TAKE ACTION!: A NURSE PRACTITIONER PRACTICE GUIDE FOR
PREVENTION OF CHILDHOOD OBESITY

by

Brendyn Chesser Thé

Copyright © Brendyn Chesser Thé 2006

A Master’s Project Submitted to the Faculty of the
COLLEGE OF NURSING
In Partial Fulfillment of the Requirements
For the Degree of
MASTER OF SCIENCE
In the Graduate College
THE UNIVERSITY OF ARIZONA

2006
STATEMENT BY AUTHOR

This master’s project has been submitted in partial fulfillment of requirements for an advanced degree at The University of Arizona and is deposited in the University Library to be made available to borrowers under rules of the Library.

Brief quotations from this paper are allowable without special permission, provided that accurate acknowledgment of source is made. Requests for permission for extended quotation from or reproduction of this manuscript in whole or in part may be granted by the head of the major department or the Dean of the Graduate College when in his or her judgment the proposed use of the material is in the interests of scholarship. In all other instances, however, permission must be obtained from the author.

SIGNED: _______________________________________

APPROVAL BY PROJECT DIRECTOR

This project has been approved on the date shown below:

__________________________________________    ____________
Leslie Ritter, PhD, RN
Professor of Nursing                          Date
# TABLE OF CONTENTS

ABSTRACT..................................................................................................................4

INTRODUCTION.........................................................................................................5

THE PROBLEM: CHILDHOOD OBESITY.................................................................6

RISK FACTORS FOR CHILDHOOD OBESITY....................................................8

REVIEW OF OBESITY INTERVENTIONS AND PREVENTION LITERATURE...........16

PURPOSE..................................................................................................................26

SIGNIFICANCE.........................................................................................................27

THE TAKE ACTION PRACTICE GUIDE FOR NURSE PRACTITIONERS........28

*Description*...........................................................................................................28

*The Tool*................................................................................................................31

FUTURE WORK.......................................................................................................47

CONCLUSION...........................................................................................................49

REFERENCES..........................................................................................................51
ABSTRACT

Childhood obesity is a public health epidemic that has grown at alarming rates over the last two decades, currently with 14 million obese children in the United States and an additional 8.6 million at risk (Georgetown University, 2001). Research has identified genetic, environmental, and societal factors that place children at risk for obesity, and has documented significant long-term physical and mental health risks associated with the condition. Modest success of obesity treatment programs and the increasing prevalence of the condition have facilitated a shift toward preventative interventions. Despite the importance of primary care provider involvement in obesity prevention and documented efficacy of discussing lifestyle changes in a primary care setting (Nawaz, Adams, & Katz, 2000), many providers fail to discuss lifestyle habits with patients and report low proficiency related to obesity assessment and behavioral management strategies (Story et al, 2002). In response to the identified knowledge deficit of both parents and healthcare providers, the purpose of this project is to provide nurse practitioners with a tool that will guide their practice in the area of obesity prevention and augment education of parents with children at risk. The Take ACTION!™ desktop tool defines the primary care nurse practitioner role in childhood obesity prevention and provides statistics and known risk factors, diet and activity recommendations, and techniques for behavioral modification counseling. If provided to nurse practitioners, this tool may contribute to early identification of children at risk and promote preventative interventions that may reduce prevalence of childhood obesity and related health complications.
INTRODUCTION

Childhood obesity in the United States is a growing public health threat that requires immediate attention. The rate at which childhood obesity prevalence is increasing has prompted national public health officials to recognize the condition as a serious threat to the health of our nation and to advocate for preventative interventions. Health care professionals have frequent opportunities to identify children at risk and promote healthy lifestyle changes, and the effectiveness of behavior modification counseling in the primary care setting has been well documented (Nawaz et al, 2000). Advanced practice nurses, specifically, are well-suited to take a leadership role as health educators and advocates of health promotion and disease prevention (Morgan, 2001). Many pediatric primary care providers, however, report that they feel insufficiently prepared in the areas of obesity assessment, behavioral management, and parental guidance, and do not always address these issues as a part of routine preventative care.

This paper will highlight the magnitude and significance of the current childhood obesity epidemic and the role of physical, environmental, and societal factors that place children at risk. It will identify the obesity-related knowledge deficit among parents with children at risk and discuss the gap in obesity prevention despite strong evidence supporting primary care measures and only modest success of treatment programs. Ultimately, this paper will propose a nurse practitioner practice guide for prevention of childhood obesity. The guide is intended to promote early recognition of children at risk, improve quality of anticipatory guidance for parents, and bolster the nurse practitioner role as educator and advocate for families in their community.
THE PROBLEM: CHILDHOOD OBESITY

Rates of obesity among children are increasing at alarming rates and the condition poses lifelong threats to health. In 2001, the Surgeon General published a call to action to prevent and decrease childhood obesity, acknowledging the prevalence had nearly tripled during the past two decades placing children at increased risk for severe health complications (Surgeon General, 2001). Healthy People 2010, a set of health objectives for the Nation to achieve this decade, identifies overweight and obesity as leading health indicators and aims to reduce obesity prevalence to five percent among children and adolescents (United States Department of Health and Human Services [USDHHS], 2004). Body Mass Index (BMI), a formula that expresses the relationship of weight-to-height, is used to screen for risk of obesity (Georgetown University, 2001). BMI is calculated by first dividing weight in pounds by the square of height in inches, then multiplying the resulting number by 704.5. Children with a BMI at or above the 95th percentile on the Center for Disease Control growth chart are categorized as obese or overweight, while children with a BMI between the 85th and 95th percentile are at risk. There are no BMI-for-age references for children under 2 years of age. Growth of infants and children under 2, therefore, is monitored with weight-for-length recommendations with a percentile greater than 95th indicating overweight.

Nearly 14 million children in the United States are obese and the National Center for Health Statistics reports a steady increase in rates over the last two decades (2005). This staggering statistic represents 24 percent of the population ages 2 to 17, with an additional 8.6 million children at risk (Georgetown University, 2001). In the last three
decades, obesity rates have more than doubled for preschool children ages 2-5 years and adolescents ages 12-19 years, and has more than tripled for children ages 6-11 years (Institute of Medicine [IOM], 2005). Furthermore, research indicates there is a high probability that obese children will remain obese as adults (Georgetown University, 2001). The likelihood that childhood obesity will persist into adulthood is 20% at 4 years of age but increases to 80% by adolescence (American Academy of Pediatrics [AAP], 2003). In response to the national initiative to improve childhood obesity prevention efforts, the purpose of this paper is to describe the development of a tool to guide nurse practitioner practice.

Currently, obesity and physical inactivity account for more than 400,000 premature deaths per year in our country (USDHHS, April 2004). Health consequences related to obesity in adults cost society up to $129 billion annually (IOM, 2005). Obesity-related hospital costs for children and youth, specifically, have more than tripled over the last two decades increasing from $35 million in 1979 to $127 million in 1999 (Wang, 2002).

Though gaps remain in the evidence of the burdens of childhood obesity, the problem is associated with significant physical and mental health risks. Obese children are at risk for diabetes, hypertension, dyslipidemia, liver and gallbladder disease, sleep apnea, menstrual abnormalities, impaired balance, and orthopedic problems (IOM, 2005). Experts estimate 30 percent of boys and 40 percent of girls born in the United States in the year 2000 will be diagnosed with Type 2 diabetes during their lifetime (2005). During the 1990s, up to 45% of new pediatric diabetes cases were attributed to type 2 diabetes,
compared with 4% prior to 1990. Heart disease is the number one cause of death in the United States and an individual with diabetes is at increased risk. Though the death rate due to heart disease is on the decline, the death rate due to diabetes has increased by 45% in the last 2 decades. Among people with diabetes, cardiovascular disease occurs earlier in life, is 2 to 4 times more common, and is 2 to 4 times more often fatal (American Diabetes Association, 2006). The ADA reports the annual cost of diabetes care in the United States in 2002 was approximately $132 billion, with an increase of more than 30% in per capita cost of care over the five years prior. Currently more than 1 in 10 health care dollars are spent on diabetes and its complications, and individuals with diabetes have 2.4 times the health care expenditures of those without the disease (ADA, 2006).

Additionally, childhood obesity is associated with detrimental psychological effects. Obese children often suffer from self-blame, negative body image, and depression related to societal stigmatization of obesity. Research has found young children prefer to play with disabled children rather than play with a child who is overweight (Rich et al., 2005). Obese children tend to be rejected by their peers and often suffer low self-esteem which can impair academic and social functioning. Furthermore, childhood obesity has long-term consequences for emotional and psychological well-being in adulthood (Georgetown University, 2002).

RISK FACTORS FOR CHILDHOOD OBESITY

There are many genetic, environmental, and societal risk factors contributing to childhood obesity related to age, ethnicity, physical activity, nutrition, parenting, income
level, and home environment. Though the rate of obesity is increasing for all children, regardless of age, gender, and race, it is rising more than twice as fast among minorities (Georgetown University, 2002). One third of black children and over one-fifth of white children are obese. From 1986 to 1998, obesity among Hispanic and African American children increased more than 120 percent, compared to 50 percent among white children. The increase in obesity prevalence among children under the age of 5 years, however, has been similar across all ethnic groups. The recent increase in obesity is most evident among African American, Hispanic, and American Indian adolescents (IOM, 2005), with the greatest increase in prevalence of childhood type 2 diabetes seen among American Indians (Adams, Quinn, & Prince, 2005). Not surprisingly, diabetes and heart disease are now leading causes of death in the American Indian population (Adams, Quinn, & Prince, 2005). In a study of more than 20,000 adolescents comparing White, Hispanic, African-American, and Asian ethnicities, obesity prevalence was highest among African-Americans and Hispanics (Gordon-Larson, Adair, & Popkin, 2003). Average family income was lowest among African-Americans and Hispanics and parental education level was significantly lower among Hispanic participants. Interestingly, however, socioeconomic status and level of parental education were inversely related to obesity prevalence only among white females (Gordon-Larson, Adair, & Popkin, 2003). Obesity rates also vary across the United States. Twenty-eight percent of children from the South are obese, compared to 22 percent in other regions of the country (Georgetown University, 2002).
Parental obesity places children at high risk for becoming obese. If one parent is obese, a child is three times as likely to become obese as a child who has parents of normal weight (Whitaker, Wright, Pepe, Seidel, & Dietz, 1997). If both parents are obese, the child’s risk of obesity increases 10-fold. Research indicates that before the age of 3 years, parental obesity is a stronger predictor of obesity development than the child’s weight percentile (p. 425). Though there is a genetic component to weight gain and obesity, it is highly unlikely that genetic modification could have had a significant impact in the short period of time during which obesity prevalence surged (Caroli, Argentieri, Cardone, & Masi, 2004). The correlation between parent and child obesity, therefore, is attributed to environmental and societal factors to which all members of the family are exposed (AAP, 2003).

The current obesity epidemic is thought to be largely associated with lack of physical activity and overnutrition—an energy imbalance of calories consumed versus calories expended. Overnutrition is defined as a diet in which caloric intake is greater than what is necessary to maintain metabolism. In the United States, 70 percent of children exceed the recommended dietary allowance (RDA) of fats, as determined by the U.S. Department of Agriculture Food Guide Pyramid (Covington et al., 2001). Fat and added sugar intake make up 40% of the total energy intake of children ages 2 to 19 years. Not surprisingly, only 30% of children meet the RDA of fruits, vegetables, grain, dairy, and meat (Munoz, Krebs-Smith, Ballard-Barbash, & Cleveland, 1997).

Research shows physical education programs in schools are steadily decreasing (Covington et al., 2001). A survey sponsored by the Centers for Disease Control and
Prevention (CDC) found over 80% of children in grades 9 through 12 did not engage in 20 minutes of vigorous physical activity at least 3 times per week (Covington et al., 2001). According to the Institute for Health Care Research and Policy at Georgetown University, the percentage of high school students attending a physical education class daily decreased from 46 percent in 1991 to 29 percent in 1999 (2002). The same institution reports that over 26 percent of children ages 8 to 16 watch four or more hours of television per day and 43 percent of high school students watch more than two hours of television on school days (2002). In addition, many television programs targeting children are sponsored by companies that sell high-fat, high-salt, and high-sugar foods that do not meet nutritional requirements. These foods are advertised during commercial breaks in a manner that appeals to young children and as little as 10 seconds of commercial exposure can influence food choices of children ages 2 to 6 years (Caroli et al, 2004). The effect doubles if an advertisement is shown more than once during the same commercial break. Studies show obese children watch more television than those of normal-weight and are therefore more exposed to suggestions of poor nutrition (Caroli et al, 2004).

Societal influences on the childhood obesity epidemic in the United States can not be ignored. Opportunities for physical activity, for example, are limited in a society that experiences continual “suburban sprawl” and promotes sedentary travel such as driving and long-distance commuting in place of public transit, bicycling, or walking (Kushi, 2006). Communities that lack sidewalks and safe streets for bicyclists also contribute to the problem. Furthermore, society tends to view exercise as an event that must be
scheduled into a busy lifestyle which competes with work, family, and leisure time (Kushi, 2004). Though rates of homicide and violent crime has declined since 1990, studies show United States citizens perceive an increase in violence. A feeling of being less safe in a neighborhood or community may decrease opportunities for physical activity.

Perhaps a greater societal influence on childhood obesity is related to the intake of fast foods and other foods high in calories, fat, and carbohydrates. A sedentary lifestyle coupled with increased intake of “super-sized” food portions and highly processed, convenient foods has transformed Western societies into “obesigenic” environments (Isganaitis & Lustig, 2005, p.2). Studies show restaurant food portions in the United States increased by 22% over the last 2 decades, while soft drink portions increased 52% (Nielsen & Popkin, 2003). Furthermore, the proportion of the population’s energy intake from food at restaurants and fast food establishments increased significantly. In 1953, fast food accounted for just 4% of food sales outside the home, which jumped to 34% in 1997 (Isganaitis & Lustig, 2005). Likewise, the percentage of total energy intake consumed by Americans from fast food increased 5-fold in the last 2 decades. During that time, the fast food industry exploded, now with more than 240,000 restaurants nationwide. Since the 1970s, soft drink consumption has increased 83% for adults and 70% for children ages 2 to 18 years. Soft drinks are currently a primary source of carbohydrates for children, second only to bread (Isganaitis & Lustig, 2005). Though intake of soft drinks and other high-sugar beverages has been linked to obesity in children (Ludwig, Peterson, & Gortmaker, 2001), many schools are contracted with suppliers of these products and
provide them in vending machines to students. These societal trends may be attributed to decreased cost of processed foods, increased availability, public perception of increased value when portions are large, and by an increase in advertising for these foods, in particularly those targeted toward children (Kushi, 2006). Regardless of the cause, a dramatic increase in daily energy intake that is not compensated by an increase in energy expenditure is a formula for weight gain that greatly contributes to the obesity epidemic.

Researchers have identified critical periods of development during which a child is most at risk for excessive weight gain. Some studies have found that the duration of time a child is breastfed is inversely related to obesity in childhood, while others found that duration of breastfeeding was not a significant factor (Hediger, Overpeck, Kuczmarski, & Ruan, 2001). Researchers agree, however, that children who are breastfed are at significantly less risk of being overweight later in childhood. The protective mechanism by which this occurs is not fully understood. Physiologic components of human milk and the manner in which it metabolically programs an infant may be factors, as well as the feeding and parenting patterns associated with parents who breastfeed. Gillman et al acknowledge that infants may absorb less energy per volume of breast milk than infant formula, while formula-fed infants are more likely to be overfed and may have difficulty self-regulating food intake (2001). Researchers admit, however, that the association between breastfeeding and being overweight may be confounded by sociodemographic or familial factors. African American women and those who are obese, for example, are less likely to breastfeed than women of other ethnicities and those who are of normal weight (Hediger et al, 2001). The second notable period of development is
between the ages of 4 and 8 years during which adiposity rebound occurs (Freedman, Khan, Dietz, Srinivasan, & Berenson, 2001). Adiposity rebound refers to a period during which development of adiposity increases. The third critical period of obesity development is during adolescence when puberty is associated with a normal tendency for insulin resistance (p. 425). Adolescents are also at increased risk for poor diet and exercise habits, especially if they engage in high-risk activities such as smoking, drinking alcohol, and sexual experimentation (AAP, 2003). Furthermore, females who experience early menarche are at least twice as likely to have a BMI greater than 85% in their teenage years. Adair and Gordon-Larsen (2001) controlled for parental education, family income, age, and region of the United States, and found that overweight prevalence rates were significantly higher among girls who experienced menarche before the age of 12 years. African American and Hispanic females were more likely than Whites and Asians to mature early.

Research in the area of childhood obesity has examined the effect of over-controlling parental behavior related to a child’s ability to self-regulate food intake. There is evidence that verbal prompting to eat at mealtimes, attentiveness when a child doesn’t want to eat, and close parental monitoring can have negative consequences on a child’s eating behavior. These parental behaviors can place a child at risk for overeating, making poor food choices, and becoming obese (AAP, 2003). Young children who are left alone to make meal choices, however, often make poor nutritional choices and are likely to prefer foods high in sugar, fat, and sodium. In a study by Klesges et al, children ages 3 to 7 years selected more nutritious meals when they were informed their parents
would be monitoring their selections, or when parents were actually involved in the meal selection (Klesges, Stein, Eck, & Klesges, 1991). Research therefore suggests that, though tight control over a child’s eating habits may interfere with their ability to self-regulate food intake, lack of parental involvement may be equally detrimental.

Studies have identified several ways in which the home environment can contribute to obesity in children. Research conducted by Sorensen and Lissau demonstrated that neglected children are at nine times the risk of becoming obese and there is a 3-fold increased risk for children who live in dilapidated conditions (1994). Researchers hypothesize that overeating in these children may be the result of self-stimulatory behavior in the absence of environmental stimulation (Strauss & Knoght, 1999). A large study that monitored nearly 3000 normal-weight children ages zero to 8 years over 6 years to identify environmental predictors of childhood obesity, found that household income, parental occupation and level of cognitive stimulation were the strongest associated factors (Strauss & Knight, 1999). Children from families with low or average income and those with parents who had nonprofessional occupations were significantly more likely to become obese. Likewise, children raised by single mothers were at increased risk. Perhaps the most remarkable finding was that children exposed to little cognitive stimulation such as reading materials, musical instruments, or activities outside the home were at significantly greater risk for obesity than children frequently exposed to these forms of enrichment, regardless of other variables such as race, marital status, parental education, and family income (Strauss & Knight, 1999).
REVIEW OF OBESITY INTERVENTIONS AND PRIMARY PREVENTION LITERATURE

Despite efforts to combat obesity, the results of research examining treatment programs across the nation indicate that the programs have had little impact on the childhood obesity epidemic. Epstein et al conducted “the most efficacious and well-tested clinic-based pediatric obesity interventions” (Saelens & Daniels, 2003). These researchers acknowledge progress has been made in the development of obesity treatments, but that most interventions produce small changes in weight and relapse often occurs (Epstein, Myers, Raynor, & Saelens, 1998).

A review of diet modification programs conducted by Huon, Wardle, and Szabo (1999) found only 13 published studies of programs designed for children and the context was primarily the health and physical education curricula in schools. The programs reviewed demonstrated that children’s eating patterns can be changed in a positive way, though changes are small. The authors suggest that a successful intervention related to nutrition education for children must consider age-related differences in children’s understanding of health and factors known to affect children’s food choices. Additionally, they suggest that programs should “focus on changes both in individual behavior and in the environmental conditions that support healthful behavior” (Huon, Wardle, & Szabo, 1999, p.162).

Research also indicates that “growing evidence supports the critical role parents play in establishing healthy and unhealthy eating practices” for their children (Cobb & Solera, 2004, p.29). What parents eat and what they buy influences frequency and quality
of food exposure and thereby impacts children’s food preferences and consumption patterns (Huon, 1999). Likewise, there is evidence that health education should begin for children at a young age in order to establish attitudes that will promote positive health-related behaviors. Parent perception of health and illness and awareness of obesity-related conditions may also influence health-related behaviors in the home. Research shows that up to 89% of parents do not recognize that their overweight child is overweight (Adams et al, 2005). In a study by et al (2005) examining the perceptions of parents of obese toddlers, 81% of participants felt their child was healthy and 50% were not concerned about their child’s weight. Furthermore, 29% of parents who stated they were aware of obesity-related health consequences were unable to identify specific problems. This study indicates “the parent’s perception regarding the child’s health status is critical if professionals are to develop effective prevention and intervention programs (p.136). The importance of parent training related to obesity prevention and the content of the education remain unclear, and further research is needed to better understand parent motivation to help children change behaviors (Epstein et al, 1998).

Modest success of obesity interventions and the increasing prevalence of the condition have facilitated a shift toward preventative measures. Based on a systematic review of studies conducted between 1996 and 2002, the United States Preventative Services Task Force (2003) reported mixed results regarding the effectiveness of physical activity and nutrition counseling for adults in a primary care setting and insufficient evidence to determine whether counseling leads to sustained changes in the desired behavior. The USPSTF found only 8 good quality controlled trials examining physical
activity counseling and most were brief, low-intensity interventions lasting a little as 3 minutes in the context of a routine doctor visit. Studies examining advice from a provider combined with higher intensity behavioral interventions demonstrated greater effectiveness of counseling. Effective components of counseling included goal setting, written exercise plans, individualized exercise regimens, and regular follow up (USPSTF, 2003).

Likewise, the USPSTF review of dietary counseling studies found only fair evidence that low intensity counseling consisting of one contact lasting 30 minutes or less by PCPs produces small diet modifications in adults (2003). The task force reported good evidence, however, that medium to high intensity counseling consisting of multiple contacts lasting 30 minutes or more produces significant changes in average daily intake of nutritious foods. Given the time limitations in primary care practice, the USPSTF recommends consideration of referral to nutritionists or dieticians for patients with cardiovascular or diet-related chronic disease and are most in need of dietary changes. The USPSTF found 21 high quality studies that met the eligibility criteria of the review, and studies focusing on subjects who were already overweight or obese were excluded. The use of specific counseling techniques associated with improved behavioral outcomes was analyzed, though these components were not always identified in the studies which may have contributed to differences in effectiveness. Recommended counseling elements include using a dietary assessment, involving family members, providing social support, group counseling, emphasizing food interaction such as cooking, goal setting, and advice tailored to the individual. The number of these methods used in the studies was directly
related to the effectiveness of the dietary counseling provided. Interestingly, the USPSTF did not find any completed physical activity or dietary counseling studies with child or adolescent participants (USPSTF, 2003). Adult recommendations must be considered, however, for the purposes of this project because parents play a critical role in the prevention of childhood obesity. Furthermore, the IOM report entitled “Preventing Childhood Obesity: Health in the Balance” states that action should be based on the best evidence currently available, rather than waiting for the best possible evidence (2004).

Based on a review of available evidence, the AAP recommends that in addition to monitoring BMI and rate of weight gain, primary care providers routinely promote physical activity and healthy eating and encourage parents to model desired behavior (2003). Health care professionals have a responsibility to carefully communicate their assessment to parents and children and “provide the information families need to make informed decisions about physical activity and nutrition” (IOM, 2004). Providers should emphasize breastfeeding, limited intake of sweetened beverages, reduced time in front of television or computer screens, and increased outdoor play. The AAP Committee on Nutrition recommends families “be educated and empowered through anticipatory guidance to recognize the impact they have on their children’s development of lifelong habits of physical activity and nutritious eating” (2005). Given the knowledge gap related to childhood obesity prevention, the AAP recommends early identification of children at risk and use of primary prevention efforts stating, “support for the development and testing of primary prevention strategies for the primary care setting will be critical” (AAP Policy Statement, p.427). The AAP also encourages primary healthcare providers to take
a leadership role by advocating for children at the local or federal level (AAP, 2003). Change is needed in the areas of physical activity opportunity, food supply, research, and third-party reimbursement. Nurse practitioners are in a position to promote programs and policies that are in the best interest of children and that will contribute to a reduction in prevalence of childhood obesity.

In response to the Healthy People 2010 goal to reduce overweight and obesity and related health complications, it is crucial that healthcare providers acknowledge unhealthy behaviors and routinely provide quality behavioral counseling interventions (Whitlock et al, 2002). “Changing the health behavior of Americans has the greatest potential of any current approach for decreasing morbidity and mortality and for improving the quality of life across diverse populations” (Whitlock et al, 2002, p.268). Patients report that they expect their primary care provider to be a source of health information and recommendations, and are more likely to make an effort to change a behavior if their health care provider has encouraged them to do so. Furthermore, providers report, in general, that they accept and value their role in patient motivation, health promotion, and disease prevention.

Effective behavioral counseling interventions involve teaching, empowering, and supporting individuals through stages of behavior change (USPSTF, 2003). The Five A’s framework for clinical counseling was developed by the National Cancer Institute and United States Public Health Service and encompasses each of these elements (Whitlock et al, 2002). Though proven most effective for smoking cessation, the framework has been applied to a variety of behavioral change interventions in the context of brief patient
contact in a primary care setting. The Five A’s framework guides healthcare providers through five stages of behavioral counseling: assess, advise, agree, assist, and arrange. The provider must first *assess* the patient’s behavioral health risks, factors affecting their choice of goals, and their motivation to change—all information needed to individualize counseling. Then the provider can *advise* the patient of personal harms and benefits of their behavior and suggest strategies for making change. Advice must be clear, specific, personalized, and offered in a kind, empathetic manner. Conveying confidence in the patient may increase their level of self-efficacy—their belief in their ability to successfully change behavior. Next, the provider and patient should *agree* together on appropriate goals and methods for achieving them. A collaborative approach respects patient choice and autonomy and the patient maintains a sense of personal control. After goals are set and recorded in writing, the provider can *assist* the patient in achieving their goals by providing support and motivation, while teaching problem solving and self-help skills. Health care providers also may assist through referrals to resources in the community or other healthcare professionals. Lastly, a provider must *arrange* follow-up contact with the patient and adjust the behavior modification plan as appropriate. This is necessary no matter what the intensity and duration of the initial counseling and allows the provider to praise behavior change and prevent behavior relapse (Whitlock et al, 2002).

Healthy Eating and Activity Together (HEAT) is a health promotion and behavior modification campaign sponsored by the National Association of Pediatric Nurse Practitioners (NAPNAP) in response to the rise in pediatric obesity (Gottesman, 2003).
HEAT offers recommendations to pediatric healthcare providers for behavior counseling for children and parents. The campaign promotes healthy family meals and fun physical activity that families can do together. HEAT promotes involving all members of the family in making gradual, small changes in family health behaviors, and encouraged providers to reinforce small steps toward a desired goal. HEAT recommendations include assessing a parent’s readiness to change, and then assisting them to choosing one new healthier behavior to use for a month. The parent can then add one new additional behavior each month while maintaining the first (Gottesman, 2003).

Behavior change theories and models identify several attributes that predispose an individual to successful behavior change (Whitlock et al, 2002). The individual must want to change for clear, personal reasons, and have the self-confidence to do so. They must also feel that the change will have meaningful benefits and that it is congruent with their self-image and social norms. The fewer obstacles a person faces, the more likely they are to change a behavior. Furthermore, an individual who receives support, encouragement, and reminders from valued persons in their community will likely be successful in achieving their goals. These factors must be considered when counseling an individual to change lifestyle behaviors.

Theories and models of behavior change explain determinants of health-related behaviors and support interventions that produce changes in knowledge, attitude, self-efficacy, and behavior (Whitlock, Orleans, Pender, & Allan, 2002). Accordingly, many previous obesity interventions targeting children have been guided by social learning theory (Huon, Wardle, & Szabo, 1999). Social cognitive theory (SCT) and the social
learning theory from which it was derived, also provides an appropriate framework to
guide an intervention designed to improve parent education and childhood obesity
prevention. This theory suggests that behavior is explained by reciprocal determinism in
which cognition, behavior, and environmental events interact and are determinants of
each other (Morgan, 2001). Major concepts of SCT include modeling, imitation,
reinforcement, self-efficacy, and outcome expectancies. A person’s beliefs about his or
her ability to successfully adopt and master a desired behavior and beliefs about the
benefit of the behavior change will greatly influence behavior. Furthermore, behavioral
capability is a construct of the theory that requires that individuals understand the desired
behaviors and be taught how to perform them (Morgan, 2001). Parent understanding of
desired behavior, adoption of realistic expectations, and high level of self-efficacy can be
influenced by education, counseling, and reinforcement from a health care provider. The
provider must consider previous failed attempts to change and tailor behavior change
strategies to each individual in order to facilitate success and increase self-efficacy
(Elder, Ayala, & Harris, 1999). Furthermore, the interaction of person, behavior, and
environment greatly affects each individual’s willingness to change and the method they
use to do so. A provider offering health education and behavior counseling must consider
these factors in order to individualize care and achieve desired outcomes.

Despite the importance of primary care provider (PCP) involvement in obesity
prevention and documented efficacy of physicians discussing lifestyle changes with adult
patients (Nawaz, Adams, & Katz, 2000), research indicates many providers fail to discuss
dietary and exercise habits with patients. Studies that have examined PCP counseling on
dietary habits or nutrition based on physician self-report indicate counseling occurs during approximately 25% of adult office visits (Anis et al., 2004). Though patients diagnosed with obesity and obesity-related disorders tend to receive more counseling than others, only 42% of these patients receive dietary counseling. In studies based on patient self-reports of exercise counseling received during office visits, providers were more likely to address the issue with older, female patients. Interestingly, one study found approximately 60% of physicians and nurse practitioners surveyed talked to their patients about exercise, but only 12% were aware of current physical activity recommendations. In a study conducted by Anis et al (2004), trained medical students observed 4,344 physician-patient encounters with 38 PCPs and found physicians counseled patients on dietary habits in 25% of visits and on exercise in 20% of visits, and the 2 types of counseling usually occurred in the same visit. Older individuals and new patients were more likely to receive counseling, while factors such as patient gender and smoking status, and physician characteristics such as age, gender, years in practice, and number of patients seen per week were unrelated to frequency of counseling observed. Physicians in offices with nutrition and exercise brochures available were more likely to counsel patients, though presence of health promoting posters in the office was not related. Anis et al recommend, therefore, that physician counseling protocols and other office prompts be developed and promoted to improve the consistency of preventative counseling practices (2004). Again, no studies were found that specifically examined dietary and physical activity counseling for the pediatric population. *Pediatrics* published survey results in 2002 indicating only 8.5% of pediatric nurse practitioner (PNP) and 7.3% of
pediatrician respondents provided all recommended elements of a history and physical for obesity management (Gottesman, 2003). Surprisingly, over 30% of provider respondents felt they were inadequately prepared to address the issue of obesity. In a study aimed at evaluating perceived skill level and training needs related to management of childhood obesity, pediatrician and PNP respondents reported low proficiency in the areas of obesity assessment, behavioral management strategies, guidance in parenting techniques, and addressing family dynamics (Story et al, 2002). Over half of respondents expressed interest in additional training in these areas.

Experts in the area of pediatric obesity research acknowledge, however, there are many unanswered questions about how prevention and treatment should implemented and there is little research available on prevention and early intervention (Epstein et al, 1998). Public health action related to childhood obesity may be slowed due to the lack of evidence of the effectiveness of preventative interventions (Swinburn, Gill, & Kumanyika, 2005). Health care providers use “evidenced-based” medicine (EBM) to guide practice and an evidence base does not yet exist in the area of childhood obesity prevention. Furthermore, the impact of preventative measures cannot easily be measured and may only be visible indirectly or gradually. Given the limitations of the EBM framework in preventative medicine, obesity policy and research groups suggest development of a specific framework to guide obesity policy and programs using the best evidence available (Swinburn et al, 2005).
PURPOSE

The review of literature indicates there is a nationally recognized urgency in developing preventative interventions that will reduce the prevalence of childhood obesity, and that, although there are few studies, when early intervention occurs, there are better outcomes. Specifically, there is need for an intervention designed to aide primary care providers in their counseling of families in need of dietary and physical activity lifestyle modifications and obesity-related education. Research identifies many factors related to childhood obesity, but suggests that diet and activity modification in children is possible and largely influenced by parental modeling. Parents, however, often lack the knowledge and skills necessary to implement lifestyle changes in the home, or do not identify signs of obesity in their overweight children. National health organizations recommend PCPs take an active and assertive role in providing parents with the education and anticipatory guidance they need to increase awareness of obesity and related complications and make lifestyle changes for their children. Primary care providers, however, often fail to provide this type of counseling to their patients, even when the patient is obese or at risk for obesity. Likewise, pediatric primary care providers report a need for further education related to obesity assessment and behavior management. In response to the childhood obesity epidemic and the apparent knowledge deficit of both parents and healthcare providers, the purpose of the proposed project is to develop a tool for nurse practitioners that could potentially guide their practice in the area of childhood obesity prevention and education. The tool will provide nurse practitioners with current information regarding the obesity epidemic, possible causes, long-term
complications, risk factors, and recommendations for primary care preventative interventions. Furthermore, it will offer suggestions for advocacy in the area of obesity prevention and encourage nurse practitioners to consider this a critical part of their role as healthcare provider.

SIGNIFICANCE

The proposed practice tool addresses a nationwide need for preventative care in the fight against childhood obesity. The tool will facilitate thorough assessment and counseling of families with children at risk for obesity and will enhance the primary care provider role in obesity prevention. Much of the tool content is also appropriate information for children and parents and can be used to prompt appropriate discussion and provide visual aide during parent and child encounters. The IOM reports obesity-related “health concerns are immediate and warrant urgent preventative actions” (2004). Nurse practitioners in primary care are in a position to have consistent contact with children at risk for obesity and have the potential to influence diet and exercise choices. With a proper knowledge base, nurse practitioners can intervene when a child is at risk for obesity, thereby preventing development of obesity and related health complications. Furthermore, nurse practitioners are in a position to advocate for children and their families, and can influence local and national policies that influence diet and physical activity habits of children. Development of a tool to guide the practice of nurse practitioners in these areas is a step in addressing obesity prevention and, if provided to nurse practitioners, may slow the progression of the obesity epidemic that has exploded over the last three decades by enhancing the healthcare provider role. The project may
also lead to further inquiry and research that examines the effect of such a tool on preventative measures and on outcomes in children, thereby strengthening the evidence base for obesity prevention.

THE TAKE ACTION! PRACTICE GUIDE FOR NURSE PRACTITIONERS

Description

The purpose of the Take ACTION!™ guide is to provide a tool for nurse practitioners that will serve as a reference for obesity prevention and education of families with children at risk. Several considerations were important in the product design. The title “Take ACTION!” and the movie clapper theme are designed to get the attention of the provider using the product and emphasize the urgency of preventative action by nurse practitioners. The content of the guide, based on a thorough review of current literature, addresses the knowledge deficits of both parents and PCPs related to childhood obesity and promotes primary prevention strategies.

The content of the guide is divided into six sections, each titled in accordance with the movie clapper theme. The first section, “Take 1…Childhood Obesity Facts & Figures,” highlights current statistics and the significance of the childhood obesity epidemic. The second section, “Take 2… Obesity Prevention: Why Is It So Important?”, emphasizes the importance of prevention. “Take 3…Who’s at Risk?” is a section outlining the known risk factors associated with childhood obesity. The fourth section, “Take 4…How Nurse Practitioners Can Take ACTION!,” outlines the provider role and offers techniques for behavior modification counseling of families. This section is designed to educate and empower providers to become involved in childhood obesity
prevention and advocate for children in their community. “Take 5…Diet & Activity
Recommendations” summarizes current recommendations for children. The final section,
“Take 6…Healthy Families, Healthy Kids: Suggestions for Lifestyle Changes” offers
specific examples of ways in which parents can make small family lifestyle changes that
will improve the health of their children and prevent them from becoming overweight.

The physical design of the Take ACTION!™ guide is original, but in part inspired
by educational materials currently distributed by pharmaceutical sales representatives in
primary practice clinics. A product to be used in a clinical setting must be accessible,
organized, succinct, and easy to use. Furthermore, a product may be ignored or discarded
unless it catches and maintains the interest of the provider. These factors were considered
in the selection of the text sizes and fonts, graphics, page layout, and size and shape of
the product. The Take ACTION!™ guide is in the form of an A-frame so that it may be
placed on a desktop or shelf where it is visible and accessible. It also collapses into a 4¼
by 5½ inch booklet that is easy to transport and small enough to fit in the pocket of a lab
coat so that it may be at the fingertips of the provider during office visits and be used to
educate parents. The top of the guide is spiral bound so that pages are held together but
loosely enough to remain open to a desired page. In addition, colored tabs separating each
section improve efficiency of product use (see Figure 2). Three copies of the tool were
made and copyrighted as prototypes for possible distribution. The following section
contains the tool in its entirety, formatted in Microsoft Word.
Figure 1. The Take ACTION!™ nurse practitioner practice guide is an A-frame, desktop tool that collapses into a small booklet.

Figure 2. Colored tabs separate each section and improve efficiency of use. Pages are spiral bound, allowing pages to be flipped through while the tool stands on a desktop.
The Tool

Take ACTION!
A Nurse Practitioner Practice Guide for Prevention of Childhood Obesity

© 2006 Brendyn C. The, University of Arizona
# Table of Contents

TAKE 1: Childhood Obesity Facts & Figures..........................3

TAKE 2: Obesity Prevention: Why Is It So Important?..........5

TAKE 3: Who’s at Risk?......................................................6

TAKE 4: How Nurse Practitioners can Take ACTION!.........9

TAKE 5: Diet & Activity Recommendations....................13

TAKE 6: Healthy Families, Healthy Kids: Suggestions for Lifestyle Changes..............................14

References......................................................................16
“The childhood obesity epidemic is the critical health issue of this millennium”

Shannon et al, 2005

Approximately 14 million (24%) children ages 2-17 years are obese (BMI $\geq 95^{th}$ percentile)...

- An additional 8.6 million are at risk (BMI 85-95$^{th}$ percentile).

- In the last 30 years, obesity rates more than DOUBLED for children ages 2-5 and 12-19 years, & more than TRIPLED for ages 6-11 years.

On average, children ages 2-19 years DO NOT meet dietary recommendations in ANY food group EXCEPT dairy...

- 70% of children exceed the Recommended Daily Allowance (RDA) of fat and sugar.

- 34% of food intake outside the home is fast food, up from 4% in 1953.

- Soft drink consumption among children has increased by 70% since 1970.
Children today are not as active as they need to be...

- >80% children grades 9-12 DO NOT engage in 20 minutes of vigorous physical activity at least 3 times per week. 4
- 20% of children ages 8-16 years report ≤ 2 bouts of physical activity per week. 4
- From 1991-1999, the percentage of high school students participating in P.E. classes dropped from 46% to 29%. 4

Childhood obesity is linked to sedentary behavior...

- >26% of kids ages 8-16 years watch MORE THAN 4 hours of television (TV) each day. 3
- There is a strong association between number of hours spent in front of a TV or computer screen each day at ages 6-11 years, and obesity 6 years later. 3
- Commercials for unhealthy foods targeting children are common. Children are currently exposed to 40,000 TV commercials, compared with 20,000 two decades ago. 3

Obesity is detrimental to health and extremely expensive...

- Obesity accounts for > 400,000 premature deaths per year in the United States. 16
- Obesity-related heath complications in adults cost society nearly $130 billion annually. 8
- Obesity-related hospital costs for children have tripled in the last 2 decades, now at nearly $130 million annually. 8
Childhood obesity is a serious nationwide problem requiring urgent attention and a population based prevention approach so that all children may grow up physically and emotionally healthy.

*IOM, 2004*

- Obese children are likely to remain obese as adults.\(^6\)

- The probability of childhood obesity persisting into adulthood is 20% at age 4, but increases to 80% at adolescence.\(^6\) Early intervention is critical.

- Childhood obesity is associated with many health complications such as:

<table>
<thead>
<tr>
<th>Physical</th>
<th>Mental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>Low self-esteem</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Self-blame</td>
</tr>
<tr>
<td>Dyslipidemia</td>
<td>Depression</td>
</tr>
<tr>
<td>Liver &amp; gallbladder disease</td>
<td>Impaired academic functioning</td>
</tr>
<tr>
<td>Sleep apnea</td>
<td>Negative body image</td>
</tr>
<tr>
<td>Menstrual abnormalities</td>
<td>Social Isolation</td>
</tr>
<tr>
<td>Impaired balance</td>
<td>Teasing &amp; bullying</td>
</tr>
</tbody>
</table>

*IOM, 2005*

- 30% of boys & 40% of girls born in the U.S. in 2000 will be diagnosed with type II diabetes in their lifetime.\(^9\)

- Treatment programs have had little impact on the obesity epidemic... interventions produce small changes and weight relapse often occurs.\(^{14}\)
1. Minorities

The rate of obesity is rising twice as fast among black, Hispanic, and American Indian children compared to white children.\(^6\)

The greatest increase in childhood type II diabetics has been among American Indians.\(^1\)

2. Families of Low Socioeconomic Status (SES)

Family income level and parent occupation are strong factors associated with childhood obesity. Children from low to average income families are significantly more at risk.\(^{15}\)

3. Neglected Children

Children who experience neglect are 9 times as likely to become obese and those who live in dilapidated conditions are at 3 times the risk. Overeating in these children may be self-stimulatory behavior in the absence of environmental enrichment.\(^{15}\)

4. Children who Lack Cognitive Stimulation

Children exposed to limited cognitive stimulation and enrichment activities such as reading materials, musical instruments, and activities outside the home are significantly more at risk. This risk factor is more strongly associated with obesity than race, marital status, parent education and SES.\(^{15}\)
5. Children with Obese Parents

Parental obesity is a strong predictor of obesity in children.\textsuperscript{18}

One obese parent = \textit{3 times} the risk
Two obese parents = \textit{10 times} the risk

6. Non-Breastfed Children

The duration of time a child is breastfed is inversely related to obesity in childhood. It is unclear whether this is related more to physiologic components of human milk, or feeding and parenting patterns associated with parents who choose to breastfeed.\textsuperscript{2}

7. Children in the South

28\% of children living in the southern region of the United States are obese, compared to 22\% in other regions.\textsuperscript{6}

8. Children 4-8 years old

There is a natural increase in the rate of adiposity development during this stage called \textit{adiposity rebound}.\textsuperscript{5}

9. Teenagers

There is normal tendency for insulin resistance during puberty. Teens are also at high risk for poor diet and exercise habits, especially if they engage in high-risk activities such as smoking, drinking alcohol, and sexual experimentation.\textsuperscript{2}
10. Girls with Early Menarche

Females who have early menarche are twice as likely to have a BMI of > 85%.\textsuperscript{2}

11. Children with Over-controlling Parents

Verbal prompting to eat at mealtimes, attentiveness when a child doesn’t want to eat, and close parental monitoring may inhibit a child’s ability to self-regulate food intake, placing them at risk for overeating, making poor food choices, and becoming obese.\textsuperscript{2}

12. Children who are Sedentary

Children who do not meet the recommended amount of daily physical activity and who spend more than 2 hours in front of a TV each day are at risk... \textit{See page 4}

13. Children Raised by Single Moms

Children living in a single mother household are at increased risk for obesity, though this risk factor is much less significant than race, SES, and level of cognitive stimulation.\textsuperscript{15}
It is up to health-care professionals and their professional organizations, as well as health insurers and quality improvement and accrediting agencies, to make obesity prevention a part of routine preventive health care.

*IOM, 2004*

#1 Routine assessment

- Plot BMI on growth chart at every well check & more frequently if concerned...teach parents this is as important as immunizations and other routine screenings.\(^9\)

  A BMI at 85-95\(^{th}\) percentile = overweight, at risk for obesity
  A BMI at > 95\(^{th}\) percentile = obese

- Assess eating & activity patterns routinely and recognize an increase in rate of weight gain.\(^9\)

- Recognize and monitor changes in risk factors for chronic disease: hypertension, dyslipidemia, hyperinsulinemia, impaired glucose tolerance, symptoms of obstructive sleep apnea.\(^3\)

#2 Identify Children at Risk

- Knowing which children are at greatest risk for obesity allows you to provide anticipatory guidance and counseling before obesity becomes a serious problem.

#3 Proactively discuss healthy lifestyle behaviors

- Promote healthy diet and physical activity for children at a young age and revisit the topic routinely.\(^3\)

- Educate families about nutrition and exercise appropriate for the developmental stage of their child.\(^3\)
#4  Involve parents

- Discuss changes in their child’s weight & assess parent understanding: Are they appropriately concerned? Do they recognize the risks?³
  
  Often “it isn’t that they can’t see the solution, it is that they can’t see the problem.” — G.K. Chesterton

- Increase parental awareness through non-judgmental, blame-free discussion.³

- Empower parents to promote their child’s ability to self-regulate food intake while providing appropriate structure and boundaries related to eating.³

#5  Behavioral Modification Counseling

“Changing the health behaviors of Americans has the greatest potential of any current approach for decreasing morbidity & mortality and for improving the quality of life across diverse populations” — Whitlock et al, 2002

- Develop a case-specific plan to implement family lifestyle changes. Counseling may be primarily targeted toward parents, but older children can be involved in the process. Consider using one of these frameworks:

**The 5 A’s Organizational Construct**¹⁹

- **Assess**... Ask about behavioral health risk factors in the family that may influence their success. Are the parents willing to make family lifestyle changes? What are their goals? Do the parents support each other and have a strong support system outside the home?

- **Advise**... Provide personalized advice. Link the behavior change to the parent’s health concerns, past experiences, and social situation. Remember to convey compassion and empathy. Express your confidence in the patient in order to build their self-efficacy and acknowledge previous
successes. To convey respect, use a phrase such as, “since I am your healthcare provider, I feel I should tell you” instead of saying “you should.”

**Agree...** Collaborate with the family to make a plan for behavior change. Discuss multiple options for a method of behavior change. Asking, “how important is it for you to...” and “how confident are you that you can...” will help further assess the motivation of the child and parents and identify a change that is most likely to be successful.

**Assist...** Use your skills as a healthcare provider and any available community resources to help the family acquire the knowledge and skills needed to achieve their goals.

**Arrange...** Schedule follow-up contacts with the family to provide ongoing support and assistance. Offer praise for small steps toward their goals. Continually evaluate & adjust the behavior change plan as needed. Refer families to a specialist, such as a nutritionist or counselor, as needed.

**Healthy Eating and Activity Together (HEAT)**

HEAT is a campaign sponsored by the National Association for Pediatric Nurse Practitioners (NAPNAP) to aide in the prevention of childhood obesity. NAPNAP makes the following recommendations to families, to be guided & supported by a primary care provider:7

- Involve all members of the family in a plan for behavior change
- Plan healthy family meals
- Participate in fun physical activities together
- Make gradual, small changes in health behaviors
- Choose 1 healthier behavior to implement for 1 month, then add a new behavior change each month while maintaining the previous changes.

See page 14 for specific healthy behavior change suggestions that will start families off in the right direction.
#6 Know your community resources

- National and local resources will provide support to patients when they leave your office and may increase efficiency of the healthcare system.\(^{19}\)

#7 Advocacy... Get involved in the following areas:

- **Opportunities for physical activity:** Improve safety, accessibility, and awareness of physical activity in child care centers, schools, after school programs, recreation centers, and neighborhoods.

- **Food Supply:** Remove non-nutritional foods and beverages from schools and improve availability of nutritious foods.

- **Research & pilot projects:** Research is needed to demonstrate effectiveness of primary prevention efforts, further explore genetic & environmental risk factors, examine children’s health beliefs and understanding of nutrition & physical activity, determine motivational factors for behavior change in both children and parents, and evaluate the effectiveness and efficiency of behavioral counseling strategies.

- **Third-party reimbursement:** Patients need insurance coverage for obesity-related services. Lack of reimbursement is a disincentive for providers to develop prevention and treatment programs and to initiate preventative practices in primary care.

*\(AAP, 2003\)*
The USDA unveiled a new food pyramid in 2005 that promotes both a balanced diet and an active lifestyle. The new guidelines recommend that kids make $\frac{1}{2}$ their grains whole, vary veggies, focus on fruits, get calcium-rich foods, and go lean with protein.

The USDA recommends serving guidelines for an 1,800-calorie diet. Personalized guidelines are available at MyPyramid.gov.

- **Grains**: 6 ounces every day
- **Vegetables**: 2 ½ cups every day
- **Fruits**: 1 ½ cups every day
- **Milk**: 3 cups every day
- **Meat & Beans**: 5 ounces every day
- **Oils**: Not a food group, but some are needed in daily diet. Get oils from fish, nuts, and soybean or canola oil
- **Fats & Sugars**: Not a food group, so limit these...choose foods & beverages low in fat and sugar

**Physical Activity Guidelines (kids over 2 years and adults):**

30 minutes of at least moderate intensity physical activity on all days of the week. This includes walking, playground activities, and active chores.¹²
Consider some of the following suggestions from the Academy of Pediatrics and the HEAT Campaign that promote healthy diet and physical activity behaviors.

ENCOURAGE PARENTS TO:

Turn TV off during meals. This is associated with more nutritious meals and allows families to spend time together.

Eat with their children. Absence of family meals is associated with increased fat and decreased fruit & vegetable intake.\(^\text{12}\)

Learn about portion sizes: recommendations are smaller than most people think.

Make all grains whole grains.

Limit TV time to less than 2 hours each day—decreasing media usage alone without promoting exercise reduces BMI. Also, commercials for unhealthy foods targeting children are highly influential on food choices.\(^\text{3}\)

Engage in physical activity as a family. This includes walking to nearby stores or around the neighborhood, bike riding, and active games.

Stock the home with nutritious snacks and avoid buying carbonated, sugary beverages. Children will eat what is available to them.\(^\text{2}\)

Buy low-fat food products such as low-fat milk and cheese.

Model healthy behaviors for their children.
Do educational activities as a family such as reading, playing enriching games, and participating in community events.

Involve their children in food selection and preparation. They will learn about healthy meals and enjoy tasting what they have helped make.

Avoid over-controlling behavior related to food such as verbal prompting to eat more or less, or attentiveness to non-eating behavior.²

Give kids active chores.

Have their children walk to school or the bus stop when possible.

Not allow a TV in a child’s room. This is a strong predictor of obesity in later childhood, and also limits the child’s participation in family activities.³

Reinforce a *decrease* in their child’s sedentary behavior. This is more effective in reducing weight than reinforcing an increase in physical activity.²

Inform their child’s teachers and other parents about their efforts to change family dietary habits. Children as young as 2 years are highly influenced by the food preferences of their peers.²

Not use junk food as a reward. This may be associated with increased preference for those foods.²

Not force a child to clean his plate. Choosing how much to eat is an important way kids learn how to recognize a feeling of fullness.²
References
FUTURE WORK

The current prevalence and increasing rates of childhood obesity in the United States calls for research and advocacy in many areas. Though the obesity epidemic has inspired research exploring obesity causes, complications, risk factors, and effective interventions for adults, there have been few studies involving child participants. Since childhood obesity treatment programs have demonstrated minimal efficacy, healthcare leaders recommend a shift toward research examining primary care prevention strategies (AAP, 2003). Current preventative practices of pediatric healthcare providers in the area of obesity have not been well studied. Specifically, the effectiveness of behavioral and lifestyle modification counseling for children and parents should be further examined. The literature review for this project revealed that childhood obesity is a multi-risk issue and that some risk factors are stronger predictors of the condition than others. Both retrospective and longitudinal studies in this area could lead to development of a risk assessment tool to be used in primary practice, similar to the cardiovascular risk assessment tool based on the Framingham Heart Study (American Heart Association, 2006).

Collaboration among primary care providers and specialists such as nutritionists, exercise physiologists, and counselors, will be needed in order to implement effective, sustained obesity prevention strategies for children. The AAP identifies a need for long term commitment of funds from many sources for obesity prevention, as well as support for development and testing of prevention strategies (2003). There is also a need for
improved reimbursement for health care providers for implementation of prevention and treatment strategies to encourage progress in this area. The work of healthcare providers is necessary in the area of advocacy at the local and federal level to induce changes in healthcare policies that impact food supply and physical activity opportunities for children. Researchers and healthcare providers need to advocate for safer communities, adequate physical activity requirements and facilities at schools and community centers, removal of non-nutritious foods from schools, parent educational programs, and restricted advertising during televisions programming for children.

The Take ACTION!™ guide as it stands could be mass produced and distributed in several ways to pediatric and family nurse practitioners nationwide. With the support of national healthcare organizations, such as the American Academy of Pediatrics, the American Heart Association, and the American Diabetes Association, it could be advertised and made available with related products on their websites for purchase by providers. The guide could also be downloaded, though not in its original form. The product could first be distributed to local practices in order to assess its effectiveness and make improvements prior to mass production. If successfully used by nurse practitioners, the product could also be distributed to pediatricians and family practice physicians. Conferences for primary care providers focusing on childhood obesity and related issues could distribute the Take ACTION!™ guide as a teaching tool for providers and encourage its use in practice.

If the Take ACTION!™ guide was distributed to nurse practitioners for use in primary practice, research would be needed in order to examine the effectiveness of the
tool and the degree to which it influenced practice. Pre- and post-tests could be conducted to assess nurse practitioner knowledge related to childhood obesity, assessment of risk factors, current diet and activity recommendations, and behavioral modification techniques. Providers could report the degree to which the guide improved their skills in the area of obesity prevention and the level of confidence they feel related to their ability to influence patient lifestyle changes. Providers could also be observed during patient encounters after having been exposed to the Take ACTION!™ guide in order to evaluate consistency of obesity risk assessment and patient education efforts.

CONCLUSION

“The childhood obesity epidemic is the critical health issue of this millennium” and has led policy makers and community health leaders to acknowledge it as a critical public health threat (Rich et al, 2005, p.130). Nearly one quarter of children ages 2 to 17 years are obese with an additional 15% at risk. Furthermore, rates of obesity in have more than doubled for preschool children and more than tripled for children ages 6-11 in the last three decades. Obesity has long been associated with multiple long-term health complications in adults, and costs society nearly $130 billion annually. Remarkably, children now suffer from obesity-related physical and psychosocial complications and obese children are likely to remain obese as adults. Though childhood obesity has been linked to genetic factors, environmental and societal influences are likely greater contributors to the recent surge in obesity prevalence. In response to climbing rates of obesity among children of all ages, the Healthy People 2010 initiative aims to reduce
prevalence to 5% among children and adolescents, thereby reducing long-term physical and psychosocial complications associated with the condition.

Though research examining primary intervention strategies in children is scarce, previous obesity interventions have demonstrated only modest success and it is likely that anticipatory guidance and behavioral counseling provided to parents with children at risk for obesity will be more successful. Primary healthcare providers often have consistent contact with patients and play a critical role in primary prevention. Providers must be up-to-date on the magnitude of the recent childhood obesity threat and have the knowledge and skills to intervene before obesity and related complications occur. Studies show, however, that many primary care providers feel they are inadequately prepared to address the issue of obesity with families and are most likely to offer primary prevention interventions if references and practice tools are readily available.

In response to the growing epidemic of childhood obesity and the identified knowledge deficit of both parents and healthcare providers, a tool was developed to guide nurse practitioner practice in the area of obesity prevention. The Take ACTION!™ guide was designed to provide nurse practitioners with the most current information available from literature on the topic, and improve prevention efforts in the primary care setting. The tool provides efficient access to obesity facts, current prevention recommendations and strategies, and techniques for behavioral modification counseling and support for families with children at risk for obesity. The Take ACTION!™ tool is intended to bolster the primary care provider role in obesity prevention, thereby contributing to a reduction in prevalence and health complications of childhood obesity.
REFERENCES


