Genetics versus environment***
   Although genetics play a very important role in weight gain, rapid increases in the prevalence of childhood obesity over the past few decades point to the important role also played by environmental factors. An increase in childhood obesity of the current magnitude and speed cannot be due to genetic changes alone. Rather, the increase points to an environment that promotes the development of obesity. The physical and social environments in which children live influence their lifestyle, health habits and, ultimately, their weight.

2. ***Physical activity***
   Low levels of physical activity have been linked to increased overweight among children.[17] Opportunities for physical activity are very limited in many communities. Physical activity has been cut from many school schedules. Communities are developed around the automobile. Safety concerns and childcare schedules keep children in their homes during playtime. As reported by the CDC, walking and bicycling by children aged 5–15 years dropped 40% during the last two decades.[18]

3. ***Sedentary behavior***
   Direct observation of preschool physical activity has shown that substantial portions of free playtime are spent engaged in sedentary behavior.[19] Children are spending more time than ever before with computers and video games. A relationship of prolonged television viewing and some other sedentary behaviors to weight status in childhood has been reported.[20] Young children who watch more than 5 hours of TV per day were up to five times as likely to be overweight as those who watch 0-2 hours per day.[21] Television time has been positively correlated with children's requests for advertised foods and to overall caloric intake.[22] Research indicates that the impact of increased sedentary behavior may be independent of the impact of decreased physical activity.[23]

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16 For a list of some important scientific articles describing the causes of childhood overweight, see Appendix A. When cited in this document, they are referenced by author and year of publication in the footnotes.

17 Obarzanek et al., 1994; Sallis, 1993.

18 National Center for Chronic Disease Prevention and Health Promotion. "Physical Activity. Promoting Better Health: A Report to the President", http://www.cdc.gov/nccdphp/dash/physicalactivity/promoting_health/background.htm (accessed 3 June 03).

19 DuRant, 1994.

20 Dietz and Gortmaker, 1985; Hernandez et al., 1999.

21 Gortmaker et al., 1996.

22 Taras et al., 1989.

23 Salmon et al., 2000.

4. Eating behavior

Certain eating patterns have been associated with childhood obesity: a low intake of fruit and vegetables;[24] a high intake of sweetened beverages, such as soft drinks;[25] and a high intake of fast foods and of high-fat snack foods.[26] Food consumption away from home, including fast food consumption, has increased, resulting in a higher consumption of fat and calories.[27] Certain meal-related parenting techniques also contribute to childhood nutrition problems. For example, when parents use food as a reward, or restrict or coerce a child's food intake, children may develop eating patterns conducive to overweight.[28] Conversely, excessively permissive child-feeding practices, such as allowing children to snack at will, may result in overeating.[29]

> *Parenting choices may influence nutrition, physical activity, weight gain and the prevalence of childhood overweight.*

What the *Fit WIC* Project Teams Learned In Their Assessments of WIC Sites

During the first year of the project, each *Fit WIC* project team conducted assessments to help shape the development of intervention strategies. Teams collected information from WIC participants, staff and communities in their region, using interviews, surveys, and focus groups, to gauge attitudes and beliefs surrounding the issue of childhood overweight. Much of the research used qualitative techniques and the results must be interpreted accordingly. Despite differences in geography, population, and race/ethnicity of staff and participants at the five project sites, common themes emerged in the information gathered. The insights learned by the project teams about their WIC participants, staff and communities are summarized below.

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24 Müller et al., 1999; Neumark-Sztainer et al., 1996.

25 Ludwig, Peterson and Gortmaker, 2001.

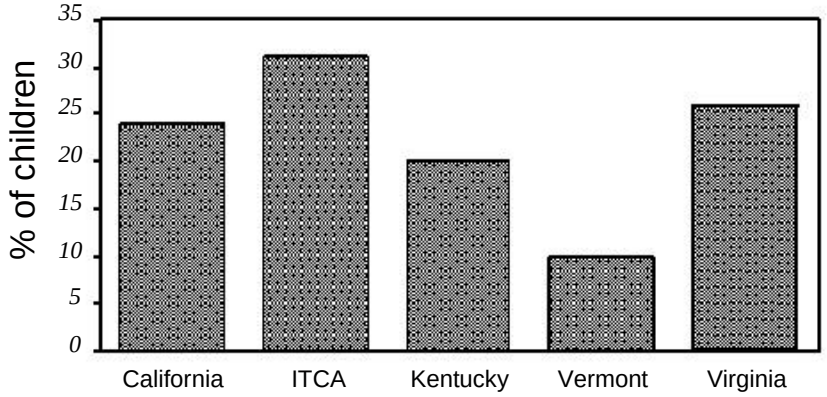
26 Müller et al., 1999; Tanasescu et al., 2000.

27 US Department of Agriculture, Agricultural Research Service. "What and where our children eat – 1994 nationwide survey results." Research news press release. http://www.barc.usda.gov/bhnrc/foodsurvey/Kidspr.html (accessed 29 May 2003).

28 Birch, Fisher, and Grimm-Thomas, "The development of children's eating habits." In: HL Meiselman (ed.), ~~Food Choice, Acceptance, and Consumption~~. Glasgow, England: Blackie, 1996; Birch 1999.

29 Birch and Fisher, 1995.

Figure 4. Prevalence of Overweight in Children in Fit WIC State Agencies[30]



Insights Learned From WIC Participants

1. ***Parents did not perceive overweight as a problem for preschool children.***
   Although the actual prevalence of overweight among the children at *Fit WIC* sites was high (see Figure 4) and comparable to the nation as a whole, most parents[31] were not worried about overweight for their preschool children. They believed that overweight was a problem for preschoolers only when it affected a child's activities, caused unhappiness, or was accompanied by other medical conditions. In fact, many parents, particularly recent immigrants, felt that a little extra weight indicated good health in a child. Some parents were more concerned about perceived underweight in their children than with overweight. Most parents of overweight children did not think their child was even "a little" overweight, and most also had difficulty identifying other heavy children as overweight, except in the most extreme cases.

> *Parents cannot be motivated to solve a problem if they do not recognize it as a problem.*

2. ***Parents were knowledgeable about WIC's health messages, but struggled to put knowledge into practice.***
   Although parents did not seem concerned about overweight, they did express concern about the health and welfare of their children and were interested in learning skills to help them lead healthier lives. When asked to think about how young children might become

30 Overweight prevalence in *Fit WIC* participants was reported by VA (ages 2-4 years). Overweight prevalence in the entire State WIC agency was reported by CA (ages 1-4 years), ITCA (ages 1-4 years), KY (ages 2-4 years), and VT (all infants and children enrolled in WIC). Definition of overweight varied by project team: a weight for height >90th percentile for CA, > 95thpercentile for VT and ≥90th percentile for ITCA and KY. VA defined overweight as a BMI greater than 95th percentile.

31 We use the term "parents" to describe the individuals who were interviewed or surveyed during the course of this project. While a majority of these "parents" were biological mothers, other care giving adults—fathers, foster parents, grandparents, adoptive parents, and other relatives – were also included.

overweight, parents generally blamed genetics and behaviors such as inadequate physical activity and consuming too much food or the "wrong" foods. Lack of self-control, poor parenting, stress in the family, and inadequate attention from parents were identified as potential causes of overweight. Many WIC parents reported having a basic understanding of nutrition and exercise, and they acknowledged the importance of establishing good eating habits in their children at an early age.

WIC parents talked freely about the many challenges they face in adopting healthy habits and expressed a desire to receive more in-depth and *how-to* information from WIC to help them overcome those barriers.

> *Parents are motivated to learn about techniques for healthier lifestyles.*

3. ***Parents lacked information about desirable activity levels for their families.***
While most WIC parents believed that physical activity was important to the health of their children, few could define adequate physical activity. Many WIC parents said that their child was "always doing something" or "always running around," to describe what they thought was adequate exercise. Other parents felt that their child would benefit from more exercise, but had difficulty defining *how much* exercise was sufficient. Most WIC parents felt that their own level of activity was "normal" regardless of the frequency or duration of activity, indicating a lack of information or knowledge as to desirable levels of activity for adults as well as children.

> *Parents recognize the importance of physical activity, but have trouble identifying what and how much activity is appropriate.*

4. ***WIC families face social and economic barriers to a healthy lifestyle.***
WIC families struggle with a variety of issues that hinder their ability to promote a healthy lifestyle within their families. Many parents have overextended schedules, leaving little time and energy to devote to a healthy diet and exercise. WIC families often live in areas that are unsafe or lack adequate play-space or programs.

Many WIC parents complained that their attempts to provide healthful foods and physical activity for their children were hampered by other adults living in the household. For example, some mothers said that their husbands had poor eating habits, which made it very difficult to feed their children healthfully. Others said that they could not turn off the TV, because another adult living with them insisted on keeping it on at all times. Consequently, parents expressed interest in WIC activities that involve the entire family, so that other family members could learn and provide support for a more healthful lifestyle.

Some WIC parents were more worried about running out of food altogether than about the types of food that they chose. Almost half of the surveyed California *Fit WIC* participants, for example, reported being worried about running out of food at some time during the month.

> *Healthy lifestyle recommendations must take into account the cultural and socioeconomic environment in which WIC clients live.*

5. ***WIC families receive conflicting health messages from health care providers.*** Parents complained of receiving conflicting health messages from providers such as physicians, WIC, and other organizations. For example, some parents were told by their pediatrician that their child was overweight but not to worry, and then were told by a WIC provider that they needed to address the issue. Conflicting messages are frustrating for parents and make it challenging for WIC staff to address these issues, since many parents would prefer to ignore the possibility that their child may be overweight.

> *Due to conflicting messages from health providers, parents may not recognize that their child is overweight.*

Insights Learned From WIC Staff and Communities

1. ***WIC staff had concerns about addressing childhood obesity with their participants.*** Unlike the WIC parents surveyed, most WIC staff members were concerned about the prevalence of overweight among the children served by WIC. They felt that inappropriate diet and feeding approaches, and inadequate physical activity, including too much TV, were contributing factors to the obesity they observed in WIC children.

   Despite their concern, many staff members were uncomfortable talking to WIC parents about childhood obesity. They felt that the limited nutrition education time available was inadequate to deal with this complex and sensitive problem. Staff perceived parents to be in denial of the problem, and sometimes even offended when the topic was discussed. Some staff were concerned that educating a mother about childhood obesity might make her feel guilty or might interfere with the rapport between educator and participant. Therefore, working with staff to overcome these obstacles is critical to the success of any counseling efforts.

Adding to the complexity of the staff-participant relationship is the fact that up to 50% of the staff in each state reported that they themselves were overweight. Consequently, some felt themselves to be poor role models and were uncomfortable counseling WIC parents about overweight issues.

2. ***Staff expressed a need for additional training on topics related to childhood overweight.***
   Staff members wanted more training and resources to address the issue of childhood overweight more effectively. Some staff requested better educational materials for parents, and specific training for themselves on topics such as:
   - The causes of and treatments for childhood overweight
   - Age-appropriate dietary and physical activity approaches to the problem
   - Ways to open a discussion with parents about overweight
   - How to deal with resistant parents and motivate and empower them
   - How to identify family barriers
   - Assessing and discussing long-term risks associated with early obesity

> *Staff need special training and resources if they are to effectively educate clients in an obesity prevention program within the framework of WIC.*

3. ***Staff identified institutional barriers to effective obesity education within WIC.***
   Staff members most often mentioned two particular institutional barriers to effective obesity prevention in the WIC setting:

   a) Inadequate resources
   Many staff members felt that they could do a better job counseling about weight issues if they had more time to work with parents one-on-one. Additionally, parents said they would like more time with a WIC dietitian. Unfortunately, within the current structure of WIC, the dietitian's participant contact time is usually spent with a limited number of high-risk individuals. Overweight children may not be identified as high risk and thus may not receive education from dietitians.[32]

   b) The WIC food package
   Several staff members expressed frustration that the WIC foods currently available to participants are inconsistent with an obesity prevention message. Staff members felt that the WIC foods were too high in fat and not reflective of current nutrition recommendations for children. They felt that the WIC food package does not reflect the current standards on which WIC's nutrition education is based: the Food Guide Pyramid

[32] Criteria used for designation of high-risk participants are at state discretion and vary from state to state.

developed by the USDA; the recommendations of the American Academy of Pediatrics regarding children's juice consumption (no more than 4-6 oz per day); and the American Cancer Society's 5-A-Day fruit and vegetable campaign. The WIC food package does not include whole fruits or vegetables, and it provides 9 oz of juice per child each day. Food package changes, as recommended in a recent report by the Institute of Medicine (IOM)[33], are currently under consideration by the USDA.

4. ***Limited community resources influence lifestyle choices of WIC participants.***
Some of the *Fit WIC* project teams examined broader community factors, which impact families' abilities to adopt a healthier lifestyle. Many WIC communities lack resources for physical activity and convenient access to nutritious foods and/or fresh produce. Further, many communities lack any organized effort to address these issues.

   Many of the community groups and individuals with an interest in the issue of childhood overweight had limited knowledge of the local WIC programs. Most community stakeholders surveyed were uncertain about the services WIC provides. They recognized a need to have more consistent health messages delivered by agencies serving their communities, and were eager to work with WIC towards this end.

[33] WIC Food Packages: Time for a Change (2005). Committee to Review the WIC Food Packages, Food and Nutrition Board, Institute of Medicine of the National Academies. The National Academies Press; Washington, DC.

The *Fit WIC* Response—The Five *Fit WIC* Intervention Programs

Each project team used the information collected during the first year assessment to develop an intervention appropriate to their situation. While each project team developed a unique intervention, several key concepts, which emerged from the first year of assessment, formed the basis of the interventions. Those key concepts were as follows:

- Parents were eager to receive information on how to live healthier lifestyles, even if they were not concerned about their children's weight
- Staff members were interested in learning how to deliver that information to parents more effectively; they wanted new knowledge and skills to improve their education sessions with participants
- Community groups were concerned about the rising rates of childhood overweight and were responsive when leadership was offered by WIC

The following pages summarize the five *Fit WIC* programs. The summaries include information about the demographics of the respective WIC State agency, the goals of the particular *Fit WIC* program, and a brief description of how the program worked and what it accomplished.

Each program is also described in detail in the manual entitled "*Fit WIC*: Programs to Prevent Childhood Overweight in Your Community".[34] This manual was prepared by the *Fit WIC* project teams for use by WIC administrators, clinicians, and educators as a step-by-step guide for the implementation of the five *Fit WIC* programs. It was distributed to all WIC State agencies and is available online at the WIC Works Resource System.

[34] See Appendix C for a more detailed description of the Implementation Manual and the associated materials produced by the *Fit WIC* projects and how to obtain them.

The *Fit WIC* Response—Summary of Findings

The successes of *Fit WIC* indicate that WIC is positioned to play a significant role in efforts to prevent obesity in preschool children. What follows is a list of findings of the five *Fit WIC* project teams.

- Training, specialized educational materials, and increased time with participants allowed staff to effectively address the complex issue of childhood overweight with WIC parents.

- Education sessions that focused on healthy behaviors were more effective than those which focused on weight issues, since parents often fail to identify overweight in their own children.

- Parents were eager to receive information on healthy lifestyle choices, and especially wanted activities that involved the entire family in their efforts.

- WIC staff felt that training, appropriate educational materials, and more time with participants allowed them to build the rapport essential for addressing the sensitive issue of childhood overweight with WIC parents.

- Physical activity promotion is an important adjunct to the promotion of healthy eating.

- When provided with wellness opportunities in the work place, staff felt they could be more effective health educators. They could more easily provide positive modeling of healthy behaviors for WIC participants and better understand the obstacles faced by overweight participants.

- Community stakeholders recognized the role of WIC as a leader and partner in obesity prevention efforts.

The *Fit WIC* Response—Recommendations

The WIC program was created by Congress to provide low-income pregnant women, infants and children with nutrition education, nutritious supplemental foods, and referrals to other health, welfare and social service agencies during critical times of growth and development. The original purpose of WIC's nutrition education was to teach pregnant and postpartum participants (whose diets were inadequate) about the value of good nutrition. With the increasing prevalence of childhood overweight in the nation, especially in low-income-families, the need to adapt the nutrition education and services offered by WIC agencies has become clear. To help address the complex problem of obesity and its related health problems, the scope of nutrition education and training in WIC must be expanded and new teaching methods must be introduced.[39]

The following recommendations for institutional change in WIC were made by the *Fit WIC* project teams with the goal of making WIC more responsive and effective in the fight against the epidemic of childhood obesity. The recommendations are based on the experiences of the *Fit WIC* project teams and on the results of their qualitative research. These findings are limited in the extent to which they can be generalized to other contexts. However, the clinical and research experiences of the project teams, both individually and collectively, in the field of childhood overweight prevention are extensive. The project teams propose that if these recommendations were to be followed, the WIC program could contribute significantly to the nation's efforts to prevent childhood overweight. At the same time, the *Fit WIC* project teams recognize that further research needs to be done to evaluate the impact of interventions in the WIC clinic on physical activity levels, eating patterns and prevalence of overweight in WIC participants.

What Can Be Done Within the Current WIC Program Structure

1. ***Develop and encourage the use of participant-centered assessment and education procedures.***
   The purpose of participant assessment should be not only to determine risk and eligibility, but also to gather information for subsequent participant-centered nutrition education strategies. When WIC staff use participant-centered assessment techniques, they can tailor their nutrition education sessions to the needs and circumstances of participants. As a result, staff will be able to develop more effective counseling relationships with participants.

2. ***Adopt physical activity as an essential element of nutrition assessment and education.***
   Integrating the topic of physical activity into assessment procedures and education will enable local WIC programs to foster the spectrum of health behaviors necessary to prevent childhood overweight in their participants.

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[39] United Sates General Accounting Office. Report to Congressional Committees, GAO-02-142. "Food Assistance: WIC Faces Challenges in Providing Nutrition Services", pages 10-12. December 2001. Available for downloading on http://www.gao.gov/.

3. ***Foster the potential of WIC staff members to be role models for healthy behaviors.***
   Providing staff with a supportive work environment conducive to healthy eating and physical activity can empower staff members to make changes in their personal health habits. Staff who practice the healthy habits that they teach can become more confident and effective health educators. Within the current WIC structure and at no additional expense, a site can encourage group walks at lunch, activity breaks for WIC staff, and healthy snacks at group gatherings.

4. ***Change the focus of participant education from weight to healthy lifestyle.***
   WIC parents and staff often differ in their perceptions of overweight and its causes, and parents often fail to recognize that their child is overweight. Therefore, discussions that focus specifically on weight are not likely to be productive. When the discussion centers on improving health behaviors within the entire family, rather than on the child's weight, nutrition education is likely to be more effective, and the entire family will benefit. This would also allow all children, regardless of current weight status, to be included in nutrition education protocols aimed at promoting healthy lifestyles. Educators should weave practical, how-to information and skill building activities into every aspect of WIC education.

WIC Program Enhancements Likely to Require Additional Funding Beyond the Current WIC Appropriation

1. ***Expand and update training for WIC staff.***
   Training should include these specific areas and topics:
   - The causes, prevention and treatment of childhood overweight
   - Successful methods to open a discussion with parents about overweight
   - Successful intervention strategies, including dealing with resistant parents, helping families to identify barriers, and motivating participants
   - The barriers that WIC participants face in their everyday lives to achieving a healthy lifestyle for themselves and their families
   - Cultural issues related to the topic of childhood overweight
   - The differences in perception about overweight that exist between WIC staff and participants

2. ***Provide wellness opportunities at work for WIC staff.***
   This could take many forms, from exercise classes on site, to activity breaks, to the use of incentives for documented improvements in health-related behaviors. All staff, even the "front-line" support staff, should be included in wellness activities,[40] to maximize the benefit of these programs.

3. ***Establish partnerships with community agencies to develop comprehensive community-wide interventions.***

[40] For activities that involve a program cost, WIC Policy Memorandum #95-5 and OMB circulars A-87 and A-122 currently provide guidelines regarding allowable costs.

The scope of the problem of childhood obesity requires a community-wide effort. By working with community groups, WIC can garner support for sustainable community changes that will impact the health habits of residents. WIC staff will need additional time and training to develop the leadership skills necessary for forming community task forces or work groups. This effort will support the effectiveness of WIC's educational messages and programs in the broader community.

4. ***Increase staffing levels in WIC so that more staff time can be devoted to individual counseling and group education.***
   Current staffing levels do not allow adequate time for WIC staff to address the complex issue of childhood obesity. Although all clients are offered nutrition education, extended contact time is usually reserved for clients who meet high-risk criteria not related to obesity.

What Next? The Future of WIC's Role in Childhood Obesity Prevention

1. ***Fund additional research to evaluate the impact of obesity prevention initiatives in the WIC setting.***
   While the *Fit WIC* projects suggested a number of promising program opportunities, they were not designed to evaluate the effects of programmatic change on children's dietary habits, physical activity levels or weight status. Future efforts of WIC in the area of childhood obesity prevention should build on the success of *Fit WIC* and rigorously evaluate activities and materials developed through *Fit WIC* as well as the recommendations contained in this report.

2. ***Fund research to study ways to change the WIC food package.***
   The WIC food package should reflect current federal guidelines for a healthful diet using the Dietary Guidelines for Americans, the Food Guide Pyramid and the Food Guide Pyramid for Children. In September 2003, FNS contracted with the Institute of Medicine (IOM) to complete a thorough, independent review of the WIC food package; results and recommendations were released by the IOM in April, 2005 and FNS is currently reviewing the report recommendations.

By adopting these recommendations and continuing to pursue strategies to prevent overweight in the WIC setting, the WIC program can contribute significantly to the national effort to prevent childhood obesity.

Project Description

The primary goal of NH Fit WIC is to address the ever-growing problem of overweight in NH WIC preschoolers, ages three to four years old. Through the use of Fit WIC educational materials originally developed by the Vermont WIC Program, targeted NH WIC agencies will begin delivery of physical activity messages. Objectives will be to increase physical activity and decrease sedentary behaviors of three to four year old WIC children. Playgroups for families that demonstrate appropriate physical activities and facilitated discussion groups for parents will be paramount in attempting to change behaviors for their lifetime. A major activity will be conducting playgroups at WIC clinics. Providing simple, age appropriate physical play ideas through education on the Fit WIC Parent Activity book to families will assist in establishing the importance of physical activity for preschoolers.

The first strategy will be to offer culturally and linguistically appropriate physical activity education to Hispanic families enrolled in the NH WIC Program. An organization with expertise in cultural competence will assist in evaluating the Fit WIC Parent Activity book for cultural acceptance for NH's increasing Hispanic population. Cultural adaptations to the book, along with translation to Spanish, will enhance acceptability and encourage use. In order to provide Fit WIC education reinforcement to Hispanic families, the NH Minority Health Coalition's (MHC) Bright Start Home Visiting Program staff will be provided with Fit WIC training.

Our second strategy is to increase and improve collaborations among community health and education programs that serve three and four year old WIC children in an effort to promote consistent age appropriate physical activity messages. Fit WIC coordinators will conduct train the trainer sessions for community partners that serve WIC preschoolers. Participating community partners will be Head Start teachers, peer educators, and nutritionists from programs such as University of New Hampshire Cooperative Extension "Nutrition Connections" and the NH Minority Health Coalition. Training will include the use of NH Fit WIC materials with an emphasis placed on conducting Fit WIC playgroups in their programs.

Fit WIC includes an outreach component that will create awareness of the project and the need for physical activity opportunities for preschoolers to the community. Visits to pediatricians will encourage reinforcement of Fit WIC messages and increase health care provider awareness of WIC activities to reduce childhood overweight. Outreach to libraries in the state will promote and encourage reinforcement of Fit WIC messages in the community. The library outreach efforts will focus on the literacy component of the Fit WIC Parent Activity book, which provides reading lists that promote active play and for "Quiet Time".

Our third strategy of the Fit WIC Project will be to address NH WIC staff's ability to deliver effective and high quality nutrition services to WIC families. We seek to enhance and improve WIC staff competencies addressing overweight issues with participants. Specific focus will be directed at physical activity education and weight counseling skills. Our goal will be met through the following activities. Focus groups of NH WIC participants will be conducted in order to evaluate the acceptance and effectiveness of

WIC nutrition counselors. To prevent duplication, WIC focus group results from other states previous projects will also be utilized. After evaluation of the focus group results, targeted training will be developed and offered to all NH WIC professional and paraprofessional nutrition staff. The training will build on counseling skills and incorporation of participant needs and wants.

The Fit WIC Project will be available statewide in various environments. The first priority of Fit WIC education and materials will be three and four year old children enrolled at local WIC agencies throughout the state. As funding allows, we will promote the messages with strategic community partners in an effort to make a stronger lasting impact on families. As stated above, components of the Fit WIC Project will be introduced into Head Start, libraries, the medical community, and participant homes.

Efforts to evaluate the project will include both quantitative and qualitative measures. Direct measures will include heights, weight, and BMI calculation of WIC children. Indirect measures will include focus groups and surveys conducted with both staff and participants before and after our project. A formal evaluation contract with an organization, such as the Community Health Institute will be developed.

Focus Area

The New Hampshire WIC Nutrition Program is eager to join USDA in its effort to revitalize quality nutrition services. Our proposed project entitled Fit WIC will address two challenges identified by the GAO, assessing the effect of nutrition services and improving our ability to respond to emerging health issues. Nutrition education revitalization will address problem areas that have been identified by USDA, and specifically strengthen the nutrition education element of our program through changing nutrition counseling to a more participant centered behavior change for life approach.

Fit WIC will dovetail well with the FNS/USDA Value Enhanced Nutrition Assessment (VENA) initiative in the area of staff training. VENA provides a positive approach to nutrition services based on desired health outcomes rather than on deficiencies. It complements participant centered nutrition services by creating a partnership with the participant in goal setting. The NH WIC staff training component of the Fit WIC project will strengthen competencies in nutrition assessment and counseling. New skills, such as conducting facilitated discussion groups, will be developed and comfort levels improved for discussions about overweight. Nutritionists will be more effective in facilitating behavior changes with WIC participants.

The Hispanic portion of our project puts a focus on Hispanic participant needs by tailoring to their specific cultural and language needs. By offering playgroups (at WIC and in the home setting) and providing materials in their language, we can more effectively enable positive change to happen.

The portion of the project that extends Fit WIC into the community will reinforce WIC nutrition counseling by exposing participants to consistent health messages in a variety of settings. Health research has shown that repeated exposure to a message, especially when delivered through multiple channels, may intensify its impact. Through this

layering of physical activity messages we increase the likelihood of positively affecting behavior change.

The Fit WIC groups will invigorate our nutrition services by making WIC a pleasant, fun place for young children. It will also serve as a model of learning environment. Observational learning theory states that modeling increases caregiver's self-efficacy. Increased confidence levels will make parents and caregivers more likely to increase physical activity in their children. Fit WIC playgroups will also have a positive effect on nutrition staff by allowing creativity and displacing the routineness of one on one nutrition counseling.

Project Design

A. Need for Project

New Hampshire WIC's rates of pediatric overweight and risk of overweight have been consistently higher than the rest of the nation. In 2004, NH had more overweight children than the nation in all age groups and ethnic categories. Children ages two to five years with a BMI > 95th % for age has risen from 14.6% in 2001 to 16.2 % in 2005. 2005 CDC Pediatric Nutrition Surveillance System (CDC PedNSS) data shows that 18.1 % of NH WIC children between 36 and 47 months are overweight, as defined by >95th percentile BMI for age. An additional 19.6 % in this age group are at risk of overweight as defined by 85th to 95th percentile BMI for age. 16.9 % of children between 48 and 59 months of age are overweight, and 20 % are at risk for overweight. In comparison with the rest of the United States, NH is higher in both categories, at risk for overweight and overweight. (2004 & 2005 CDC PedNSS)

In 2004, 19.2% of third grade girls and 23.3% of third grade boys were overweight in NH at >95th% BMI for age (NH Health Assessment Project). The habits learned by preschool aged children are continuing into the school years and the overweight and obese numbers still climb higher as they enter high school. If the problems of sedentary lifestyle are addressed and patterns of families altered when children are young, the less likely they are to be obese as adults. WIC is the primary nutrition education program for almost 50% of US children, and has the unique opportunity to reach many families while children are in the preschool years. Given the scope of the pediatric overweight problem in NH, reaching out to all areas of the State is necessary to begin to reverse this growing trend.

The NH WIC Nutrition Program began to address these issues of overweight among its preschool population with the implementation of Fit WIC in the spring of 2006. The Fit WIC Parent's Activity book developed by the Vermont WIC Program was adapted for New Hampshire by adding local community resources. Training for NH WIC staff was held this spring and rollout of Fit WIC began at four local WIC agencies. Caregivers of three and four year old participants receive a Fit WIC Parent Activity book and activity kit at certification appointments. Reinforcement of Fit WIC principles occurs at the second nutrition contact three months later. WIC agencies will be hosting "Fit WIC Playgroups" at various clinics. Three and four year old children and their caregivers are invited to participate in some of the activities found in the Fit WIC Parent Activity book. Due to the cost of the Parent Activity book and Kit, NH is currently reaching about 30% of three-four year old children with the Fit WIC materials. The problems of overweight among the WIC population expand to each corner of our state and obtaining funds from the USDA Special Projects Grant would enable the expansion of the Fit WIC Project into a new initiative called NH Fit WIC which will provide fun educational opportunities to all three and four year old children served by NH WIC.

Nutrition staffs often lack a comfort level in talking with parents about the sensitive issue of an overweight child. The Fit WIC project provides an opportunity to address overweight issues in a positive way by encouraging healthy lifestyles. The traditional approach to nutrition counseling in WIC has been very logical and based on the transference of information from nutrition professionals to parents and caregivers. The

rise in overweight children shows that we are not creating lifelong behavior change. We acknowledge that a more effective approach is needed to facilitate behavior change. Modeling behaviors of physical activity through Fit WIC Groups will assist NH WIC staff in bridging a gap between providing education on health and modeling healthy behaviors.

Parents of three and four year old children face situational obstacles to providing opportunities for physical activity for their kids. Weather, safety issues, and lack of ideas are frequently voiced as reasons for not becoming physically active. Fit WIC addresses these concerns with easy physical activity options for inside and out. Fit WIC Parent Activity book and kit takes the difficult task of planning what to do with young children when it is cold outside or they lack a playground, and puts a multitude of ideas at the fingertips of parents. Many community groups, including health care providers, schools, non-profit organizations, and private citizens are concerned about the issues of childhood overweight. Many of these groups are working on the problem through specific programs and individual counseling. Families may find themselves receiving a multitude of advice from various disjointed and sometimes contradictory sources. Through Fit WIC we will conduct outreach as well as Train the Trainer opportunities to community partners. Through outreach to health care providers, WIC can emerge as an authority on issues of pediatric overweight and improve communication and collaboration on consistent physical activity messages.

NH is a fairly homogenous state, however the Hispanic population in growing and we lack quality cultural and linguistically appropriate materials. Since 1998, the number of Hispanic children enrolled in WIC in NH has increased from 1% to almost 7% (2005 CDC PedNSS). Translation of the Fit WIC materials will enable us to better educate Hispanic families about physical activity. The rate of overweight (>95th% BMI for age) is 20.6% for NH Hispanic children, two years and older. Comparatively, white children and black children > 95th % BMI for age are at 15.4 % and 11.4% respectively (2005 CDC PedNSS). Given that Hispanic children have higher rates of overweight, the needs of this population for nutrition and physical activity intervention should and will be addressed. Sharing of this publication on the USDA WIC Works website will benefit other WIC programs by providing Spanish physical activity education materials for the preschool age group.

B. Goal/Objectives/Tasks

The primary goal of the project is to reduce the problem of childhood risk of overweight and overweight for New Hampshire WIC preschoolers, ages three to four years old.

Objective 1

Increase physical activity; decrease sedentary behaviors; slow upward progression of BMI of three to four year old NH WIC preschoolers.

Task Table

Task No.	Task Name	Description	Justification/Necessity
1	Fit WIC Parent Activity book & kits procurement English	Print, and distribute Fit WIC Parent Activity book (English) and kits to be given to 3-4 year old WIC children ongoing over 3 year grant period.	To provide age appropriate activity ideas to parents for their preschool child; addresses common barriers to physical activity.
2	Marketing of Fit WIC concept	Create a seasonal insert to the WIC statewide newsletter that will market the Fit WIC concept (quarterly).	To promote the concept of the parent as the child's most important teacher to keep the Fit WIC concept fresh, seasonal and prominent to WIC families, staff and community partners.
3	Fit WIC Training	Conduct training on Fit WIC concepts for WIC staff and partner agencies. Additional training provided in years 2 & 3 for new staff.	To offer consistent messaging and understanding of physical activity needs of preschoolers.
4	WIC staff training	Conduct training on counseling skills.	To offer participant centered education, motivational interviewing, facilitated discussion, counseling techniques.
5	Fit WIC Playgroups	Establish and conduct playgroups at WIC & community partners ongoing for 3 year grant period.	Social Cognitive Theory indicates behavior change may occur as the result of observing the action of others. Allows for repeat messaging on the importance of physical activity for preschoolers.
6	Evaluation	Use Fit WIC physical activity survey and anthropometric measurements ongoing over 3-year grant period.	Essential to evaluate the effectiveness of the Fit WIC project; provide direct and indirect evaluation components; Ongoing feedback for effectiveness of the project; provides direct and indirect measurements.

Objective 2

Increase availability of culturally and linguistically appropriate physical activity education and opportunities to NH WIC Hispanic families.

Task Table

Task No.	Task Name	Description	Justification/Necessity
1	Cultural Evaluation/translation of Fit WIC Parent Activity book	Evaluation of Fit WIC Parent Activity book for cultural appropriateness. Translation into Spanish.	Providing the Fit WIC Parent Activity book is essential for reaching the Hispanic population that bears a greater burden of overweight and obesity.
2	Focus Group	Evaluation of the needs and perceptions of Hispanic WIC families.	To provide education that will resonate with Hispanic families.
3	Fit WIC Education	Distribute Fit WIC Parent activity books and kits to 3-4 year old Hispanic WIC children in agencies with > 10% Hispanic families.	The parent book is a central component for providing age appropriate activity ideas to parents for their preschool child in their language.
4	Bilingual Fit WIC educator- 2nd year	Hire a bilingual educator to work at WIC sites with high population of Spanish families conducting groups.	Peer to peer support and modeling for more effect in helping participants adopt the desired behavior of increasing physical activity.
5	Spanish Playgroups year 2nd & 3rd year	Offer playgroups at WIC in Spanish with >10% Hispanic families in caseload.	Social Cognitive Theory indicates behavior change may occur as the result of observing the action of others. This would be more effective if playgroups were provided in the participant's primary language.

Objective 3

Increase the frequency of consistent physical activity messages among community partners through training, collaboration, expansion, and delivery of the Fit WIC concept that result in more active play by preschoolers.

Task Table

Task No.	Task Name	Description	Necessity/Justification
1	Procure Staff	Recruit/hire Fit WIC Project Coordinator and Educators.	Coordinator to manage the Fit WIC educators, manage outreach & evaluation. Educators to provide training & conduct Fit WIC playgroups.
2	Program development	Contact community partners to offer Fit WIC Train the trainer sessions (such as Head Start, Cooperative Extension staff, MHC); Training material development.	To establish interested agencies and places to conduct Fit WIC trainings for staff and Fit WIC groups for kids.
3	Fit WIC Staff Training	Train Fit WIC Coordinator & AmeriCorps members on Fit WIC implementation.	To enable Fit WIC staff to conduct trainings and groups.

4	Schedule & conduct training	Provide Train the Trainer sessions statewide in various places for Head Start Teachers, WIC staff, & Home visitors from various programs.	To train community partners in order to get Fit WIC into the mainstream.
5	Conduct Fit WIC Groups	Fit WIC Educator to visit WIC and Head Start sites to assist, conduct, and reinforce Fit WIC groups throughout grant period.	To promote Fit WIC in the community and make physical activity a part of daily routines in multiple venues.
6	Outreach/ Marketing	Offer and conduct inservices on Fit WIC to MD offices. Promote Fit WIC through various media sources.	To promote Fit WIC and increase awareness of WIC's efforts in the obesity problem.
7	Literacy Outreach	Reinforce Fit WIC messages through books that promote healthy behavior included in the Fit WIC Parent Activity book.	To establish the link between literacy and physical activity.
8	Quality Assurance	Fit WIC Coordinator to visit Fit WIC sites to supervise Fit WIC Educators, conduct Quality Assurance, surveys, and additional training.	Assure integrity of Fit WIC program/messages and direction of program is appropriate.

Objective 4

Improve WIC staff competencies to address the overweight issues with WIC families.

Task Table

Task No.	Task Name	Description	Necessity/Justification
1	Focus Groups	Year 1 Conduct focus groups for staff and WIC participants. Evaluate focus group results re: nutrition counseling services provided and overweight.	To evaluate NH WIC participants needs and evaluate current WIC nutrition services for skills, acceptance, and effectiveness.
2	Staff Training	Provide annual training on counseling skills such as facilitated discussion groups, motivational interviewing techniques, using emotion-based messages.	To create a counseling environment that is up to date with techniques that are participant centered.
3	Staff Support	Year 1 Develop and provide continuing ed/skill enhancement materials for WIC staff.	Support staff development and promote practice of new techniques.
4	Focus Groups	Year 3 Conduct focus groups for staff and WIC participants.	Evaluate training program effectiveness on counseling competencies & WIC nutrition services for quality.

C. Environment

The Fit WIC Project will reach all four of our local NH WIC agencies. The Head Start Program will be a strong collaborator on the project at the state level, so it is projected that multiple Head Start Programs in the State will participate. Our project aims to market our physical activity message in a variety of settings to increase reinforcement and the likelihood of creating behavior change. Fit WIC education will be provided in a

variety of ways in WIC clinics, Head Start classrooms, participant homes, libraries, and health care offices.

The portion of the project that will provide culturally and linguistically appropriate physical activity education to Hispanic families will be a more targeted effort. NH's Hispanic population is growing the fastest in three cities served by two local WIC agencies. Translated materials and Spanish Fit WIC education will be available to both agencies that serve this population and to other agencies on an as needed basis.

Useful Tools Produced by the Five *Fit WIC* Projects

1. *Fit WIC*: Programs to Prevent Childhood Overweight In Your Community. The Implementation Manual for the *Fit WIC* Childhood Overweight Prevention Project. P.C. Crawford, M.C. Schaeffer and E. Herzog, Editors. United States Dept. of Agriculture, Food and Nutrition Service, May 2003.

The Implementation Manual was prepared by the *Fit WIC* project teams for use by WIC administrators, clinicians, and educators as a step-by-step guide for the implementation of the five *Fit WIC* programs. Background information, some of the results of the qualitative and quantitative research done as part of the project, steps to implement the programs, lessons learned, recommendations and useful resources are included. The Implementation Manual was distributed to all 50 WIC State agencies, along with the tools needed for implementation of the programs. The Manual and all forms and tools needed are available through the *Fit WIC* link on the *WIC Works* website: http://www.nal.usda.gov/wicworks/.

Also, an overview of the 5-State *Fit WIC* Overweight Prevention Project can be found on The Center for Weight and Health's website, http://www.cnr.berkeley.edu/cwh/activities/fitwic.shtml.

2. Papers Published by the Five *Fit WIC* Project Teams

Burdette HL, Whitaker RC. Neighborhood playgrounds, fast food restaurants, and crime: Relationships to overweight in low-income preschool children. Preventive Medicine 2004;38(1):57-63.

Burdette HL, Whitaker RC, Daniels SR. Parental report of outdoor playtime as a measure of physical activity in preschool-aged children. Archives of Pediatric and Adolescent Medicine 2004;158(4):353-357.

Burdette HL, Whitaker RC, Harvey-Berino J, Kahn RS. Depressive symptoms in lowincome mothers and emotion and social functioning in their preschool children. Ambulatory Pediatrics 2004;3(6):288-294.

Burdette HL, Whitaker RC, Kahn RS, Harvey-Berino J. The association of maternal obesity and depressive symptoms with television viewing time in low-income preschool children. Archives of Pediatric and Adolescent Medicine 2003;157:894-899.

Chamberlin LA, Sherman SN, Jain A, Powers SW, Whitaker RC. The challenge of preventing and treating obesity in low-income, preschool children: perceptions of WIC health professionals. Archives of Pediatric and Adolescent Medicine 2002;156(7):662- 668.

Crawford PB, Gosliner W, Anderson C, Strode P, Bercerra-Jones Y, Samuels S, Carroll AM and Ritchie LD. Counseling Latina mothers of preschool children about weight issues. Journal of the American Dietetic Association 2004;104(3):387-394.

Crawford PB, Gosliner W, Strode P, Samuels S, Burnett C, Craypo L and Yancey A. Walking the talk: staff wellness improves counseling for childhood obesity. American Journal of Public Health 2004;94(9):1480-1485.

Harvey-Berino J, Geller B, Dorwaldt A, Flynn K, Walfield L. A qualitative data analysis of parental attitudes towards preschool physical activity. Annals of Behavioral Medicine 2001;23:24S.

Jain A, Sherman SN, Chamberlin LA, Carter Y, Powers SW, Whitaker RC. Why don't lowincome mothers worry about their preschoolers being overweight? Pediatrics 2001;107(5):1138-46.

Jain A, Sherman SN, Chamberlin LA, Whitaker RC. Mothers misunderstand questions on a feeding questionnaire. Appetite 2004;42(3):249-254.

McGarvey EL, Keller A, Forrester M, Williams E, Seward D, Suttle DE. Feasibility and benefits of a parent-focused preschool child obesity intervention. American Journal of Public Health 2004;94(9):1490-1495.

Whitaker RC. Obesity prevention in pediatric primary care: Four behaviors to target. Archives of Pediatric and Adolescent Medicine 2003;157(8):725-727.

Whitaker RC, Sherman SN, Chamberlin LA, Powers SW. Altering the perceptions of WIC health professionals about childhood obesity using video with facilitated group discussion. Journal of the American Dietetic Association 2004;104(3):379-386.

3. Abstracts Published by the Five *Fit WIC* Project Teams

Burdette HL, Whitaker RC, Harvey-Berino J. Television viewing and outdoor time in lowincome preschool children: relationship to depression, perceived stress, and BMI in their mothers. Obesity Research 2001;9 (suppl. 3):59S (abstract no. O28).

Burdette HL, Harvey-Berino J, Kahn RS, Whitaker RC. Maternal depression and obesity predict television viewing in low-income preschool children. Pediatric Research 2002;51:203A (abstract no. 1180).

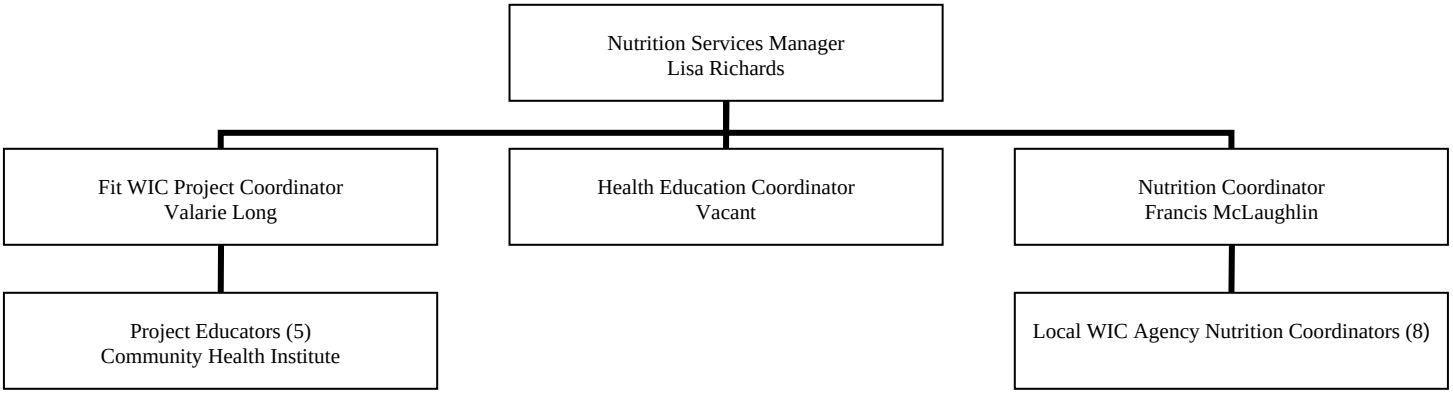
Burdette HL, Kahn RS, Harvey-Berino J, Whitaker RC. The relationship of well-being in low-income mothers to emotional and social functioning (PedsQL™) in their preschool children. Pediatric Research 2002;51:197A (abstract no. 1144).

Fit WIC Educator Position Description

- Work with State-wide Fit WIC coordinator to develop and oversee Fit WIC program at local WIC agency.
- Provide overall supervision of Fit WIC in local WIC agency.
- Develop local agency plan for implementation of Fit WIC that is tailored to the needs of the local agency.
- Conduct……
- Recruit community partners to collaborate with Fit WIC.
- Work with…..
- Keep constant communication with Community Partners to facilitate consistent collaboration.
- Provide partners…..
- Provide literacy…..
- Implement Fit WIC Evaluation Strategies.
- Adjust activities based on evaluation feedback.
- Other relevant duties as assigned.
- Conduct playgroups at WIC clinic sites.
- Work with Head Start, Home Visiting, UNH Cooperative Extension and other community partners to promote WIC Fit-N-Fun messages.
- Provide partners with ideas on how to promote literacy and physical activity.
- Provide literacy education activities for children at WIC clinic sites.

Fit WIC Organization Chart

Organization Chart
New Hampshire Fit WIC Project
May 2007



The above organization chart includes the chain of command for key staff, and does not include staff with very minimal responsibilities, such as the Nutrition and Health

Promotion Section Administrator and Secretary. Their responsibilities will be at most one-two hours a month and their salaries will not be paid by the grant. The Project Coordinator, Nutrition Coordinator, and Health Education Coordinator are all State employees. The Nutrition Coordinator will indirectly supervise the local WIC agency nutrition staff involved in Fit WIC.

Task leaders will include the top four positions in the organization chart, and will meet on a biweekly basis in the early stages of the project, and on a monthly basis in the later stages. All staff has email access and their desks/computers are located in a central area, thus allowing for easy coordination and informal discussions. The Nutrition Services Manager and the Project Coordinator will be responsible for assuring the project remains on time and within budget. The Project Coordinator will be responsible for writing the quarterly performance reports, which will be submitted to the Nutrition Services Manager one week ahead of USDA deadline for her review, before submittal to USDA.

Contingency Plans

If the Nutrition Services Manager is unable to supervise the project, her responsibilities for the project will be shifted to the State Nutrition Coordinator. As the anticipated commitment by the Nutrition Services Manager is minimal, this will not create undue burden on the Nutrition Coordinator. The Nutrition Coordinator and the Health Education Coordinator will be working cooperatively on the grant responsibilities, so will be able to take over when necessary for each other. Both have the requisite skills, and both have considerable WIC Program management experience and are very familiar with the current NH Fit WIC project. All three staff described above are State staff, and will not be consultants or contracted employees for the project.

The Fit WIC coordinator will be an individual hired specifically for the project. The person hired will be asked to commit to at a least three-year term of hire, and will be required to provide at least a three-week termination notice if a situation arises and she/he cannot remain in the position. If a situation requires her/him to leave during the grant period, responsibilities will be shifted to the State Nutrition Coordinator and the Health Education Coordinator until a replacement can be hired.

Tools for Overcoming Barriers to Active Physical Play

"If you can find a path with no obstacles, it probably doesn't lead anywhere." — Anonymous

Given the health benefits of regular physical activity, we might have to ask why two out of three (60%) Americans are not active at recommended levels. There are barriers that keep Americans from being, or becoming, regularly physically active. Understanding common barriers to physical activity and creating strategies to overcome them may help you make physical activity part of your daily life.

Environmental Barriers

Social environments such as school, work, family and friends can significantly influence an individual's level of physical activity. However, characteristics of our communities such as the accessibility and location of parks, trails, sidewalks, and recreational centers as well as street design, density of housing, and availability of public transit may play and even greater role in promoting or discouraging an individual or family's level of physical activity. There are also significant environmental barriers from water and air pollution to crime and dangerous automobile traffic.

To address this, the Centers for Disease Control and Prevention has initiated the ACES: Active Community Environments Initiative project to promote and support the awareness and development of places where people of all ages and abilities can easily enjoy walking, bicycling, and other forms of recreation.

There are many opportunities within our environment that support physical activities from parks, trails, and sidewalks to recreation and fitness centers. Even malls provide opportunities for fitness walking. Understanding environmental opportunities and barriers that we face in our pursuit for a healthy lifestyle may provide some of the knowledge necessary to promote healthy living. This information may also provide ideas for advocacy and civic participation.

For more information on the Active Community Environments Initiative and how you can support a positive environment for physical activity in your community, please visit ACES: Active Community Environments Initiative.

Personal Barriers

Aside from the many technological advances and conveniences that have made our lives easier and less active, many personal variables, including physiological, behavioral, and psychological factors, may affect our plans to become more physically active. In fact, the 10 most common reasons adults cite for not adopting more physically active lifestyles are (Sallis and Hovell, 1990; Sallis et al., 1992)

- Do not have enough time to exercise
- Find it inconvenient to exercise
- Lack self-motivation
- Do not find exercise enjoyable
- Find exercise boring
- Lack confidence in their ability to be physically active (low self-efficacy)
- Fear being injured or have been injured recently
- Lack self-management skills, such as the ability to set personal goals, monitor progress, or reward progress toward such goals
- Lack encouragement, support, or companionship from family and friends, and
- Do not have parks, sidewalks, bicycle trails, or safe and pleasant walking paths convenient to their homes or offices.

How can I figure out which barriers affect me most?

The Barriers to Being Active Quiz can help you identify the types of physical activity barriers that are undermining your ability to make regular physical activity and integral part of your life. The quiz calculates a score in each of seven barrier categories. Once you've taken the quiz and identified which barriers affect you the most, look at the table below for suggestions on how to overcome them.

Suggestions for Overcoming Physical Activity Barriers	
Lack of time	Identify available time slots. Monitor your daily activities for one week. Identify at least three 30-minute time slots you could use for physical activity.
	Add physical activity to your daily routine. For example, walk or ride your bike to work or shopping, organize school activities around physical activity, walk the dog, exercise while you watch TV, park farther away from your destination, etc.
	Make time for physical activity. For example, walk, jog, or swim during your lunch hour, or take fitness breaks instead of coffee breaks.
	Select activities requiring minimal time, such as walking, jogging, or stairclimbing.
Social influence	Explain your interest in physical activity to friends and family. Ask them to support your efforts.
	Invite friends and family members to exercise with you. Plan social activities involving exercise.

	Develop new friendships with physically active people. Join a group, such as the YMCA or a hiking club.
Lack of energy	Schedule physical activity for times in the day or week when you feel energetic.
	Convince yourself that if you give it a chance, physical activity will increase your energy level; then, try it.
Lack of motivation	Plan ahead. Make physical activity a regular part of your daily or weekly schedule and write it on your calendar.
	Invite a friend to exercise with you on a regular basis and write it on both your calendars.
	Join an exercise group or class.
Fear of injury	Learn how to warm up and cool down to prevent injury.
	Learn how to exercise appropriately considering your age, fitness level, skill level, and health status.
	Choose activities involving minimum risk.
Lack of skill	Select activities requiring no new skills, such as walking, climbing stairs, or jogging.
	Exercise with friends who are at the same skill level as you are.
	Find a friend who is willing to teach you some new skills.
	Take a class to develop new skills.
Lack of resources	Select activities that require minimal facilities or equipment, such as walking, jogging, jumping rope, or calisthenics.
	Identify inexpensive, convenient resources available in your community (community education programs, park and recreation programs, worksite programs, etc.).
Weather conditions	Develop a set of regular activities that are always available regardless of weather (indoor cycling, aerobic dance, indoor swimming, calisthenics, stair climbing, rope skipping, mall walking, dancing, gymnasium games, etc.)
	Look on outdoor activities that depend on weather conditions (cross-country skiing, outdoor swimming, outdoor tennis, etc.) as "bonuses"-extra activities possible when weather and circumstances permit.
Travel	Put a jump rope in your suitcase and jump rope.

	Walk the halls and climb the stairs in hotels.
	Stay in places with swimming pools or exercise facilities.
	Join the YMCA or YWCA (ask about reciprocal membership agreement).
	Visit the local shopping mall and walk for half an hour or more.
	Bring a small tape recorder and your favorite aerobic exercise tape.
Family obligations	Trade babysitting time with a friend, neighbor, or family member who also has small children.
	Exercise with the kids-go for a walk together, play tag or other running games, get an aerobic dance or exercise tape for kids (there are several on the market) and exercise together. You can spend time together and still get your exercise.
	Hire a babysitter and look at the cost as a worthwhile investment in your physical and mental health.
	Jump rope, do calisthenics, ride a stationary bicycle, or use other home gymnasium equipment while the kids are busy playing or sleeping.
	Try to exercise when the kids are not around (e.g., during school hours or their nap time).
	Encourage exercise facilities to provide child care services.
Retirement years	Look upon your retirement as an opportunity to become more active instead of less. Spend more time gardening, walking the dog, and playing with your grandchildren. Children with short legs and grandparents with slower gaits are often great walking partners.
	Learn a new skill you've always been interested in, such as ballroom dancing, square dancing, or swimming.
	Now that you have the time, make regular physical activity a part of every day. Go for a walk every morning or every evening before dinner. Treat yourself to an exercycle and ride every day while reading a favorite book or magazine.

Content in the "Personal Barriers" section was taken from *Promoting Physical Activity: A Guide for Community Action* (USDHHS, 1999).

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Barriers to Being Active Quiz

What keeps you from being more active?

Directions: Listed below are reasons that people give to describe why they do not get as much physical activity as they think they should. Please read each statement and indicate how likely you are to say each of the following statements:

How likely are you to say?	Very likely	Somewhat likely	Somewhat unlikely	Very unlikely
1. My day is so busy now, I just don't think I can make the time to include physical activity in my regular schedule.	3	2	1	0
2. None of my family members or friends like to do anything active, so I don't have a chance to exercise.	3	2	1	0
3. I'm just too tired after work to get any exercise.	3	2	1	0
4. I've been thinking about getting more exercise, but I just can't seem to get started	3	2	1	0
5. I'm getting older so exercise can be risky.	3	2	1	0
6. I don't get enough exercise because I have never learned the skills for any sport.	3	2	1	0
7. I don't have access to jogging trails, swimming pools, bike paths, etc.	3	2	1	0
8. Physical activity takes too much time away from other commitments—time, work, family, etc.	3	2	1	0
9. I'm embarrassed about how I will look when I exercise with others.	3	2	1	0
10. I don't get enough sleep as it is. I just couldn't get up early or stay up late to get some exercise.	3	2	1	0
11. It's easier for me to find excuses not to exercise than to go out to do something.	3	2	1	0
12. I know of too many people who have hurt themselves by overdoing it with exercise.	3	2	1	0
13. I really can't see learning a new sport at my age.	3	2	1	0
14. It's just too expensive. You have to take a class or join a club or buy the right equipment.	3	2	1	0
15. My free times during the day are too short to include exercise.	3	2	1	0
16. My usual social activities with family or friends to not include physical activity.	3	2	1	0

17. I'm too tired during the week and I need the weekend to catch up on my rest.	3	2	1	0
18. I want to get more exercise, but I just can't seem to make myself stick to anything.	3	2	1	0
19. I'm afraid I might injure myself or have a heart attack.	3	2	1	0
20. I'm not good enough at any physical activity to make it fun.	3	2	1	0
21. If we had exercise facilities and showers at work, then I would be more likely to exercise.	3	2	1	0

Follow these instructions to score yourself:

- Enter the circled number in the spaces provided, putting together the number for statement 1 on line 1, statement 2 on line 2, and so on.
- Add the three scores on each line. Your barriers to physical activity fall into one or more of seven categories: lack of time, social influences, lack of energy, lack of willpower, fear of injury, lack of skill, and lack of resources. A score of 5 or above in any category shows that this is an important barrier for you to overcome.

____	+ ____	+ ____	= _____	
1	8	15		Lack of time
____	+ ____	+ ____	= _____	
2	9	16		Social influence
____	+ ____	+ ____	= _____	
3	10	17		Lack of energy
____	+ ____	+ ____	= _____	
4	11	18		Lack of willpower
____	+ ____	+ ____	= _____	
5	12	19		Fear of injury
____	+ ____	+ ____	= _____	
6	13	20		Lack of skill
____	+ ____	+ ____	= _____	
7	14	21		Lack of resources