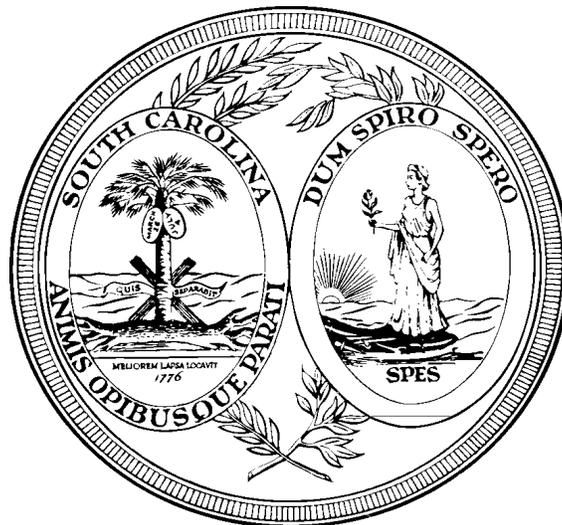




Report
on
The Impact of Obesity on Health
in
South Carolina



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December 1999

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Table of Contents

1. Foreward	2
2. Obesity Research Working Group and Advisory Committee	3
3. Executive Summary	6
4. Overview of Overweight and Obesity	7
A. Overweight and Obesity Defined	7
B. Adult Obesity	9
1) Scope of the problem and health implications for adults	9
2) Approaches for prevention of overweight, obesity, and related conditions	18
3) Approaches for treatment of obesity in adults	20
4) Examples of programs related to obesity in South Carolina	24
C. Childhood Obesity	37
1) Scope of the problem and health implications for children	37
2) Approaches for prevention of overweight and obesity in children	41
3) Approaches for treatment of obesity in children	43
4) Examples of programs related to childhood obesity in South Carolina	44
D. Economic impact of overweight and obesity in South Carolina	48
E. Current research status of overweight and obesity in South Carolina	53
5. Noted state resources	61
A. The Diabetes Initiative of South Carolina (DSC)	61
B. Physical Activity in South Carolina	62
6. Conclusions of the Advisory Committee	63
 Appendices	
A. Concurrent Resolution	64
B. List of South Carolina regions by counties	66
C. Recommendations for Action	67
D. Fact Sheets on adult and childhood obesity	70
E. References	75

FOREWARD

South Carolina's high rates of obesity and the resulting obesity-related health conditions exact a high toll on the health of our citizens and the financial resources of our State. The South Carolina Advisory Committee on Obesity was established by the South Carolina Department of Health and Environmental Control as a result of Concurrent Resolution S.252, sponsored by Senator Warren Giese. The Advisory Committee was created to prepare a report on obesity for the South Carolina State Legislature. The report contains a description of the problem, examples of approaches to prevention and management in children and adults, and research currently being conducted in the State.

The Committee Report can serve as a foundation for the development of a coordinated and comprehensive statewide initiative to impact the high rates of childhood and adult obesity and to reduce obesity-related costs in South Carolina. Members of the Advisory Committee support the creation of a Council on Obesity to more fully explore the prevention, management and treatment of obesity and obesity-related health issues in South Carolina. The Committee believes that a Council on Obesity is the most effective way to stop the epidemic of obesity in South Carolina.

Health complications associated with obesity incur significant health care expenditures by the public and private health care systems. All of these complications are preventable or can be diminished significantly. Even moderate weight loss (5-10% of body weight) is associated with improved health benefits. The most current and effective obesity prevention and management programs must be available and accessible to all South Carolinians, especially those at greatest risk.

Effective obesity prevention and management program funding is essential if we are to stop obesity from increasing, improve health outcomes, and reduce health care costs.

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EXECUTIVE SUMMARY

SCOPE OF THE PROBLEM

Overweight and obesity are of epidemic proportions in the State of South Carolina occurring among half of the adult population. In 1998, South Carolina ranked 10th highest in the nation for self-reported rates of overweight and obesity.

Rates of overweight and obesity are highest in minority groups, affecting approximately 65% of African Americans, 51% of Hispanics, and 64% of Native Americans. Minority women and medically under-served communities are at particularly high risk.

Obesity rates in children have doubled over the last twenty years. An estimated one in five children in the U.S. is overweight or obese. Obesity in childhood and adolescence is a strong predictor of obesity and health risks in adulthood.

Obesity is strongly associated with Type 2 diabetes, heart disease, high blood pressure, stroke, some cancers, and a wide range of other diseases affecting our State's citizens. Obese children and adults also experience widespread intolerance and may suffer psychological distress as a result.

COST TO THE STATE

Obesity and obesity-related conditions cost the State of South Carolina an estimated \$177 million in 1997.

NEEDS IN THE STATE

Sufficient data are needed to appropriately characterize the problem of obesity, particularly in children and adolescents.

Adequate resources are needed to prevent and reduce the rate of obesity among high-risk populations.

Research is needed to determine which interventions are most effective for specific groups of South Carolinians.

Funding is needed to implement strategies aimed at preventing obesity in children and adults.

SPECIFIC REQUESTS

The Advisory Committee requests legislation to accomplish the following:

- Create a statewide Obesity Council. The Council's purpose is to reduce the prevalence and health-related costs of obesity in the State of South Carolina.
- Allocate \$500,000 annually to fund the Council which will implement large-scale prevention and treatment programs, surveillance, and policy development that are essential to impact overweight and obesity in our state.

OVERVIEW OF OVERWEIGHT AND OBESITY

People in the United States are heavier now than ever before (1). According to the National Heart, Lung and Blood Institute (3), an estimated 97 million adults in the United States are now overweight or obese, representing over half of the adult population. Among today's youth, approximately one in five are overweight or obese (2). These overweight children will likely become overweight adults, perpetuating the growing epidemic in this country.

Overweight and obesity contribute substantially to high rates of diabetes, high blood pressure, heart disease, certain cancers (obesity-related risk factors), and other diseases; hence they place an enormous toll on the rising costs of the health care system. The aim of this report is to outline the scope of the problem, estimate the economic impact on the State of South Carolina, and suggest a path by which to reverse, or at least stabilize, the rising trend of overweight and obesity rates.

OVERWEIGHT AND OBESITY DEFINED

The classification of overweight and obesity recently was standardized by a panel of experts based on an extensive review of the literature. Overweight and obesity are determined by calculation of body mass index (BMI). BMI is a measure of weight that takes height into account. It is calculated as weight in kilograms divided by height squared in meters.¹

¹ Using pounds and inches, BMI = weight in pounds divided by height² in inches multiplied by 704.5.

Table 1. Classification of Overweight and Obesity by Height and Weight

Height	Healthy Weight (lbs.) BMI = 19-25	Overweight (lbs.) BMI = 25 - 29	Obese (lbs.) BMI = 30 or over
4'10"	91 - 118	119 - 142	143 or over
4'11"	94 - 123	124 - 147	148 or over
5'0"	97 - 127	128 - 152	153 or over
5'1"	101 - 131	132 - 157	158 or over
5'2"	104 - 136	137 - 163	164 or over
5'3"	107 - 140	141 - 168	169 or over
5'4"	111 - 145	146 - 173	174 or over
5'5"	114 - 149	150 - 179	180 or over
5'6"	118 - 154	155 - 185	186 or over
5'7"	121 - 159	160 - 190	191 or over
5'8"	125 - 163	164 - 196	197 or over
5'9"	129 - 168	169 - 202	203 or over
5'10"	132 - 173	174 - 208	209 or over
5'11"	136 - 178	179 - 214	215 or over
6'0"	140 - 183	184 - 220	221 or over
6'1"	144 - 188	189 - 226	227 or over
6'2"	148 - 194	195 - 232	233 or over
6'3"	152 - 199	200 - 239	239 or over
6'4"	156 - 204	205 - 237	240 or over

Adaptation of National Heart, Lung, and Blood Institute Body Mass Index Chart

The current definition of overweight is a BMI of 25 kg/m² to 29.9 kg/m², while obesity is defined as a BMI greater than or equal to 30 kg/m². (Note: Most national surveys conducted to date have used a BMI of greater than 27 kg/m², corresponding to 120% of ideal weight, to define overweight.) Unless indicated, this report uses the most current definitions:

- > **overweight = 25 kg/m² to 29.9 kg/m²**
- > **obese = 30 kg/m² or over**

Waist circumference also can be used in the assessment of obesity. It is a good measure of the presence of excess abdominal fat, which is a predictor of increased risk for the development of obesity-related risk factors in adults with a BMI of 25 to 34.9 kg/m² (3).

Table 2. Waist Circumference – High Risk*

Gender	Waist Circumference
--------	---------------------

Men	>40 inches (or >102 cm)
Women	>35 inches (or >88 cm)

(*for development of obesity-related risk factors)

ADULT OBESITY

Scope of the problem and health implications for adults

Over half of American adults are overweight or obese. The prevalence of these conditions is higher among certain populations including females, ethnic minorities, and individuals with low income and educational levels. Two-thirds of African American women are overweight or obese (3). These facts are of particular importance in South Carolina where, according to the 1990 U.S. Census, over 575,000 individuals live in poverty (15.7%), and about one-third of the population (over one million individuals) are African American.

Overweight and Obesity in South Carolina

National Health and Nutrition Examination Study (NHANES III)

The NHANES III provides the most recent and most accurate estimate of the prevalence of overweight and obesity in the U.S. These data, applied to the adult population in South Carolina (age and race specific), provide useful estimates of the number of overweight and obese individuals in the State (about 1.5 million).

Table 3. NHANES III Estimates of Overweight and Obese Persons in South Carolina

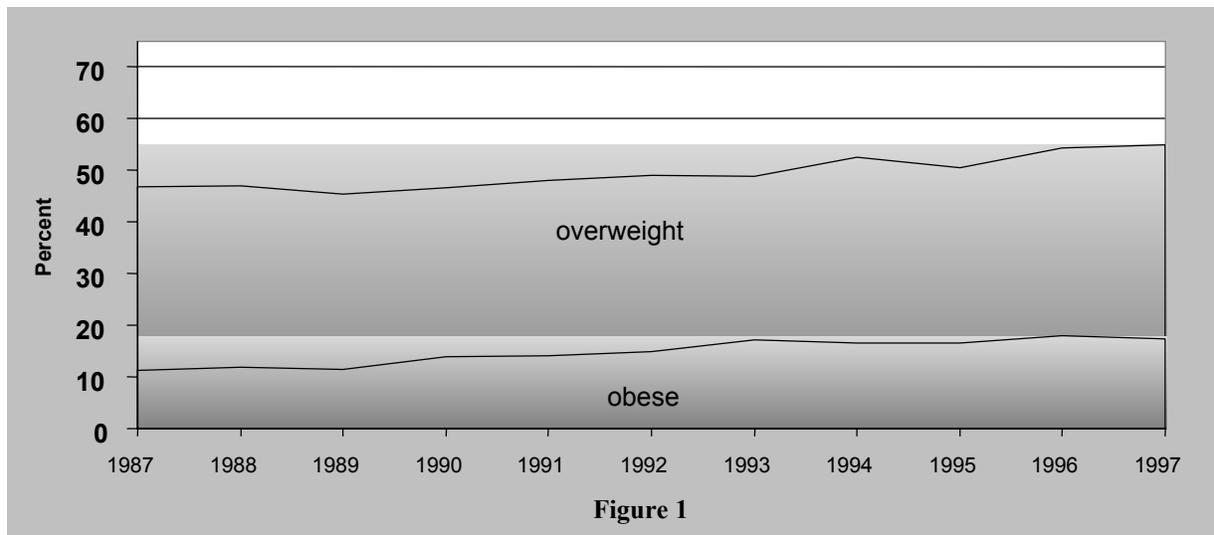
	Men	Women	TOTALS
African American	182,097	261,918	444,015
Caucasian	547,527	480,410	1,027,937
Hispanic	5,990	8,550	11,624
TOTALS	735,614	750,878	1,483,576

Behavioral Risk Factor Surveillance System (BRFSS)

- **South Carolina ranked 10th highest in the nation in terms of overweight in 1998.**

South Carolina is consistently among the states with the highest self-reported rates of overweight. (Note: Overweight was defined as a BMI ≥ 27.3 kg/m² for women and a BMI of ≥ 27.8 kg/m² for men.) The BRFSS data are self-reported instead of measured. Therefore, the percent of overweight and obese individuals will be underestimated (4). Figure 1 shows the trend of overweight and obesity in the State from 1987 to 1997. As shown, the combined rate of overweight and obesity is high and has increased steadily over the past decade. Much of this rise is due to the increasing rate of obesity rather than overweight. The State's population is getting heavier.

Overweight and Obesity Prevalence Rates South Carolina: 1987-1997



Combining data from years 1993 to 1997 to yield more precise estimates, we find that overall, 36.2% of South Carolina adults are overweight (BMI ≥ 25 kg/m² and < 30 kg/m²) and an additional 17.0% are obese (BMI ≥ 30 kg/m²). These rates indicate that less than half of the adult population in South Carolina is of normal weight.

Figure 2 shows age-specific data for South Carolina BRFSS compared with national BRFSS data. For South Carolina and the U.S., rates of overweight increase with age until about age 60. The rate of overweight is higher in South Carolina for every age decade except the 70's.

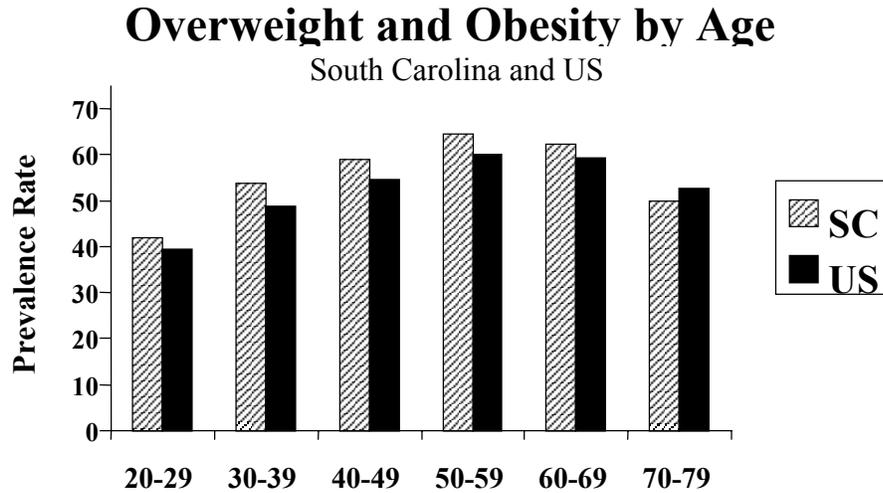


Figure 2

According to the South Carolina BRFSS, overweight and obesity combined are more common among men than women (60.1% versus 46.7%), but obesity is slightly more common among women than men (17.4% versus 16.6%). Overweight and obesity are much more common among African Americans than Caucasians (64.5% versus 49.2%, combined). Figures 2-6 show the rates of overweight and obesity by (a) age, (b) region, (c) adequacy of medical care, and (d) race and gender.

Figure 3 shows that rates of overweight and obesity combined are high (over 50%) in each of the four regions of the State. (See Appendix B for listing of counties in each region.)

Overweight and Obesity

SC BRFSS 1993-1997

- by region -

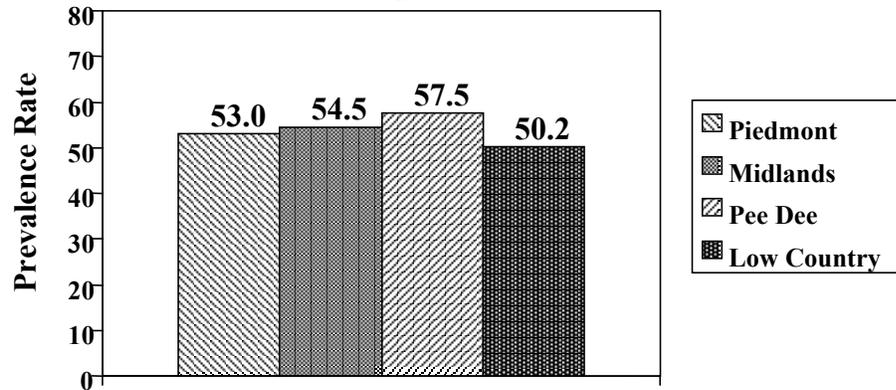


Figure 3

Figure 4 shows that when looking at medically under-served counties² as compared to adequately served counties, the rates are higher in the under-served areas (56.3% versus 50.3%), yet again, over half of the population in either situation is overweight.

Overweight and Obesity

SC BRFSS 1993-1997

- by adequacy of medical service -

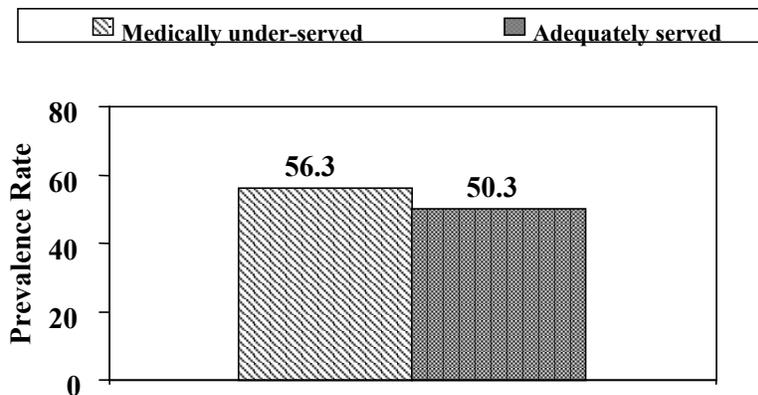
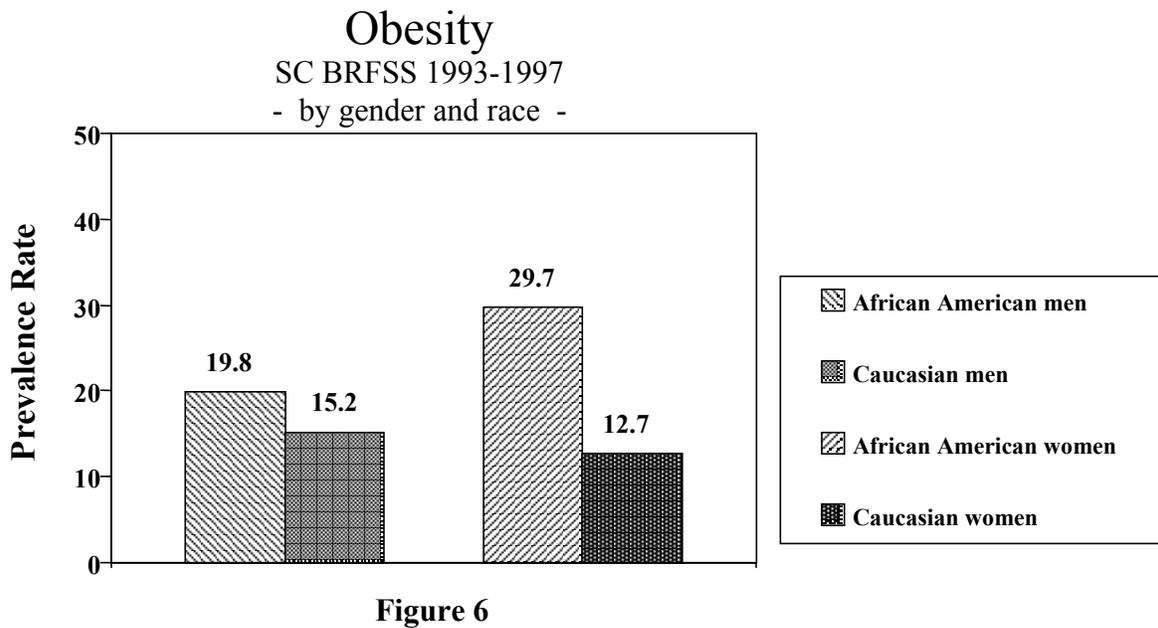
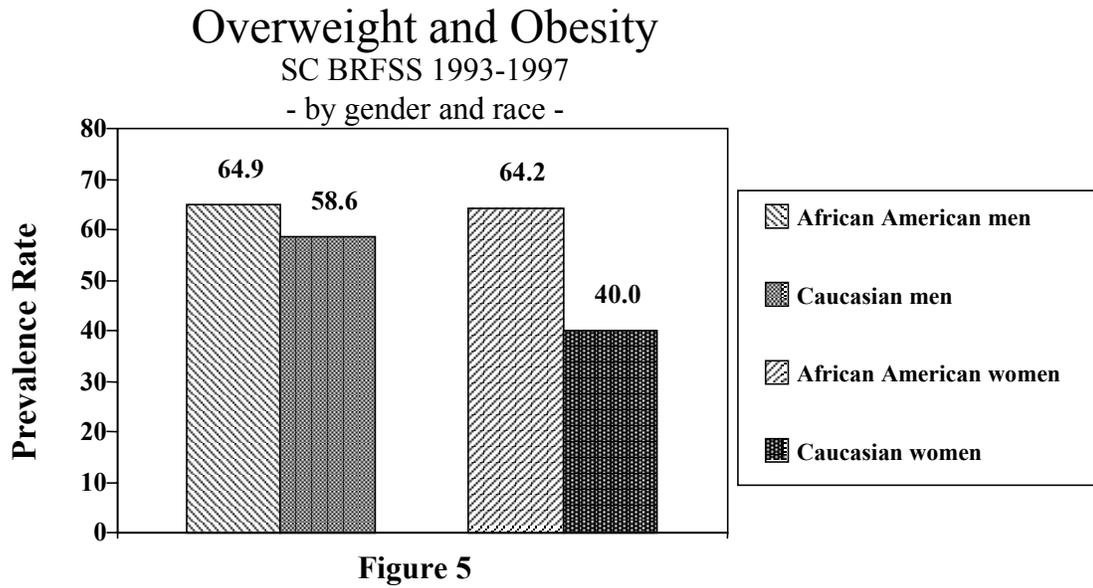


Figure 4

² Medically under-served counties were designated as such by the U.S. Public Health Service. The definition was based on physician-to-population ratio, infant mortality rate, poverty level, and percent of population age 65 years or greater.

Figures 5 and 6 show that over two-thirds of African American men and women are overweight or obese. Obesity is particularly high among African American women (30%). Nearly 60% of Caucasian men and 40% of Caucasian women are overweight or obese.



Two other important minority groups in South Carolina are Hispanics and Native Americans. Based on 164 Hispanic respondents to the South Carolina BRFSS (1993-1997), 51.7% were overweight (52.3% of men and 47.7% of women). A more representative picture may be found by applying the national rate to the South Carolina population. From the 1990 census, BRFSS estimates that there are approximately 11,624 of 17,924 Hispanic adults who are overweight (see Table 3). While the 1990 U.S. Census underreports the number of Hispanics living in South Carolina, the data show that this is an area for concern.

Recently, a survey that gathered self-reported heights and weights from 789 individuals was conducted among the Catawba Indian Nation in South Carolina. It showed that the prevalence of overweight was 64% overall, with a 70% prevalence for men and 60% for women (5).

Health Implications of Overweight and Obesity

As established by the Evidence Report published by the National Heart Lung and Blood Institute (3), the condition of overweight or obesity substantially raises the risk of coronary heart disease, stroke, high blood pressure, unfavorable blood lipid levels, Type 2 diabetes, gallbladder disease, osteoarthritis, sleep apnea, respiratory problems, and endometrial, breast, prostate, and colon cancers. The expert panel that published the report based its conclusions on an extensive review of the literature, including approximately 394 randomized controlled trials. The South Carolina report focuses on the three major diseases associated with obesity: heart disease, stroke, and diabetes, since these diseases cause a large majority of death and disability in the State.

Coronary Heart Disease

- **In 1996 South Carolina ranked 3rd in the U.S. in deaths due to diseases of the heart with a rate of 304.2 per 100,000 (6).**

The American Heart Association has classified obesity as a major, modifiable risk factor for coronary heart disease (7). It has been estimated that in the U.S., 19% of deaths from coronary heart disease can be attributed to obesity (8).

Key risk factors for heart disease, such as diabetes, high blood pressure, unfavorable blood lipid levels, and stroke are independently related to obesity. The link between BMI and blood pressure was documented over 30 years ago in the well-known Framingham Study (9). Obese people have at least five times greater risk of developing high blood pressure than lean people (10). The link between obesity and unfavorable blood lipid levels is well established, as is the positive impact that weight loss has on lipid levels (11, 12).

Stroke

- **In 1996, South Carolina ranked 1st in the U.S. in deaths due to stroke with a rate of 60.9 per 100,000 (6).**

Overweight and obesity have been noted by the American Heart Association as a secondary risk factor for stroke. Excess body weight has been associated with risk for ischemic stroke among women (13). Among males in the Physicians' Health Study, increased physical activity resulted in fewer strokes due to the beneficial effect of physical activity, improved body weight, and other risk factors (14).

Diabetes

- **In 1996, South Carolina ranked 10th in the U.S. in deaths due to diabetes with a rate of 21.6 per 100,000 (6).**

Overweight and obesity are risk factors for diabetes, and diabetes is a risk factor for coronary heart disease (CHD) and stroke. Up to 90% of individuals in the U.S. with Type 2 diabetes are overweight or obese (15). In the U.S., it has been estimated that 62% of deaths from diabetes can be attributed to obesity (8).

In Type 2 diabetes, obesity contributes to excess disease and death (16), including increased risk for high blood pressure and cardiovascular disease (17). Furthermore, the metabolic abnormalities of Type 2 diabetes such as high levels of blood glucose and insulin, and unfavorable levels of blood lipids are worsened by obesity (15, 18, 19, 20). Accordingly, Pi-Sunyer (21) has recommended that individuals with diabetes strive to achieve and maintain a BMI of 25 or below. According to the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), complications of diabetes, such as amputations, blindness, kidney failure, or gallstones, increase dramatically as BMI increases.

Psychosocial Consequences

Obesity is not a psychiatric disorder, and rates of psychiatric disorders are no greater among community samples of obese persons than among non-obese community samples. However, obese people seeking treatment for their obesity do have a higher rate of such problems; several studies have found that half or more of significantly obese persons presenting for drug or surgical treatment have suffered diagnosable psychiatric disorders in their lifetime. (22, 23, 24)

Obese people often show impairment in behavioral and psychological factors related to eating, weight control and body image. For example, they may experience more pessimism about control of eating, be more aware of suffering hunger, and be more prone to self-defeating perfectionism about dieting. Obese children, adolescents and adults are more likely to experience a negative body image; that is, they may evaluate their appearance quite negatively. General self-esteem is sometimes impaired among obese adults and adolescents (22, 24). Overall, obesity has been documented to produce measurably decreased quality of life (25).

To a striking degree, obesity is also a social disability. Obese people live in a world that receives them with notable antipathy. Numerous studies have documented strong prejudices against obese people by adults, children, and regrettably, even health care professionals. These prejudices are often reflected in outright discrimination in employment, educational, and health care settings. Obesity in adolescence (particularly among girls) has been found to be related to lower educational attainment, income, and likelihood of marriage (22, 24).

Some groups of obese people are more prone to suffer psychological distress as a result of their obesity. These include the more severely obese, obese people with problems of binge eating, and Caucasian (relative to African American) women (22, 23, 26).

Summary of Scope and Health Implications

Over half of South Carolinians are overweight or obese. About 65% of African Americans in South Carolina are overweight or obese, as are nearly 60% of Caucasian men and 40% of Caucasian women. The rate of overweight, and especially obesity, is rising, which will negatively impact the health status of South Carolina in the future. Overweight and obesity are strongly related to coronary heart disease, stroke, diabetes, and many more chronic conditions

that afflict our State. Available data show that the prevalence rates of these conditions are higher in South Carolina than in the U.S. in general.

Approaches for prevention of overweight, obesity, and related conditions

The dramatic rise in the prevalence of overweight and obesity points to environmental rather than genetic factors (27). Social, behavioral, and cultural factors play an important role (3). It has been estimated that diet and activity patterns contribute to at least 300,000 deaths annually, rendering these the second leading cause of death in 1990 (28). There is evidence to suggest that lifestyle changes, independent of weight loss, can help improve many of the most common obesity-related disease conditions such as high blood pressure, unfavorable blood lipid levels, insulin resistance, and glucose intolerance (29). Thus, diet (energy in) and activity patterns (energy out) are of paramount importance in the prevention of overweight and obesity and related disease.

Research indicates that certain populations may be important targets for prevention of weight gain. There may be three time periods for the adult population that are especially important to focus on: the 25 to 35 year age group, the time around menopause, and the year following successful weight loss (30). Interventions in the prenatal and postpartum periods also may be critical to help those at risk of retaining weight gained during pregnancy (31). Other data suggest that African American women younger than 25 years should be a priority target audience (32). The CARDIA study (33) and national surveys indicate that others at high risk include all African Americans and adults with a low education level.

Physical Activity and Diet

Diet and activity are important in terms of prevention and treatment of obesity and obesity-related conditions, such as diabetes and heart disease (28). Primary prevention efforts should include physical activity, changes in the type and quantity of food consumed, behavior modification, and some contact with a counselor (34).

A study of healthy, middle-aged, women in South Carolina showed that those who maintain normal weights appear to do so mainly by increased physical exercise and decreased energy intake. Women with normal weights also demonstrated a sense of responsibility and control over their own health. In this and other studies in South Carolina, it has been shown that women who eat more frequently have lower mean BMIs and body fat percentages than those who skip meals or have longer periods of food deprivation (35).

Very low-intensity approaches may not be adequate to prevent obesity as shown in the Pound of Prevention (POP) Study. The POP found that a low-intensity intervention consisting of monthly educational newsletters was associated with prevention of weight gain compared to the control group and, on average, about two pounds of weight loss during the first year (36). The POP intervention was not strong enough to prevent weight gain over three years even though positive behavior changes persisted (37).

More intensive programs have been shown to be effective in promoting weight loss which can prevent obesity-related disease. For example, the Diabetes Prevention Program (DPP) offers its participants “Lifestyle Balance”, which stresses both eating healthy and being more physically active to lose weight and keep weight off. The intervention uses “tried and true” intervention approaches such as goal setting, self-monitoring, and frequent contact with the interventionist. The physical activity goal is set at 700 kilocalories of energy expenditure per

week (i.e., 2.5 hours of moderate physical activity per week). Healthy eating goals include a limit of fat grams per day (25% of calories) and reduced calories per day to result in a weight loss of one to two pounds per week. The physical activity and fat gram goals were determined based on scientific research showing a health benefit at the selected levels (700 kilocalories of energy, and 25% of calories from fat).

It should be noted that aerobic fitness, as a result of high physical activity levels, has been associated with better health even among overweight or obese individuals. Aerobically-fit men who had BMI of 27.8 or greater had death rates similar to those of fit men of normal weight, and lower risk of death than unfit normal weight men (38). Based on this finding and other similar results, researchers concluded that the health benefits of leanness are limited to fit men, and being fit may reduce the hazards of obesity (39). Increased physical activity can improve fitness and offer many benefits in addition to possible prevention of obesity (e.g. improved quality of life, flexibility, motor performance, and increased muscle mass and bone density).

Approaches for treatment of obesity in adults

Adults with obesity-related risk factors should be a primary target for intervention and treatment for weight loss. The initial goal of weight loss therapy is to reduce body weight by about 10% over a six-month period (3). Even moderate weight loss can reduce risk factors for diabetes and heart disease (40, 41, 42, 43, 44, 45).

Physician Counsel

Physicians can play a major role in overweight and obesity management with the patients they serve. It has been suggested that health professionals shift their focus away from the goal of

losing body fat to attain a particular size to focus instead on improving health and well-being for people of all sizes (46). It is important that physicians emphasize the role of physical activity in the treatment of obesity (47), as well as the importance of a proper diet (48). The health benefits of proper nutrition and exercise are significant regardless of body size (49, 50).

Data from the 1996 BRFSS revealed that only 42% of obese persons nationwide who visited their physician for a routine checkup in the last 12 months reported that they had been counseled by a health care professional to lose weight (51). In South Carolina, 10.2% of those who were overweight were told to lose weight by their physician (BRFSS 1995-1997).

A study of family physicians found that they were most likely to use diet, exercise, and behavior modification prescriptions in treating obese patients, and they were reluctant to prescribe medications. The physicians displayed a lack of understanding of the proper assessment of obese patients. Most agreed that their medical school training was deficient regarding the treatment of obesity; a majority wished further training. Most of the physicians surveyed had a desire to collaborate on obesity-related research projects. Additional access to training could make an impact on these attitudes and thereby influence their patient management (52).

Behavioral Approaches to Weight Management

Current behavioral approaches to weight management result in modest weight loss while maintenance of lost weight remains a critical challenge (40, 53). The National Institutes of Health (NIH) Expert Panel recommends that a combination of therapies should be continued indefinitely to increase the likelihood of weight loss maintenance (3). Essential elements of a successful weight loss maintenance program include: frequent and sustained contact with

counselors, low-calorie/low-fat diet, moderate physical activity, use of self-monitoring tools with support from a dietitian, and strategies for relapse prevention and treatment (53, 30).

Since a large percentage of the overweight/obesity problem in South Carolina is among the African American population, culturally appropriate intervention strategies are needed. Kumanyika and Ewart (54) have shown that African Americans have different perceptions of favorable body size compared to Caucasians. The Trial of Non-pharmacologic Interventions in the Elderly (TONE), including about 25% African American participants, demonstrated the efficacy of a comprehensive weight loss intervention that resulted in sustained weight loss over a 30-month period (55). Other groups (56, 57) have reported the success of intensive, culturally sensitive behavioral programs for weight loss among urban African Americans, including those with diabetes (58, 59). On the other hand, some studies showed smaller weight loss among African Americans compared to Caucasians (60) and an increased tendency for African American participants to regain weight (61). While recent studies provide reasonable evidence that weight loss can be achieved among African Americans, it is clear that long-term success will depend on careful attention to the refinement of culturally sensitive materials and to appropriate delivery of these materials.

Leermakers et al. (62) compared an exercise-focused program (including supervised walking sessions, behavioral management techniques, and relapse prevention) with a weight-focused program (group problem solving of weight-related problems). At the end of the 6-month follow-up program, there were no differences in exercise participation or energy expenditure. However, during the year following the initial weight loss, the participants of the weight-focused program ate less fat and maintained weight loss better than subjects in the exercise-focused

program (62). Physical activity alone is not an adequate weight loss strategy, but should be combined with dietary changes and behavior modification to be effective.

Pharmacology

At the present time, pharmacotherapy has a limited role in obesity treatment (63). Drug treatment of obesity is appropriate only in individuals who: 1) are at medical risk from their level of obesity, 2) have not responded to more traditional, conservative management such as diet and exercise, 3) have no contraindications to the use the pharmacologic agent, and 4) understand the risks, likelihood of success, and possible need for long-term treatment to maintain weight loss. Individuals who have been prescribed drugs should be encouraged to reduce caloric intake moderately and exercise regularly (63).

The NIH Expert Panel reported that anti-obesity drugs can augment diet, physical activity, and behavior therapy to achieve and maintain weight loss. Such agents may be a useful adjunct for patients with a BMI ≥ 30 , or BMI ≥ 27 with other obesity-related risk factors or diseases (3). The most recent drugs approved by FDA for use in weight management are sibutramine (Meridia) and orlistat (Xenical). Two recent studies of patients taking orlistat showed that they lost more weight than patients not treated with the drug (64, 65). However, these studies were no longer than one and two years in length. The usefulness of drug therapy in sustaining weight loss over longer periods of time has not yet been determined.

Sibutramine can result in increased blood pressure in some patients and, therefore, should not be used by people with uncontrolled high blood pressure, heart disease, or history of stroke (66). Orlistat, because of its fat-blocking properties, may cause undesirable gastrointestinal discharge and may also block absorption of fat-soluble vitamins.

Examples of programs related to obesity in South Carolina

This section identifies the types of programs and resources that are available to people who wish to lose weight to improve their health. No attempt has been made to judge adequacy or effectiveness of these programs, nor is a mention meant to suggest any endorsement. A comprehensive review of all such programs in the State was not possible, so a sampling of what is available in South Carolina is presented here.

State of South Carolina/ Department of Health and Environmental Control Public Health Nutrition

Nutrition counseling and medical nutrition therapy are available for overweight or obese clients through two public health nutrition programs in the local health departments.

Special Supplemental Food Program for Women, Infants and Children

Overweight and obesity are criteria for referral to nutrition services in the Special Supplemental Food Program for Women, Infants and Children (WIC). WIC provides nutrition education and counseling to pregnant, breastfeeding and postpartum women, and infants and children up to age five who are at medical nutritional risk and meet the income guidelines of the program. Women and children are required to receive nutrition education and counseling related to their medical risk a minimum of two times during the certification period. Registered dietitians, nutritionists, or nutrition education specialists provide nutrition services.

Preventive and Rehabilitative Services for Primary Care Enhancement

Designed to support primary medical care services, Primary Care Enhanced Services offers counseling for weight management to Medicaid clients. Clients are identified for Enhanced Services through the assessment process, self-referral, or through referral by other

service providers (Department of Social Services, Early, Periodic, Screening, Diagnosis and Treatment Program providers, etc.). For example, a diabetic who is overweight is eligible to receive the services of the registered dietitian through a referral from the health care provider or at the request of the individual.

An initial assessment is performed to determine if preventive or rehabilitative interventions are necessary. After the assessment is completed, an initial service plan is developed to address the identified risk factors based on the findings in the assessment.

Preventive or rehabilitative services are provided to clients exhibiting risk factors that directly impact their medical and health status. Preventive interventions are designed to enhance the individual's medical plan of care and practice of healthy behaviors, prevent deterioration of chronic conditions, and promote full and appropriate use of primary medical care. Rehabilitative services enhance the individual's medical plan of care, promote changes in behavior, improve health status, and develop healthier practices to restore and maintain the individual at the highest level possible.

Health Care Industry

Health care organizations that offer weight loss programs are medical university facilities, hospital-based programs, clinics devoted to weight loss, and individual physician offices that specialize in weight management. A sampling of the medical university, hospital, and clinic-based programs are described here. Many of the hospital and clinic programs were started in 1999.

Medical University of South Carolina (MUSC)

MUSC Weight Management Center

The staff at the 25-year-old MUSC Weight Management Center consists of psychologists, physicians, dietitians and exercise physiologists who work together to address the complexity of weight loss. Their team approach offers help to set up an exercise program, form a life-long, healthy eating plan, examine and change problematic eating behaviors and thought patterns, and establish emotional support through group and individual sessions. This 20-week program called “First Step” addresses all of these components.

A program for people who need to lose more than 50 pounds is the “HealthFast” program, a 30-week itinerary that involves initial supervised supplemental fasting, along with lifestyle change counseling. Other programs include “Medication Plus” which makes weight loss medications available to patients not in other programs. Consultation services are also available for individual weight management, or for separate program components such as body composition assessment, nutrition consultation or exercise consultation.

MUSC Pediatric Weight Loss Clinic

This multidisciplinary weight loss program is specifically targeted toward morbidly obese children. It receives patient referrals from throughout the region and focuses on treating children with immediate medical complications of their obesity such as sleep apnea, high blood pressure, Type 2 diabetes, and unfavorable blood lipid levels. In addition to three pediatric endocrinologists, the clinic is staffed by two registered dietitians, two nurse managers and a nurse practitioner. A variety of dietary interventions are utilized including protein-sparing modified fast (ketogenic).

MUSC Gastric Bypass Surgery Program

For six years, MUSC has offered a multidisciplinary program designed specifically for the treatment of patients who are morbidly obese, who have failed a major weight loss program, and who have obesity related risk factors or diseases, such as diabetes and high blood pressure. All patients are evaluated by a psychology team from the MUSC Weight Management Center and a dietitian. Approximately four new patients are evaluated every week, and about 40 patients undergo the surgery each year.

MUSC Eating Disorders Program

A small but important percentage of obese persons suffer from eating disorders. In many cases these disorders must be treated before a structured weight loss program should be started. The multidisciplinary Eating Disorders Program offers outpatient and day treatment services for such individuals based on treatment methods developed during the 10+ years of the program's existence.

MUSC Division of Endocrinology, Diabetes, and Medical Genetics

The Endocrine Division staffs several clinics that serve obese patients with and without diabetes.

McClennan-Banks Ambulatory Care Facility. This is an outpatient primary care facility associated with Charleston Memorial Hospital. Obese patients are followed either in the primary care clinics or in the Endocrinology Subspecialty Clinic. This patient base has a high percentage of patients on Medicare/Medicaid. The Endocrinology Subspecialty Clinic provides 1,700 visits per year. Sixty-three percent of patients seen in the clinic have obesity or Type 2 diabetes.

Rutledge Tower. This outpatient care facility of MUSC follows obese patients in three programs. The Private Diagnostic Clinic sees 6,500 outpatient visits per year. Obesity and Type 2 diabetes are the most commonly diagnosed conditions at this clinic. The Cholesterol Center follows patients with obesity, diabetes, and/or a variety of blood lipid diseases, and the IDEAL Program follows diabetic patients who are a part of the Epidemiology of Diabetes Intervention and Complications (EDIC) trial.

The Endocrine Clinic at the Veterans Affairs (VA) Hospital. This clinic provides 1,200 patient visits per year and includes the treatment of obese patients.

Hospitals

Lexington Medical Center Health Directions offers a twelve-week program called “Live Light.” It focuses on improving eating habits and developing a healthy lifestyle through pre- and post-assessments, meal planning, exercise classes and educational instruction. Program sessions begin several times throughout the year and the cost is \$19 per week with a \$75 initial deposit.

Kershaw County Medical Center’s Health Resource Center offers “Why Weight?” classes four times a year. The eight-week long classes are for adults only and measurements of weight, blood pressure, and cholesterol are done before and after the classes.

Self Memorial Hospital in Greenwood offers a weight loss program that consists of two 30-90 minute sessions scheduled at the convenience of the participant. Sessions include education on nutrition, meal timing, activity (which includes the opportunity to join their fitness center), and the importance of lifestyle change.

Georgetown Memorial Hospital offers an eight-week weight loss program that costs \$99. Participants attend nutrition classes taught once a week by a registered dietitian. They also have

body fat measured and meet twice a week for 30minute sessions with an exercise physiologist. The hospital conducted follow-up visits within a year of starting the program.

Carolina Hospital in Florence has developed a program called “Exercise And Sensible Eating (EASE).” This eight week set of classes takes a non-diet approach and works on developing skills in proper exercise and fitness, nutrition knowledge, and healthy food-related behaviors. BMIs are calculated and skinfold measurements taken to determine percent body fat. Class members are given a fitness test and have two personal exercise training sessions. Nutrition is taught in classes the first four weeks and then in two more one-on-one sessions. In addition to nutrition knowledge, issues such as hunger versus fullness, intuitive eating and self-esteem are discussed. Follow up is done once a month in weight management classes. The program costs \$150 for members of Fitness Forum (a fitness center), and \$250 for all others.

The Loris Community Hospital has a series of eight-week classes throughout the year called “Shape Up.” Weekly nutrition education sessions cover topics such as fad diets, cooking light, eating on the go, stress, and avoiding relapse. The exercise portion of the classes includes stretching, strengthening, and cardiovascular workouts. Cost for members of the fitness center associated with the hospital is \$25-30 and \$40-50 for the general public. Support groups are available after program completion.

Clinics

A facility that focuses on weight loss treatment is the Metabolic Medical Center in Greenville. The clinic is staffed by physicians and a complete medical work-up is performed on patients. This includes a physical with blood work and EKG to see if any internal problems are causing the weight gain. Weight loss is initiated through diet changes with a focus on decreasing

the amount of simple sugars consumed while maintaining protein levels. Exercise is encouraged after the initial stages and patients are referred to a health club for individualized attention.

Patients are seen one to two times a month while losing weight, then once every three months after maintenance weight level is reached. The program costs \$125 for the first visit, then \$75-150 per visit depending on the program they are following.

The Urgent Care weight loss clinic in Greenwood conducts the “Color Me Well” program for adults and children. They facilitate weight loss initially through medication (except for children) to increase motivation through early success. Medications are given for 30 days to start, stopped for two weeks, then started again. Liver function tests are taken to monitor medication effects. Nutrition education is offered through classes and counseling with a registered nurse and a physician. Walking is encouraged and weights are taken each week. Medications then are discontinued and making healthy eating a lifetime habit is emphasized. Follow-up visits after the program is completed are recommended. The cost is \$60 at the first session and \$30 at each subsequent appointment.

Health Insurance Industry

No weight loss programs nor adjuncts, including counseling, surgery, pharmacotherapy or other treatments, are currently covered by the major health insurance providers in the State. They do, however, offer some weight management programs to plan members. The companies listed below represent a majority of the health care coverage in the State.

Companion HealthCare (BlueCross BlueShield)

The “Great Expectations for Weight Management” program is designed to reach members throughout the State. Participants initially are given education materials covering

healthy eating, behavior modification, exercise and weight maintenance. They set goals for weight loss and exercise, track their progress, and participate in weekly telephone counseling sessions. Since the program began in 1993, 1,573 members have enrolled in the program and their average weight loss has been eight to ten pounds.

HMO Blue (BlueCross BlueShield)

The “Your 1st Place for Healthy Weight” program is available for members who wish to lose weight and is encouraged for members with diabetes that is aggravated by extra weight. It is a twelve-week program providing educational materials on eating wisely, exercise, making lifestyle changes, avoiding relapses and staying motivated. Telephone counseling sessions are held to regularly check progress, discuss problems and answer any questions.

CIGNA HealthCare/ Healthsource South Carolina, Inc.

Healthsource has developed "Working Wonders," a wellness program that encourages their members to live more active and healthy lives. The program is designed so people of all ages, abilities and fitness levels can participate if they are enrolled in certain benefit plan designs. The member chooses an exercise activity, such as walking, biking, swimming, running, aerobics, or a combination of different activities. The key is for members to choose something they enjoy doing that works best for them, since that's what they will stick with over time. Whether they work out at home, work, or a health club, members covered under certain Healthsource plans are eligible to earn a variety of fitness and wellness prizes.

Worksite

Colonial Life & Accident Insurance – A UnumProvident Company

Colonial strives to make health promotion a part of the work environment and believes they reap benefits from having employees who feel good about their health and themselves. Recent studies done by the company have shown that for every one dollar invested in the wellness program there is a \$2.75 return. Their “Wellpower” program, which recently celebrated its 15th anniversary, has a comprehensive design that includes components to address nutrition, physical activity, and weight loss for its employees, spouses and retirees.

Weight loss is dealt with specifically by a 12-week program provided at lunch that follows the Weight Watchers format. Quarterly Lunch-n-Learn seminars also are given on topics such as healthy eating and healthy grocery shopping tours. Nutrition booths are set up periodically at different locations in the company with visual displays to educate employees about fat content of foods and other nutrition topics. The company cafeteria is required to have one healthy entrée per day and other healthy foods available such as fat free dressing, fresh fruit, skim milk and frozen yogurt. Twenty-five percent of the items in the vending machines are low in fat and sugar. A health newsletter sent home bimonthly to all employees and their families includes information on a variety of nutrition and physical fitness topics.

Physical activity is available to employees through many programs and equipment at the 8,000 square foot on-site fitness facility. Approximately 65% of employees are members of the facility. Aerobic exercise, indoor cycling, corporate track team, Healthy Behavior Incentive Program (rewards for exercise and healthy behaviors) and other programs are available along with participation in community fitness events.

State of South Carolina

The State Health Plan Prevention Partners has developed three programs that can be used by State agencies or school districts to help employees deal with excess weight. The first, “The Great Weight Maintenance Marathon”, addresses healthy eating and exercising during the holidays. Employees set weekly exercise goals and identify situations that may cause extra eating and how they will handle them. They are provided with recipes, tips for eating, and suggestions on how to handle holiday stress.

A second program, “Fall Into Fitness”, is a healthy lifestyle incentive exercise program. This is a four-week workplace activity that promote aerobic exercise through use of door prizes, team competitions, and/or a “buddy system.” Participants are educated on fitness activities and must keep track of the time they exercise. To win prizes they must meet the minimum criteria of exercising aerobically three times per week for 30 minutes each time. Awards are given weekly and the criteria for winning can vary from department-with-the-most-participants to drawing from names of all who exercised five or more days a week.

The “Challenge” program is designed to enable employees to concentrate on health improvement in the areas of fitness, nutrition, and stress management. Employees earn points by engaging in specific behaviors listed under these categories. Awards based on points earned are given and each agency can determine their own design for implementing the program.

There are over 1,200 worksites registered with the State Health Plan Prevention Partners. Each facility has a volunteer coordinator who receives information each month from the Prevention Partners. The coordinators select the type of wellness activities to implement at their worksites.

MUSC Weight Management Center

The Weight Management Center conducts an eight-week worksite program for companies of various sizes that is called “Team Up to Trim Down.” In this program teams formed among employees enter into a competition for meeting weight loss goals. Those who wish to participate pay a fee which goes into a prize fund to be awarded to the team that comes closest to meeting its weight loss goal. The Center provides instruction in weight loss strategies and additional educational materials for each week and phone consultations during the course of the program.

BlueCross BlueShield of South Carolina

This insurance company has over 10,000 employees statewide who can participate in a weight management program called LEARN (Lifestyle, Exercise, Attitude, Relationships and Nutrition). This eight-week program was designed by a weight loss and nutrition professional at Yale University and is facilitated by trained health educators. Offered twice a year at various sites, the classes cover the multifaceted components of behavior change, lifestyle, attitudes, relationships, exercise and nutrition. Participants pay \$25 to cover the cost of materials.

Milliken and Company

Milliken, a textile and chemical manufacturer, is an employer of over 8,000 employees statewide. It has an onsite Fitness and Health Center that serves 1,200 employees at its research center in Spartanburg. The fitness center offers employees opportunity for exercise through personal workouts or classes in aerobics, body shaping, weight training or walking. The company provides incentives to help employees remain committed to physical activity.

Weight loss is addressed directly during the holidays in a one-on-one program that lasts for three months. Nutrition topics are presented through bulletin board displays, handouts, and information stands in the cafeteria. Low fat meals or other reduced fat alternatives also are available in the cafeteria.

Community-Based

Churches

Weight loss has become a part of some programs promoting healthier lifestyles in church settings. The African Methodist Episcopal Church Cancer Prevention Education Program sponsors presentations that teach skills for adopting a healthy lifestyle. Nutrition discussions include limiting portion sizes, decreasing fat and concentrated sweets, and increasing fruits and vegetables. Demonstrations show low fat cooking of traditional recipes, and increasing physical activity is emphasized. As a result, people in the program have lost weight even though weight loss is not a focus.

Other church programs focus on weight loss to a greater degree. “First Place”, a Christ-centered health program which emphasizes Bible study, scripture memory, prayer and exercise, while following a healthy eating plan. Started by the First Baptist Church in Houston, this health and weight management program is available for implementation in any church. Approximately 290 church groups in South Carolina have ordered “First Place” Program materials. Upon entry into the program, members agree to specific commitments and follow a fitness and Bible study plan. Weekly meetings stress food planning, scripture study and prayer are discussed. The “Live-It” Food Plan used is based on the USDA Food Pyramid, and behavior-modification techniques are also employed. The cost to each member is \$80.

The “Weigh Down Workshop”, another Bible-based program is available to any denomination, but has a more specific emphasis on weight loss. Started by a registered dietitian, twelve-week seminars are offered that primarily deal with behavior modification and separating physical from spiritual needs. Groups continue to meet weekly largely in church settings. Cost to participants is around \$100.

“Lighten Up (Forever)” is a church-based lifestyle intervention program that is funded by the Healthy South Carolina Initiative and designed and implemented by an MUSC team of a doctor and dietitian. The program consists of assessment for cardiovascular risk factors (such as elevated weight, blood pressure, and cholesterol) before the program begins, then eight weekly sessions, and reassessment at 10 and 52 weeks. Approximately 300 individuals, predominantly African American, have completed the ten-week assessment and 100 subjects have completed the 52 week assessment. Community lay leaders have been trained to conduct the program and it is expanding to churches throughout South Carolina and other Southeastern States.

Neighborhood program

The Enterprise Community is an inner-city area in Charleston that is home to 22,000 persons, more than 80% of whom are African American. The Enterprise/ MUSC Neighborhood Health Program and Enterprise Clinic have been funded by HUD and MUSC to help the neighborhoods in this area develop and implement an action plan for priority health issues. The following health priorities were identified by focus groups and individual interviews with neighborhood residents: 1) primary prevention including weight control, nutrition, physical activity, and safety, 2) diabetes management, supplies, and education, 3) high blood pressure management and education, and 4) drug and alcohol programs. In response, the Enterprise/

MUSC Neighborhood Health Program established a community-based team (nurse, dietitian, pharmacist, community education and neighborhood liaison) that conducts neighborhood clinics, education sessions, and provides case management for residents.

Other programs

The YMCA, Overeaters Anonymous and TOPS (Take Off Pounds Sensibly) are non-profit, community-based organizations that have programs available to support weight management efforts.

CHILDHOOD OBESITY

Scope of the problem and health implications for children

Childhood obesity is rapidly emerging as a global epidemic that will have profound public health consequences as overweight children become overweight adults (67). Currently, at least one in five children in the U.S. is overweight or obese and there is a continuing upward trend (68). More specifically, based on BMIs calculated from the NHANES III, 22% of youth aged 6 to 17 were above the 85th percentile of which 10.9% were above the 95th percentile (2). Over the last 20 years the number of overweight children has increased by more than 50% and the number of extremely overweight children has nearly doubled (68). This public health epidemic among youth is not confined to any specific age, race, nor gender group (69).

Childhood obesity is associated with obesity during adulthood, and obese parents are more likely to have obese children. A British study showed that the chance of being obese at age 33 was over eight times higher for sons and almost seven times higher for daughters who had both parents who were obese compared to those with both parents with normal weights (70).

Furthermore, parental obesity more than doubles the risk of adult obesity even among non-obese children under ten years of age (71).

South Carolina Rates of Overweight and Obesity among Children

Rates of overweight and obesity are not well documented among children in South Carolina. Applying national rates from NHANES III to the South Carolina youth population, we would estimate that:

- **136,864 youth aged 6-17 years are overweight and 67,810 are obese.**

While studies of select groups of children have been conducted by the USC School of Public Health, these data are not representative of the whole State. In one study conducted among 518 African American students enrolled in Richland One School District middle schools, 38.5% of the students were overweight (17.9% overweight and 21.6% obese) (72).

In 1999, the South Carolina Youth Risk Behavior Survey (YRBS) assessed height and weight by self-report among high school students. From these data, the proportion of students who are overweight (at or above the 85th percentile but below the 95th percentile for BMI by age and sex) is 14.6% and the number who are obese (at or above the 95th percentile for BMI by age and sex) is 10.7%. This gives a total of 25.3% of high school students who are overweight or obese.

The YRBS survey also gave information on diet and physical activity. A majority of students reported eating fruit or potatoes one or more times in the past seven days (79% and 64% respectively), but only 57% reported eating a green salad, 35% eating carrots, 18% eating five or more servings of fruits and vegetables, and only 12% drinking three or more glasses of milk per day one or more times in the past seven days. Only half of the students (55%) said they

exercised or participated in physical activities for at least 20 minutes that made them sweat or breathe hard on three or more of the past seven days. Almost as many students (52%) reported watching two hours or less of television on an average school day and only 18% said they attend physical education class daily.

Based on data from the Special Supplemental Food Program for Women, Infant and Children (WIC), the rate of obesity does not appear to be above average for South Carolina children who are ages one to five (4.2% are at or above the 95th percentile). These data suggest that children are gaining weight after their fifth year; however, this was a selective sample that was measured.

Health Implications of Overweight and Obesity among Children

Overweight and obesity among children are the leading causes of pediatric high blood pressure, and put children at high risk for developing long-term chronic conditions such as adult-onset diabetes mellitus, coronary heart disease, orthopedic disorders, and respiratory disease (69). Obesity in childhood and adolescence also is associated with psychological problems such as depression and negative perceptions of oneself, one's peers, and one's parents (73).

Among participants in the Bogalusa Heart Study, overweight school children were 2.4 times as likely to have an elevated cholesterol level. They also were more likely to have high diastolic blood pressure, high systolic blood pressure, high LDL-cholesterol, low HDL-cholesterol, high triglycerides, and high fasting insulin levels. Over half of the overweight children (58%) had at least one risk factor for heart disease (74).

Obesity is a known contributor to Type 2 diabetes. As our country is becoming heavier, the age of Type 2 diabetes onset is getting younger. In a Cincinnati study, data showed that prior

to 1982, 4% of the diabetes cases in children 0 to 19 years of age were Type 2. By 1994, 16% were diagnosed as Type 2 (75).

Several longitudinal studies have shown that overweight in childhood is predictive of higher rates of disease and death in adult years:

- ρ Subjects aged 13 to 18 years of age were measured between 1922 and 1935 as part of the Harvard Growth Study. When followed up in 1998, overweight during adolescence was associated with increased heart disease in both men and women and increased death among men. Risk of colorectal cancer and gout increased for men while risk of arthritis was increased for women who were overweight during their adolescence. Furthermore, overweight in adolescence was a more powerful predictor of these disease outcomes than overweight in adulthood (76).
- From 1933-1945, 13,146 children between 5 and 18 years were measured for height and weight. Later follow-up indicated that the chances of death at an earlier age increased with high weight before puberty for both sexes, and for high weight after puberty for women (77).
- Over 500 overweight children aged 2 months to 16 years were followed for 40 years. Overweight children remained overweight as adults, although after age 55, BMI began to decrease. Subjects who died by the 40-year follow-up and those who reported having CVD were significantly heavier at puberty and in adulthood than were healthier subjects. In addition, there was a marked increase in BMI between post-puberty and 25 years among those who died, those who developed CVD, and especially those who developed diabetes. In contrast, those with cancer had lower BMI throughout adulthood than those who did not have cancer (78).

Approaches for prevention of overweight and obesity in children

The dramatic rise in the prevalence of overweight and obesity among children points to environmental rather than genetic factors. Children today eat jumbo-sized fast foods and engage in hours of sedentary behavior daily. A study conducted among three to four year-olds found that children who increased their fatness level over four years consumed more grams of fat, a higher percent of calories from fat, and more total calories than those who did not (79). To prevent obesity in children, initial efforts should be targeted to obese parents of very young children based on the increased likelihood of obesity persisting to adulthood (68).

The International Obesity Task Force concluded that the prevention of weight gain is easier, less expensive, and more effective than treating obesity after it has fully developed (80). The focus of prevention is to reduce exposure to the environmental causes of obesity. Prevention programs can be school-based, family-based, community-based, church-based, health care-based, etc. A combination of approaches increases chances for success.

The Secretary of the U.S. Department of Agriculture (USDA), Dan Glickman, spoke of the opportunity for the federal and state governments to intervene by reducing the fat content in school lunches (the federal government serves 26 million school lunches daily) and by teaching nutrition education in schools. These interventions are a part of Team Nutrition, a federal program set up in 1995 to assist states with the implementation of the USDA School Meals Initiative for Healthy Children. This initiative overhauled the School Lunch Program in 1997 requiring that fat be reduced to less than 30 percent of calories and that school meals meet the U.S. Dietary Guidelines. Team Nutrition has developed nutrition education materials for schools to teach kids healthy eating and to help school food service professionals prepare meals that meet the required nutritional goals (68).

Secretary Glickman also spoke of increasing opportunities for physical activity in children. Schools need to give more time for exercise and federal assistance programs such as WIC, a Special Supplemental Food Program for Women, Infants and Children which serves 7.5 million people, 80% of whom are children) and USDA after-school programs could emphasize regular physical activity (68).

It also should be noted that the USDA's Food Nutrition and Consumer Services delivers food stamps to 9 million households or 22 million people of whom 60% are children; and the federal government distributes billions of pounds of commodity foods every day. Because of the number of households reached through these programs, they provide ample opportunities or access points for incorporating education on nutrition and physical activity for program participants (68).

These governmental programs offer an excellent avenue for obesity prevention since: 1) they serve low income individuals, 2) low income groups tend to have higher rates of overweight and obesity than more economically advantaged groups, 3) obese parents are more likely to have obese children, and 4) they serve millions of children daily.

Use of leisure time can also impact weight status in children. There is a direct relationship between television viewing and obesity in children (81). Based on a nationally representative sample of youth aged 10 to 15 years, the odds of being overweight were over four times greater among those who watched five or more hours of TV per day compared to those who watched zero to two hours. Additionally, the odds of becoming overweight during a four-year period were over eight times greater among the high TV viewing group (81). An interdisciplinary intervention over two years (grades 6-8) focused on decreasing television viewing, decreasing consumption of high-fat foods, increasing fruit and vegetable intake, and

increasing moderate-to-vigorous physical activity in order to prevent and/or decrease overweight. The program was most effective with girls. Obesity was reduced by 50% in girls and they were less likely to regain weight. Only TV viewing hours were reduced among boys in the intervention group compared with the control group. Among girls in the intervention group, there was reduced TV viewing, increased fruit and vegetable consumption and a smaller increment in total energy intake as compared to girls in the control group. Reductions in TV viewing predicted obesity change. Among girls, each hour of reduction in TV viewing predicted reduced obesity prevalence (82).

Approaches for treatment of obesity in children

Programs to treat childhood obesity are not commonly available, and usually are unsuccessful at maintaining weight loss. The following recommendations for treating obesity in children based on a ten-year follow-up study have been made: 1) parents must have an active role in the treatment program, 2) exercise is the key to long-term weight control in all obesity programs, 3) the family's environment and behaviors must be targeted, and, 4) specialized training in childhood behavior modification needs to be provided when treating the entire family (32).

Successful programs may depend on reaching the parents of young children. Pediatricians need to educate parents of the dangers of over-feeding and provide them with weight and height statistics. Family eating patterns contributing to obesity need to be recognized and modified – all members of the family must be involved. An assessment of the family's readiness to change is recommended as a first step in designing a mode of treatment (83).

There are a few examples of successful programs with one element in common, that is, the programs used multiple approaches to treat obesity. The Multidisciplinary Four-Phase Approach was successful in producing positive changes in body weight, insulin and cholesterol levels, arterial blood pressure, and levels of self-esteem and depression. The program utilized nutrition education, exercise, and behavior modification (84). Another one-year weight reduction program was successful in producing changes in weight, percent of ideal weight and percent body fat among all 87 children (39 males and 48 females, aged 7 to 17 years). The interdisciplinary approach included diet, nutrition education, behavior modification and exercise (85).

Weights of overweight children could be kept lower over a 10-year period after effective interventions involving parent and child (86). Epstein and colleagues found that involving the parents in the weight loss effort of the children has a large effect on long-term change (87).

Unique issues must be considered when designing weight management approaches for adolescents. Treatments that encourage weight loss for teenagers must be sensitive to possible tendencies for the use of unhealthy or improper techniques. Efforts to lose weight are common among teenagers, especially girls (88). Anorexia nervosa and bulimia are eating disorders that can result when dieting turns into the use of self-destructive weight loss techniques. Health care professionals who are treating obese teenagers need to be able to recognize which individuals may be emotionally and psychologically vulnerable to developing eating disorders.

Examples of programs related to childhood obesity in South Carolina

Schools

As Secretary of Agriculture Dan Glickman discussed, schools can help obese children by providing access to healthy foods and physical activity.

Each of the 87 school districts in the State of South Carolina has the responsibility to provide meals that meet the federally required nutritional goals of the School Meals Initiative for Healthy Children. In general, these goals are to reduce fat and sodium, increase fiber and provide adequate amounts of calcium, vitamin C, vitamin A and iron. Food service personnel plan and analyze meals so that averaged over a week's period of time, the meals meet the nutritional guidelines. The Office of School Food Services, in the South Carolina Department of Education, reviews the menus of each school district every five years to assess compliance.

The biggest barrier to providing healthy meals in schools in South Carolina is the availability of "competitive foods" or foods provided by vending machines on the school grounds. These exist primarily in high schools and the money generated often funds the schools' activities programs. Obstacles to children eating school food at all grade levels include cost restraints, finding healthy foods that kids will eat, scheduling sufficient time to eat, peer pressure, and social stigma associated with eating school food.

The State of South Carolina requires elementary and middle schools (kindergarten through eighth grade) to offer physical education (PE) classes, but there are no statewide, defined minimums for the number of minutes required. The length of time spent in PE classes is determined by the local school district and can vary widely. On average, elementary students probably spend about 50 minutes a week in PE classes in South Carolina. High school students are required by the State to take a full year of PE to graduate. Accountability of schools in providing adequate curriculum quality for different subjects is assessed by the school's "report card." Including physical education and health on the report card will ensure that schools give priority to these areas. The proposed list of curricula to include on the accountability report cards currently includes these subjects.

Other programs

The John Morrison White Clinic at the University of South Carolina at Lancaster works with overweight children in a program called "PLAY (Positive Lifestyles and Activity for Youth)." Children are referred to the program by area pediatricians. The entry criteria include being 6 to 10 ten years of age and having a BMI greater than the 85th percentile of NHANES I. The initial phase is a four-week program of supervised exercise and nutrition education, as well as a workshop for their parents. Body composition, dietary intake and aerobic fitness are assessed during the four-week session or shortly thereafter. Following this initial phase, the children are brought back in six months for reassessment of body composition and dietary intake.

Two sessions have been conducted to date with 12 participants in the first session and ten in the second. Their results will determine the format to be used in the future. It is possible that requiring less time commitment, such as with a biweekly support/educational program for the children and parents, may increase participation. Currently there is no cost for the program, but a fee may be charged or grant funding will be sought to cover fees after preliminary data are in and the final format of the program has been decided.

In the Appalachia I Health District, DHEC has a ten-week weight management program called "Just Do It" for children ages 6 to 12. Referral from a pediatrician is needed prior to enrollment and an appointment is set for the child and his/her caregiver for conducting a psycho-social and nutritional assessment. Participants initially are given materials to help them plan the food they will eat, record what they actually eat, and assess their food habits. They also receive a chart to track physical activity. In the classes, nutrition and psycho-social topics are discussed each week with children and parents or caregivers in their separate classes. A "Food of the

Week” is made in class by the participants each week. The last 30 minutes of the class are spent exercising with a certified aerobics instructor. After the ten-week program, the “Just Do It for Life Maintenance” program is available as a once-a-month support group for participants. Children who continue to participate in this group appear to do well at maintaining their weight loss. Many children in the area do not have access to other physical or social activities and appear to enjoy going to the class. A key to the children’s success is the commitment of their parents or caregivers to the goals of the program.

The Greenville County Health Department, in collaboration with the Greenville Hospital System, offers a weight management program for children aged 8 to 15 years called “KIDS IN MOTION.” It is funded through a grant from the Greenville Hospital Foundation and is available to all children regardless of income. Some families pay the registration fee, some fees are billed to Medicaid, and some children attend on a scholarship through the foundation. The program consists of one and one-half hour long sessions, one night a week for eight weeks. The three components of exercise, nutrition education, and behavior modification are taught in one half hour sessions by a specialist from each discipline.

The Sumter Family YMCA “Healthy Bodies” program is an eight-week course that meets twice a week. Children learn proper ways to exercise and how to incorporate physical activity into their lives. Exercise is made fun and enjoyable and the children take field trips to places such as parks or skating rinks where they can be physically active. Making healthy food choices is encouraged by discussing alternative choices to high fat snacks, learning to read labels, and making field trips to grocery stores. Children keep a food diary of everything they eat, and discuss their choices. The program does not focus on weight, rather on how to be healthier by

making lifetime changes. Children are encouraged to sign up for programs at the YMCA after the course is over to maintain their activity level.

ECONOMIC IMPACT OF OVERWEIGHT AND OBESITY IN SOUTH CAROLINA

The total cost attributable to obesity amounted to \$99.2 billion in the U.S. in 1995. The direct medical costs were approximately \$51.64 billion or 5.7% of our National Health Expenditure (89). Approximately 63% of the direct medical costs associated with obesity were for Type 2 diabetes, 14% for coronary heart disease, 8% for osteoarthritis, 6% for high blood pressure, 5% for gallbladder disease, and 4% for all cancers (89). These estimates are conservative for at least two reasons: 1) obesity was defined as BMI of 29 or greater whereas increased risk has been established at a BMI of 25 or greater for most conditions, and 2) diseases also known to be associated with obesity were not included in the cost estimates (chronic obstructive pulmonary disease, low-back pain, other circulatory disorders including stroke, congestive heart failure, arteriosclerosis).

The excess burden of obesity also was estimated using data from the National Health Interview Survey (NHIS) inflated to 1995 dollars. Using data from the 1994 NHIS, the cost of lost productivity attributed to obesity (BMI \geq 30) was \$3.9 billion or 3.9 million days of lost work. From the 1988 to the 1994 NHIS, the number of restricted activity days increased 36%, bed-days increased 28%, and work-lost days increased 50%; most notably, the number of physician visits attributed to obesity increased 88% over the 6 years (89).

Quesenberry et al. (90) utilized patient data from a large health maintenance organization survey (number of patients=17,118) conducted in 1993. They estimated that excess direct outlays attributable to obesity were \$220 million or approximately 6% of the total cost of health care for the 2.4 million members. There was an association between BMI and annual rates of

inpatient days, number and cost of outpatient visits, cost of outpatient pharmacy and laboratory services, and total costs. Relative to normal weight patients, costs were 25% greater among those with BMI of 30 to 34.9 kg/m² and 44% greater among those with BMI of 35 kg/m² or greater. The association between BMI and coronary heart disease, high blood pressure, and diabetes largely explained these elevated costs (90).

Among private sector firms in the U.S., the total cost of obesity to business was estimated to be \$12.7 billion in 1994 (91). These costs were derived from employees aged 25 to 64 years. Of this cost, \$2.6 billion was attributed to BMIs characteristic of overweight (25-28.9 kg/m²) and \$10.1 billion was attributed to BMIs characteristic of obesity (≥ 29 kg/m²). Health insurance expended \$7.7 billion (43% of all spending by U.S. business) on coronary heart disease, high blood pressure, Type 2 diabetes, unfavorable blood lipid levels, stroke, gallbladder disease, osteoarthritis of the knee, and endometrial cancer. Overall, obesity accounted for about 5% of total medical costs in this private sector (91).

Overweight and obesity are associated with the most common, costly, and preventable chronic diseases in our state and country. Chronic diseases now account for over 60% of the nations' total medical care costs (92). In South Carolina, six of the ten leading causes of death in 1997 were chronic conditions, which can be attributed at least partly to lifestyle factors. Diseases of the heart is the leading cause of death, followed by cancer (2nd), cerebrovascular disease (3rd), chronic obstructive pulmonary disease (5th), and diabetes (6th). Table 4 presents a few examples of the high costs associated with the treatment of chronic diseases related to obesity in South Carolina.

Table 4. Average Inpatient Hospital Charges for Common Obesity-Related Conditions and Surgical Procedures, South Carolina, 1997.

Conditions or Procedures	Average hospital charge, 1997*
Acute Myocardial Infarction	\$ 9,019
Angina Pectoris	\$ 4,083
Asthma	\$ 4,440
Back Pain	\$ 4,358
Cardiac Catheterization	\$ 11,086
Cardiac Dysrhythmia	\$ 4,859
Congestive Heart Failure	\$ 7,242
Coronary Bypass	\$ 43,279
Diabetes Mellitus	\$ 4,674

*Source: Budget and Control Board, Office of Statistics and Research, Health Statistics (www.orss.state.sc.us)

Based on prior work by Wolf and Colditz (89), an estimate of the costs attributable to obesity in the State can be made. Table 5 includes in-patient and emergency room data for conditions related to obesity. An estimated ‘proportion’ of the disease attributable to obesity is applied to total medical costs to derive an estimate of the cost of obesity.

**Table 5. Estimated cost of obesity in South Carolina, 1997
(includes in-patient and emergency room visits)**

Condition	ICD-9 code	1997 Costs *	Proportion of cost attributable to obesity **	Cost attributable to obesity
Diabetes	250	73,546,325	61.0%	44,863,258
Coronary Heart Disease	410-414	507,359,598	17.3%	87,773,210
High blood pressure	401-404	52,587,326	17.0%	8,939,845
Gallbladder	574	61,743,068	30.0%	18,522,920
Osteoarthritis	715	88,439,897	11.8%	10,435,908
Cancer				
Breast	174	14,282,356	11.0%	1,571,059
Endometrial	182	4,541,195	34.0%	1,544,006
Colon	153	33,546,155	11.3%	3,790,716
TOTAL				\$177,440,922

* 1997 Hospital discharge data and ER data for the conditions above listed as primary diagnosis.

** Wolf & Colditz, 1998 (obesity was defined as ≥ 29 kg/m²)

It should be noted that the direct medical cost estimates fail to account for the increased death rate among obese people. Estimated direct costs would then be about 25% lower, or about \$133 million (93).

On the other hand, this estimate does not include indirect costs for obesity. Based on Wolf and Colditz's work (89), indirect costs result from the value of lost output due to reduction or cessation of productivity due to disease or death. Indirect disease costs are wages lost by people who are unable to work, and death costs are the value of future earnings lost by people who die prematurely. Indirect medical costs in South Carolina would be almost \$164 million which would give a grand total of over \$341 million for both direct and indirect medical costs.

The estimates of the economic impact of obesity are less than precise. The cost of obesity is comparable to that of other chronic diseases, yet it receives disproportionately less attention (94).

Medicaid

In South Carolina in 1997, there were over 430,000 individuals eligible for Medicaid each month (source: South Carolina Department of Social Services). Medicaid expenses impact directly on the State's budget. Table 6 shows obesity-related costs for Medicaid-covered expenses.

Table 6. Medicaid expenses for obesity-related conditions in South Carolina, 1998 (includes in-patient, physician, outpatient surgical, and emergency room visits)

Condition	ICD-9 code	1998 Medicaid Expenses*	Proportion of cost attributable to obesity **	Cost attributable to obesity
Diabetes	250	17,688,520	61.0%	\$10,789,997
Coronary Heart Disease	410-414	30,002,834	17.3%	\$5,190,490
High blood pressure	401-404	8,821,402	17.0%	\$1,499,638
Gallbladder	574	9,218,694	30.0%	\$2,765,608
Osteoarthritis	715	4,743,180	11.8%	\$559,695
Cancer				
Breast	174	2,214,323	11.0%	\$243,576
Endometrial	182	360,480	34.0%	\$122,563
Colon	153	2,357,939	11.3%	\$266,447
TOTAL				\$21,438,014***

*Source: Budget and Control Board, Office of Statistics and Research

** Wolf & Colditz, 1998 (obesity was defined as ≥ 29 kg/m²)

*** Includes Federal and State Medicaid costs. State costs in 1998 were 30.08% of this total.

Indirect Medicaid costs for South Carolina would be \$19.8 million giving an annual grand total of \$41.2 million in direct and indirect Medicaid costs to the State.

CURRENT RESEARCH STATUS OF OVERWEIGHT AND OBESITY IN SOUTH CAROLINA

New and exciting research in the field of overweight and obesity is emerging daily. In preparing this report, it was difficult to keep up with the latest findings. Many of the references cited were published in 1999. The entire October 27th, 1999, issue of JAMA was devoted to obesity. Just one year ago, the National Heart, Lung and Blood Institute published its report entitled *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report* (3), and the USDA held its symposium on *Childhood Obesity: Causes and Prevention* (68). This section provides a review of the research being conducted in South Carolina to date.

There are several research programs related to the prevention or treatment of obesity at the University of South Carolina and at the Medical University of South Carolina. These programs are funded by the National Institutes of Health, the Centers for Disease Control and Prevention, and other agencies.

University of South Carolina (USC)

In December 1998, the USC School of Public Health identified obesity as one of three areas in which the School might benefit from a concentrated, interdisciplinary effort toward a program of research excellence. Consequently, the Obesity Research Working Group was formed. The group proposes a Center on Obesity and Nutrition Research with a mission of studying the distribution, the behavioral, metabolic, and health implications of obesity across the

lifespan in diverse communities, and developing recommendations for public health practice and policy.

Strategies for Effective Weight Management in Type 2 Diabetes

POWER (Pounds Off With Empowerment) is a Centers for Disease Control (CDC)-funded project which evaluated the effectiveness of a weight management program for persons with diabetes conducted within a primary care practice located in a medically under-served community. This program emphasized frequent contact between participants and a registered dietitian to include group and individual sessions, low-calorie/low-fat diet, increased physical activity and self-monitoring tools for diet and physical activity. Enhancements were added to the materials which include: 1) inclusion of diabetes-specific information (e.g. timing of meals, encouraging home blood glucose monitoring), 2) revisions so that the materials were regionally and culturally appropriate for individuals with low income and less than a high school education, and 3) inclusion of empowerment evaluation, designed to allow for continuous quality improvements in the delivery of the intervention. Empowerment evaluation also involved a high level of interaction with the participants' health care team including sharing of clinical information and proactive coordination with other health education efforts, particularly related to diabetes care.

An eight-week pilot study was conducted in a federally funded primary care clinic in Orangeburg, South Carolina. All participants were minorities and 78% lost weight. The average blood sugar of the participants decreased by 24 mg/dl over the eight-week period. Experiences from the pilot study are currently being used to guide preparations for a 12-month trial set to begin in January 2000.

Motivational Strategies to Enhance Weight Loss and Weight Loss Maintenance

Palmetto Richland Memorial Hospital is the site for this CDC-funded study being conducted to evaluate motivational strategies to enhance weight loss in learning disabled groups and in the normal population. The core components include instruction in diet, physical activity and behavior change strategy. The components still being tested for effectiveness are: 1) classes on motivational issues related to stages of change and 2) home visits. Recruited primarily from the Family Practice Clinic at the hospital, participants will include 125 adults who are learning disabled and 125 who are not. Preliminary results from 101 participants who have completed the program show greater success in weight loss for individuals who receive the stages-of-change based motivational sessions. Thus far, individuals who receive home visits have not shown greater success in weight loss compared to those not receiving home visits. A follow-up study is being designed to more fully determine which aspects of the motivational sessions increase likelihood of success in weight loss.

Medical University of South Carolina (MUSC)

Clinical research

The MUSC Weight Management Center conducts clinically oriented research in two main areas: clinical trials of treatment methods, and studies of psychological and behavioral correlates of obesity and weight loss. In the last five years, the Weight Management Center has participated in nine funded trials of experimental weight loss medications, with combined budgets in excess of \$1.5 million. These studies included trials important in the approval of the two most recent weight loss medications as well as other medications not yet approved. Recent psychological/ behavioral research has focused on such topics as: 1) factors influencing

individuals' weight goals, 2) how patients' weight-related thought patterns influence their success at weight loss, 3) the prevalence of binge eating disorder among treatment-seeking patients, and 4) relations of intake of certain nutrients on mood.

Basic Science

Leptin

Studies are currently being conducted on the hormone leptin. This hormone is produced by the fat cells and appears to inform the brain about the body's fat stores so that energy intake and output can be regulated. The ways that leptin contributes to this process are the subject of the MUSC research being funded by the National Institutes of Health, the United States Department of Agriculture, and the American Diabetes Association.

Genetic markers for obesity and diabetes

The Sea Islands Families Project/ Project Sugar is a community-based research project to identify genes that contribute to obesity and Type 2 diabetes in African Americans. Persons with obesity and diabetes are recruited from families living on barrier islands along the South Carolina Coast ("Sea Islands") and adjacent coastal communities. Project Sugar assesses medical, anthropometric, and metabolic (laboratory) information on affected and non-affected family members, and establishes a computer database and DNA bank. To date, 407 families have been enrolled, and over 1,000 family members have been tested for specific genes including more than 800 with obesity. Participants have an average age of 55 years and average BMI of 33.

Data has indicated that these Gullah sea islanders are the most homogeneous population of African descent in the United States and are closely related to West African tribes living in Sierra Leone. Researchers have established a good working relationship with the community they are studying through hiring community members to conduct the studies, providing benefits to the community in tangible and immediate ways, and by collaborating with community institutions. The Project receives oversight and guidance from a Citizens Advisory Board so that the study is conducted in a culturally sensitive manner and serves as a forum for communication and interaction with the community. These measures have enabled successful interchange and intervention to take place with a population that might otherwise have been distrustful of biomedical research.

Project Sugar has identified several potential obesity- susceptibility genes in African Americans. One gene difference results in a tendency to use carbohydrate as fuel and to store fat. This adaptation is useful when there is not a constant food supply, but would lead to obesity with continual access to high fat foods. The frequency of this gene difference was found to be twice as high in severely obese individuals as compared to those who were lean. Thus, this genetic variation was associated with severe obesity. MUSC researchers hypothesize that this variation results in the body's preferential use of carbohydrate over fat for fuel and the favoring of fat storage, but that excess fat storage will not occur unless these individuals are exposed to a high fat diet.

Cardiovascular risk factors in obesity

Other research at MUSC focuses on obesity and the clustering of cardiovascular risk factors related to insulin resistance. These studies indicate that obese subjects with the risk

factor cluster have elevated plasma of non-esterified fatty acids that are highly resistant to suppression by insulin. This finding is important because the studies have also shown that certain fatty acids may contribute to blood vessel damage and high blood pressure.

Epidemiological studies

The MUSC Department of Biometry and Epidemiology has several ongoing studies of particular relevance to obesity, including examinations concerning: 1) the association of body mass and high blood pressure and high blood pressure-related outcomes in different racial groups; 2) obesity as a major indicator for epidemiologic study and surveillance by the Surveillance Council of the Diabetes Initiative of South Carolina; 3) relation of fetal early life events to childhood and adult obesity; 4) effects of obesity and the progression of diabetes and high blood pressure on end-stage renal disease in South Carolina and the Southeast.

MUSC/ HBCU Partners in Wellness

This is a collaborative program of South Carolina's Historically Black Colleges and Universities (HBCU), South Carolina Area Health Education Consortium (AHEC), and the Medical University of South Carolina (MUSC) to document and reduce risks for obesity, high blood pressure, and diabetes through student research, teaching, and service to communities.

Obesity, diabetes, and high blood pressure exact a tremendous burden on the health of South Carolinians, and disproportionately affect African Americans. Early prevention and interventions reduce disease and death. However, African Americans are under-represented in the health professions and few community programs have documented effectiveness in reducing risks in African American communities. This project includes a plan to reduce risks and recruit African Americans into careers in the health professions by engaging undergraduate students in a

course of study that involves research, teaching, and service related to community-based health interventions. It seeks to actively involve HBCU students in learning about the roles of health professionals and in providing service to communities. The project's four specific aims are: 1) to provide a course in community health that will increase awareness among students regarding obesity, diabetes, and high blood pressure, raise interest in health care professions, and increase the number of applications to MUSC training programs by qualified minority candidates; 2) to screen up to 8,000 HBCU students for risk factors for obesity, diabetes, high blood pressure, and cardiovascular disease; 3) to study the epidemiology of obesity, diabetes, and high blood pressure in African Americans, specifically prevalence, and low birth weight as a predictor of the occurrence of cardiovascular disease risk factors later in life; and 4) to establish a model wellness support center at South Carolina State University (SCSU) that could focus on improving the health of African Americans through service, research, and teaching, and could be exported to other HBCUs.

Winthrop University

Numerous studies at Winthrop have collected data on obese or overweight women in South Carolina. The studies have looked at the associations between body weight and food intake frequency, physical fitness, blood lipid levels, depression, self-esteem, and other eating behaviors and lifestyle patterns. Data was collected from Caucasian and African American women, food stamp recipients, pre- and post-menopausal women, and residents of rural areas.

Successful weight maintenance in normal weight women was found to be related to regular exercise, evenly distributed food intakes, and having a sense of control over their own

health. Other studies on food intake frequency suggest that women may be able to increase their food consumption without gaining weight if they eat more frequently throughout the day.

Obese women were shown to have lower fitness levels and less desirable blood lipid levels than normal weight subjects. Depression was not shown to be a major problem in either obese or normal weight subjects, but at higher levels of depression, BMIs, disinhibition, and perceived hunger scores increased. Disinhibition is a lack of restraint that results in eating large amounts of food. The opposite behavior is cognitive restraint where individuals eat less because their brains are telling them not to eat specific foods or amounts. Cognitive restraint scores were significantly higher in normal weight subjects. Another study showed disinhibition to be a high predictor of BMI in obese, middle-aged women. Measures of self-esteem in rural, middle income men and women in South Carolina revealed that self-esteem may not be related to increased body weight as it is in urban, middle to upper income groups.

Childhood Obesity

Developing standards for assessment of obesity in children is important for conducting research. Until recently, there was no internationally accepted index to assess childhood obesity nor was there an established cut-off point to define overweight in children. The 85th and 95th percentiles of BMI for age and sex are often used as cut-off points for overweight and obesity in children, respectively. However, a group of experts in the field suggested using the same cut-off points for adult morbidity, BMI greater than or equal to 25 and 30 kg/m² (67).

The 1999 YRBS survey of high school students used the 85th and 95th percentiles as cutoffs. These are the first data that can be used to characterize the overweight and obese status of the high school student population in South Carolina, yet they rely solely on self-report.

Data on younger children are even more limited. Additional data collection will be required to accurately characterize the childhood obesity in the State.

More extensive research is desperately needed in the area of childhood obesity in South Carolina. Some studies are being conducted at MUSC.

The MUSC Pediatric Endocrinology section has been conducting research on the nature and treatment of Type 2 diabetes among children, about 80-90% of whom are obese. They have identified an atypical form of diabetes that occurs predominantly among obese African American children and have a grant application pending to explore some of the genetic underpinnings of this condition. They have also studied the effects of a very-low-calorie diet for weight loss and control of the condition.

The MUSC Institute of Psychiatry Eating Disorders Program has examined the prevalence of weight control behaviors and associated feelings, and eating disorder symptoms among middle school students. Using a newly developed self-report instrument, the Kids' Eating Disorders Survey (KEDS), 3,175 students enrolled in grades five to eight were surveyed. More than 40% of respondents reported feeling fat and/or the wish to lose weight. The frequencies of selected weight control behaviors were: dieting (31.4%), fasting (8.7%), diet pill use (2.4%), vomiting (4.8%), and diuretic use (1.5%). These results suggest the importance of monitoring the appropriateness of weight control behaviors by children as early as middle school years.

NOTED STATE RESOURCES

THE DIABETES INITIATIVE OF SOUTH CAROLINA (DSC)

The Diabetes Initiative of South Carolina (DSC) was established by legislative action in July 1994. The purpose of the Diabetes Initiative is to develop and implement a comprehensive

statewide plan of community outreach programs, health professional education, and diabetes surveillance. The goal is to provide the tools for management of the disease to reduce severe complications and cost burdens for South Carolinians suffering from diabetes mellitus. The Initiative represents a unique melding of private, state, and federal resources toward this common goal. South Carolina's coordination of public efforts to identify and manage this incurable chronic disease established the state as a leader in the nation.

Obesity and diabetes are strongly related. Collaboration with Diabetes Initiative programs would naturally follow when designing strategies to address obesity. DSC also can be used as a successful model of how to move from initial legislation to concerted action on community, professional and academic levels.

PHYSICAL ACTIVITY IN SOUTH CAROLINA

"Good Health: It's Your Move - a Report on Physical Activity in South Carolina" was prepared for the South Carolina Department of Health and Environmental Control by the Prevention Research Center at the University of South Carolina School of Public Health, in May 1999. The report was prepared to assist professionals and community leaders in their efforts to promote physical activity in the State.

Increasing physical activity is a key component of obesity management, particularly in the maintenance of weight loss. The programs and resources listed in this report can be important assets when planning treatments and strategies for the management of obesity.

CONCLUSIONS OF THE ADVISORY COMMITTEE

- Overweight and obesity are of epidemic proportions in the State of South Carolina occurring in 53% of the adult population and 65% of the African American population. South Carolina's overweight and obesity rates for children have not yet been adequately determined due to lack of data. However, national rates indicate that one in five children in the U.S are overweight or obese.
- Overweight and obesity are strongly related to the high rates of diabetes, coronary heart disease and stroke that afflict our State.
- Obesity-related conditions cost South Carolina an estimated \$177 million in 1997.
- An estimated \$21 million Medicaid dollars were attributed to obesity related conditions 1998.
- Obesity in childhood is a predictor of adult obesity. However, the prevention and management of childhood obesity must be addressed differently than obesity in adults.
- South Carolina lacks sufficient data to characterize the problem of obesity, particularly in children.
- Future research is needed on interventions that are effective for South Carolina's populations.
- There is a lack of coordination and infrastructure in the State to adequately address the complex problem of obesity.
- There is a lack of resources available to at-risk populations in the State who wish to lose weight to improve their health.
- There is a need for implementation of statewide obesity prevention interventions targeting children.
- There is a need for implementation of statewide obesity prevention interventions in adults which include a focus on:
 - Dietary habits
 - Physical activity
 - Behavior modification
 - Access to resources
- There is a lack of funding to implement any efforts to stem the tide of the rising rates of obesity in South Carolina.

APPENDIX A

CONCURRENT RESOLUTION

COMMITTEE REPORT

April 21, 1999

S. 252

Introduced by Senator Giese

S. Printed 4/21/99--H.

Read the first time February 17, 1999.

THE COMMITTEE ON MEDICAL, MILITARY, PUBLIC AND MUNICIPAL AFFAIRS

To whom was referred a Concurrent Resolution (S. 252), to request the Commissioner of the Department of Health and Environmental Control to study the effect of obesity, etc., respectfully

REPORT:

That they have duly and carefully considered the same, and recommend that the same do pass:
JOE E. BROWN, for Committee.

STATEMENT OF ESTIMATED FISCAL IMPACT

ESTIMATED FISCAL IMPACT ON GENERAL FUND EXPENDITURES IS:

Minimal (Some additional costs expected but can be absorbed)

ESTIMATED FISCAL IMPACT ON FEDERAL & OTHER FUND EXPENDITURES IS:

\$0 (No additional expenditures or savings are expected)

EXPLANATION OF IMPACT:

The Department of Health & Environmental Control (DHEC) reports that such a study would require a nutritionist, to serve as the Study Coordinator, a researcher and an administrative assistant hired on a consulting basis, and would take approximately 10 months to complete. The work plan would include a literature search of previous studies on obesity and its relationship to diabetes, heart disease, stroke and other costly health complications; convening a panel of experts in obesity complications to develop a comprehensive study plan; evaluation of the study; development of the report to the General Assembly, and coordination of all activities.

The costs associated with this study would be minimal and could be absorbed by the agency.

Approved By:

Don Addy

Office of State Budget

A CONCURRENT RESOLUTION

TO REQUEST THE COMMISSIONER OF THE DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL TO STUDY THE EFFECT OF OBESITY IN BOTH ADULTS AND CHILDREN ON COSTLY HEALTH COMPLICATIONS SUCH AS DIABETES, HYPERTENSION, HEART DISEASE, AND STROKES AND OTHER HEALTH COMPLICATIONS IN CHILDREN, TO MAKE RECOMMENDATIONS FOR IMPROVEMENT IN AWARENESS OF THE PROBLEM OF OBESITY AND SUGGESTED TREATMENT MODALITIES, AND TO REPORT THE FINDINGS OF THIS STUDY AND RECOMMENDATIONS TO THE GENERAL ASSEMBLY BEFORE THE CONVENING OF THE 2000 REGULAR SESSION.

Whereas, a causal relationship exists between obesity and a number of serious disorders, including hypertension, dyslipidemia, cardiovascular disease, diabetes (type two), gallbladder disease, respiratory dysfunction, gout, and osteoarthritis; and

Whereas, the National Institute of Diabetes and Digestive and Kidney Diseases indicates that nearly eighty percent of patients with diabetes mellitus are obese and the incidence of symptomatic gallstones soars as a person's body mass index increases beyond a certain level; and

Whereas, nearly seventy percent of diagnosed cases of cardiovascular disease are related to obesity, and obesity more than doubles a person's chances of developing high blood pressure, and almost half of breast cancer cases are diagnosed among obese women, and forty-two percent of colon cancer cases are among obese individuals; and

Whereas, obesity ranks second only to smoking as a preventable cause of death and results in some three hundred thousand deaths annually; and

Whereas, it is estimated that thirty-five percent of the adult population is obese and the prevalence of obesity grew a shocking thirty-four percent during the past ten years; and

Whereas, a 1997 study by Kaiser Permanente indicated that the total direct costs of obesity-related diseases in the United States in 1990 was \$45.8 billion; and

Whereas, the Kaiser study concluded that there is a significant potential for a reduction in health care expenditures through obesity prevention efforts; and

Whereas, there is an urgent need for state health care groups and medical societies to place obesity at the top of their health care agendas; and

Whereas, many physicians do not treat obesity because they mistakenly believe there is no treatment for it; and

Whereas, the National Institute of Health, the American Society for Bariatric Surgery, and the American Obesity Association recommend that patients who are morbidly obese receive responsible, affordable medical treatment for their obesity; and

Whereas, the diagnosis of morbid obesity should be a clinical decision made by a physician based on proper medical protocols; and

Whereas, the recent breakthroughs in drug therapy can treat obesity successfully and the New England Journal of Medicine recently emphasized the legitimate use of pharmacotherapy as a component of treatment of medically significant obesity; and

Whereas, the new breakthroughs in obesity treatment are not widely known and efforts must be made to inform the general public and health care professionals that pharmacotherapy can be used as an effective and cost-effective treatment for obesity; and

Whereas, there is also great concern regarding what effect obesity in children may have on overall health in children, health care costs for children, and treatment modalities to address the problem of obesity in children; and

Whereas, a study conducted by the Department of Health and Environmental Control is critical to raise the awareness of the public and private sectors that obesity is a disease of epidemic proportions that is treatable and that proper treatment will reduce health care costs and improve the quality of life for a large number of our citizens. Now, therefore,

Be it resolved by the Senate, the House of Representatives concurring:

That the South Carolina General Assembly, by this resolution, requests the Commissioner of the Department of Health and Environmental Control to study the effect of obesity in both adults and children on costly health complications such as diabetes, hypertension, heart disease, and stroke and other health complications in children, to make recommendations for improvement in awareness of the problem of obesity and suggested treatment modalities, and to report the findings of the study and recommendations to the General Assembly before the convening of the 2000 regular session.

Be it further resolved that a copy of this resolution be forwarded to the Commissioner of the Department of Health and Environmental Control.

APPENDIX B

List of South Carolina Counties by Region

Piedmont

Abbeville
Anderson
Cherokee
Edgefield
Greenville
Greenwood
Laurens
McCormick
Oconee
Pickens
Saluda
Spartanburg
Union

Midlands

Aiken
Allendale
Bamberg
Barnwell
Calhoun
Chester
Fairfield
Lancaster
Lexington
Newberry
Orangeburg
Richland
York

Pee Dee

Chesterfield
Clarendon
Darlington
Dillon
Florence
Kershaw
Lee
Marion
Marlboro
Sumter

Low Country

Beaufort
Berkeley
Charleston
Colleton
Dorchester
Georgetown
Hampton
Horry
Jasper
Williamsburg

APPENDIX C

Recommendations for Action

The actions listed below are a summary of the recommendations formulated by the members of the Obesity Study Advisory Committee. This list represents a wide range of activities that could be considered, but additional work is needed to identify those actions which would be most cost effective in reducing the problem of obesity.

Administer and coordinate obesity intervention in the State through the Obesity Council. Model the Council after the Diabetes Initiative organization. (See chart to follow this list.)

Collaborate with statewide public, private, and government organizations working on obesity-related issues such as health care professional associations, related disease councils or initiatives, entities supporting physical activity, and community-based groups promoting healthy lifestyles such as churches and fraternities or sororities.

Establish surveillance systems to better monitor obesity in children, adolescents, and adults in South Carolina.

Advocate for public policies to ensure physical activity and fitness for school-aged children by:

- including health and physical education in the Education Accountability Act School Report Card;
- assessing health and physical education program requirements in curricula at the school district level;
- setting standards for fitness and providing aerobic fitness physical education to all school children grades 1–12;
- connecting school and community efforts to support physically active lifestyles.

Support the enforcement of current law related to the 1998 Comprehensive Health Education (CHE) in schools.

Strengthen school food service efforts to implement the Healthy School Meals Initiative.

Reduce availability of competitive foods in schools during meal times.

Institute nutrition education at early ages in school curriculum. Ensure the availability of resources to schools for trained professionals to assist in the delivery of nutrition education.

Ensure a family systems approach to childhood obesity when integrating school and community resources.

Disseminate weight management guidelines for health care providers.

Provide a comprehensive educational program targeting health care providers.

Educate health care providers about the need for effective and aggressive weight management for overweight people with high blood pressure, Type 2 diabetes, and/ or unfavorable blood lipid levels.

Develop social marketing strategies specific to different population segments.

Develop and disseminate public service announcements with consistent message by way of billboards, food store literature, television advertisements, or human interest stories featuring successful weight management.

Provide nutrition education to the general public targeting problem areas of snacking, fast foods, and soft drink consumption as well as promoting healthy eating behaviors.

Support community infrastructure for physically active life styles including the promotion of community designs that include sidewalks, bike routes, and walking trails.

Ensure that obesity reduction/ prevention efforts coincide with the Healthy Communities efforts to support necessary policy and environmental changes.

Incorporate Healthy People 2010 objectives.

Incorporate effective weight management strategies into existing food assistance programs that already target high-risk groups.

Develop incentives for private industry, such as retail businesses and restaurants, to promote healthy lifestyles.

Provide incentives for businesses with worksite wellness programs to promote weight loss.

Document cost savings for treatment of obesity to support reimbursement by health insurance providers.

Partner with existing health insurance companies to study and educate their members on obesity.

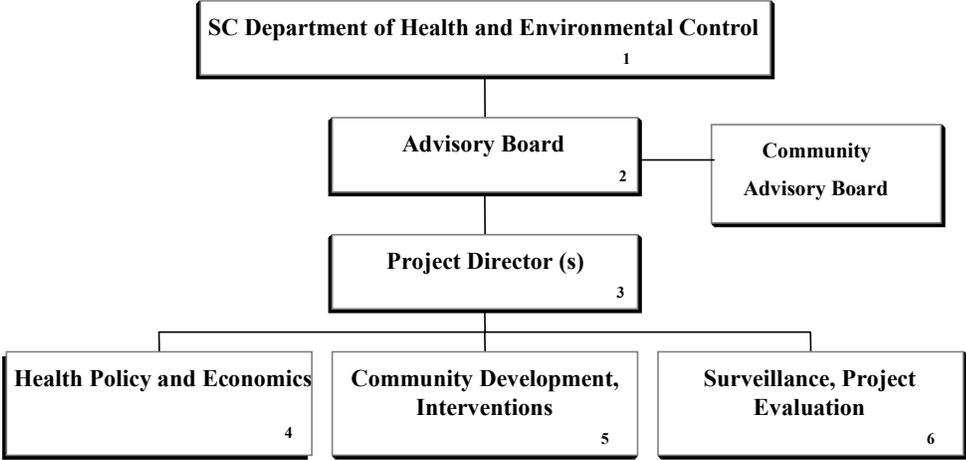
Offer incentives for State employees to participate in effective weight management programs.

Provide technical assistance and consultation to local communities to encourage tailoring interventions to meet specific needs at the local level.

Identify effective weight management techniques for specific high-risk groups by conducting research interventions.

Implement effective weight management techniques by identifying and promoting culturally- and age-appropriate intervention programs.

South Carolina Council on Obesity



APPENDIX D

Fact Sheets on Obesity



Fact Sheet → Adult Obesity

Prevalence of Adult Obesity

- Currently 55% of adults in the United States meet the National Institutes of Health classification of overweight or obesity.*
- South Carolina's rates of overweight and obesity are among the highest in the United States.
- Obesity rates have risen rapidly in the past five years and nearly one in five adults in South Carolina are obese (over half are overweight and obese combined).
- Approximately 65% of the adult African American population in South Carolina is overweight or obese.

Health Complications Associated with Obesity

- Obesity increases the risk for heart disease, diabetes, stroke, high blood pressure, gall bladder problems, osteoarthritis, unfavorable blood lipid levels, as well as breast and colon cancer.
- 300,000 deaths each year may be attributed to lifestyle factors of improper diet and inadequate exercise.
- Obesity costs the U.S. health care system \$51.6 billion per year in direct medical expenses, and the indirect costs (e.g. lost wages and productivity) raise the figure to \$99.2 billion.
- Obesity costs South Carolina \$177.4 million in hospital costs in 1997 and \$21.4 million of Medicaid expenses in the State could be attributed to obesity in 1998.

* Classification of obesity is commonly based on Body Mass Index (BMI) which adjusts body weight for height. A BMI of 25-29.9 is classified as overweight while a BMI of 30 or greater is considered obese.

Prevention and Management of Obesity

- Even modest weight loss (5-10% of body weight) is associated with health benefits, including improvement in blood pressure, good cholesterol (HDL), blood sugar and the need for medication.
- Nutrition: The goal of nutrition programs is to decrease calories and fat using culturally appropriate materials focused on increased awareness of fat and calorie content of food, appropriate food choices, food preparation, decreased serving sizes, and strategies for relapse prevention.
- Physical Activity: The goal of physical activity programs is to increase activity levels using lifestyle modification as well as formal exercise programs.
- Behavior Modification: The goal of behavior modification programs is to alter eating and activity patterns by changing people's attitudes, beliefs and motivation in regard to eating and physical activity.

Prevention and Management of Obesity Summary

- Achieving and maintaining appropriate weight requires good dietary patterns and adequate physical activity. Combined treatment approaches (diet, exercise, and behavior modification) are likely to produce better results than any single treatment.

Fact Sheet

Fact Sheet **Childhood Obesity**

Prevalence of Childhood Obesity

- One in five U.S. children is overweight or obese.*
- Obesity is a chronic disease and is the most prevalent nutritional disease of children and adolescents.
- Childhood obesity has doubled in the past 20 years and currently affects 10 million children.
- *Rates of obesity among children in South Carolina have not been determined yet due to lack of data.*

Role of Childhood Obesity in Adult Obesity

- Targeting obesity in childhood can impact and prevent adult obesity.
- 80% of obese children become obese adults. The risk for adult obesity increases with level of childhood obesity.
- Weight loss during childhood can be maintained into adulthood.

Link of Obesity to Environmental Factors

- The more than 200% increase in obesity in the past 15 years clearly reflects environmental rather than genetic factors.
- Behavioral factors (physical activity and diet) are modifiable and logical targets for intervention.

* Classification of obesity is commonly based on Body Mass Index (BMI) which adjusts body weight for height. A BMI greater than the 85th percentile is classified as overweight while a BMI greater than the 95th percentile is considered obese for children of the same age and gender.

Consequences of Childhood Obesity

- The following medical factors are associated with obesity: unfavorable blood lipid levels, high blood pressure, diabetes, asthma, and early maturation.
- The major sources of health complications in obese children include sleep apnea, Type 2 diabetes and orthopedic complications.
- The most serious and prevalent long-term consequences include mental health problems such as depression, lower self-esteem, and discrimination by peers, family, and teachers.

Prevention and Management of Childhood Obesity

- Parental obesity is the single most important predictor of childhood obesity; therefore, family based therapy is recommended. Usual treatment recommendations include promotion of healthy eating patterns and reducing inactivity.
- Obesity and overweight are easier and less costly to prevent than to treat. Adopting healthy dietary and physical activity habits early in life is most effective.

Appendix E

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APPENDICES



Objectives/Strategies by Goal

Goal 1: Increase the percentage of South Carolinians who meet the current age-specific recommendations for regular physical activity.

Objective 1: By July 31, 2008, at least 50 worksites in SC will promote physical activity for employees.

Strategies

1. Employers will encourage daily physical activity by implementing strategies such as providing easy access to stair-wells while limiting access to elevators, supporting and promoting lunchtime walking/running clubs or company sports teams, and providing on-site facilities such as walking trails and bike racks.
2. Increase the number of worksites providing weight-related physical activity educational materials to employees based on current, evidence-based information.
3. Employers will provide opportunities for employees to become engaged in self-management and goal setting relative to physical activity.
4. Employers and businesses will promote and support community efforts to reduce TV time and increase physical activity, such as "Turn off TV Week" and "Walk to School Day."
5. Employers will be provided resources to implement low cost, incentive-based physical activity programs.
6. Employers will be provided with a list of non-profit agencies that can provide low or no-cost educational materials.

Objective 2: By December 31, 2008, at least 25 worksites in SC will have adopted policies supportive of physical activity.

Strategies

1. Provide flexible scheduling to allow employees to participate in exercise before work, during lunch, or after work.
2. Provide reimbursement for employees who are members of exercise facilities or participate in classes.
3. Provide discounted rates for membership to fitness and recreation facilities.
4. Provide incentives to employees participating in physical activity programs.
5. Provide up to 3 hours of paid time per week for employees to participate in physical activity.

Objective 3: By July 31, 2008, at least 92 free, sliding scale or publicly owned recreation facilities will be identified.

Strategies

1. Assess recreation centers in South Carolina to determine which need improvements or need brand new facilities.

Action Steps:

- *Secure funding for assessment development and implementation.*



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- *Work with SCRPA, which periodically polls its membership about needs and assets in local park and recreation departments.*
 - *Work with SC PRT, which develops a five-year state outdoor recreation plan.*
2. Develop a best practice resource tool to help communities develop comprehensive recreation and fitness centers.
 3. Support and build advocacy to identify and establish a permanent funding mechanism for public park and recreation agencies to fund new recreation centers for the entire state.

Objective 4: By July 31, 2010, at least 46 non-public recreational facilities will be open to community use.

Strategies

1. Increase the number of school districts that allow community use of schools for recreational activities (e.g., walking tracks, outdoor fields, gyms).

Action Steps:

- *Assess district policies on public use of school recreation facilities, (for example, USC PRC work via a CDC Special Interest Project).*
 - *Develop a model policy that addresses issues of maintenance and liability.*
 - *Work with the Department of Education and school board association to encourage districts to adopt policies allowing public use of school recreation facilities after regular school hours (evenings and weekends).*
 - *Work with the Department of Education or school board association to identify old schools available for adaptive reuse as community centers with recreation facilities.*
2. Work with faith-based groups to find ways to increase community use of church recreational facilities.

Objective 5: By July 31, 2010, at least 46 communities will have free, sliding scale, or publicly funded physical activity opportunities.

Strategies

1. Work with SCRPA to identify needs and develop plans with their membership.
2. Work to identify funding sources to provide community physical activity opportunities.
3. Implement Hearts N Parks programs or similar programs in local recreation departments.
4. Survey current mall walking programs. Develop tools to help these programs advertise and increase participation.
5. Develop tools to promote new mall walking programs (for example, Sumter County Active Lifestyles Heart and Soles Mall Walking Program).
6. Develop a tool for communities to implement activity components into local festivals and community events.
7. Create a directory for physical activity resources in the community. Identify and distribute information about walks, runs, and other physical activity opportunities held in communities across the state.



Objective 6: By July 31, 2008, at least 20 communities will develop partnerships with stakeholders such as hospitals, municipal associations, and city and county councils, to collaborate on locally based physical activity initiatives and policy changes.

Strategies

1. Work with SCCPPA to identify local coalitions focused on physical activity.
2. Develop a toolkit to assist communities in developing local physical activity coalitions.
3. Provide networking opportunities for the sharing of resources for local coalitions throughout the state.

Objective 7: By July 31, 2010, at least 20 communities will have connectivity to at least 10 miles of sidewalks, walking trails, bike lanes/paths and other features of the built environment conducive to safe physical activity.

Strategies

1. Coalitions, in partnership with city planners and developers, will conduct walkability audits in the community.
2. Add bike lanes on at least 2 renovated roadways in South Carolina.

Action Steps:

- *Work with SC DOT and Metropolitan Planning Organizations throughout the state to establish a baseline assessment of existing and needed bike lanes.*
 - *Work with SC DOT/ MPO planning processes to prioritize construction of bike lanes.*
3. DOT or local jurisdictions will have plans to add sidewalks where needed, especially leading to schools, recreation departments and other physical activity sites.

Action Steps:

- *Work with SC DOT and Metropolitan Planning Organizations throughout the state to establish a baseline assessment of existing and needed sidewalks.*
 - *Work with SC DOT and MPO planning processes to prioritize construction of sidewalks.*
4. Increase the number of continuous sidewalks/walkways/bike lanes on main streets (with high connectability) in 3 cities.
 5. Modify/assess MPO current organizational structure and develop policy requiring that bike/pedestrian coordinator be actively involved in MPO decision making.

Action Steps:

- *Survey MPO's to identify which have advisory groups and/or bike/pedestrian coordinators, how they are used, model policies/job descriptions.*
 - *If necessary, contact MPO's in states with good bike/pedestrian policies (e.g., Oregon) to use as models for South Carolina recommendations.*
6. Local municipalities and counties will develop and adopt ordinances that require sidewalks and bike lanes in new subdivisions.



Action Steps:

- *Identify model ordinances in South Carolina or elsewhere.*
- *Work with SC Municipal Association and Association of Counties to develop a model ordinance for recommendation to local communities.*

7. Promote “Share the Road” signage and culture and other bike/pedestrian safety education programs.

Action Steps:

- *Partner with Palmetto Cycling Coalition, which is working to promote a “Share the Road” culture and a school-based bicycling curriculum in South Carolina.*

Objective 8: By July 31, 2007, implement *America On the Move* in South Carolina.

Strategies

1. Partner with SCCPPA, SCPRA, YMCA, AARP, DHEC, and other programs to promote *America on the Move*.
2. Research other state models for collaborative approaches with *America on the Move*.
3. Develop strategies for engaging hard-to-reach populations in *America on the Move*.

Objective 9: By December 31, 2007, at least 150 faith based settings will support physical activity through programs and/or policies.

Strategies

1. Establish a baseline number of Faith-Based Settings (FBS) that offer programs and have policies, either formal or informal, that support physical activity.
2. Promote partnership with recreation facilities and community activities, through use of co-facilities (work with PA subgroup) and communication network (for PA classes, chair aerobics etc.) at FBS.
3. Increase the number of faith-based child care centers implementing the *Color Me Healthy* curriculum.
4. Encourage increased participation in physical activity for youth (e.g., sports, dance).
5. Promote family physical activity (e.g., walking, biking).
6. FBS with established physical activity programs will engage in community outreach to promote physical activity.

Objective 10: By December 31, 2007, at least 50 schools will provide opportunities for students to participate in physical activity during the school day.

Strategies

1. Establish/adopt state level policy that requires and funds Physical Education Program Assessment for grades K-8.
2. Establish state level policy that requires 150 minutes weekly of physical education in grades k-5.
3. Establish state level policy that requires 250 minutes weekly of physical education in grades 6-8 (NASPE’s recommendation for Middle grades).



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4. Establish state level policy that requires three Carnegie units of physical education for high school graduation.
 5. Provide models for increasing PE time in grades K-8, middle and high school
 6. Provide training to elementary schools to implement walking programs (such as Duck Walking, Walk Across America, Walk For Life).
 7. Disseminate the SC Governor's Council on Physical Fitness' Recess Policy Statement to all middle and elementary school Principals.
 8. Provide training and distribute model programs to middle and high school Principals for implementing intramurals, physical activity clubs, and physical activity elective courses into the school day. (Work with the Middle School Association)
 9. Provide training to Physical Educators on implementing the SC Physical Education Standards and Assessment Program. (Partner: SDE and SCAHPERD- SCPEAP)
 10. Provide training to district and school personnel on increasing physical activity opportunities into the core curriculum ("Take 10" program).
 11. Increase the active time in physical education classes to 90%.of class time.

Objective 11: By December 31, 2008, at least 50 schools will provide opportunities for faculty and staff to participate in physical activity at school.

Strategies

1. Create a packet of model staff physical activity program ideas and disseminate these to all elementary, middle and high schools (or school districts). (Partner with Prevention Partners and DHEC's Capital Health Program).
2. Provide presentations on staff physical activity programming at school related conferences (middle school, school nurse, etc.) *Work with SC School Administrators.*
3. Provide school districts and schools with model policies and programs that encourage faculty and staff physical activity (such as the use of recreational/sports equipment in the school).

Objective 12: By month December 31, 2008, increase the percentage of children that walk or bike to school.

Strategies

1. Work with YRBS or YTS to add appropriate question(s) to survey.
2. Identify schools in SC where it is physically possible and potentially safe to begin a Safe Routes to School Program.
3. Provide grants/resources to identified schools (through the SC Governor's Council on Physical Fitness and the SC Coalition for Promoting Physical Activity) to participate in Walk to School Day.
4. Disseminate information to all school Superintendents and Principals on the Safe Routes to School bill and Walk To School Day.
5. Provide training to school administrators on model policies and programs to implement a Safe Routes To School program (SCASA Conference).
6. Provide resources to identified schools on how to set up a SR2S committee (SCPPA Fall 2005 SR2S Conference).



Objective 13: By December 31, 2010, at least 150 school and community members will be identified as leaders in improving school physical activity.

Strategies

1. Provide training to school administrators on the SC Physical Education Assessment Project at the SCAHPERD Conference.
2. Provide a one-day training to potential school health leaders through the SC Healthy Schools Leadership Institute.
3. Provide a weeklong training to school health teams for implementing the CDC's School Health Index through the SC Healthy Schools Summer Leadership Institute.
4. Work with existing awards processes to identify and recognize school champions (SC Governor's Council School Awards, DHEC All Health Team, SC Healthy School Awards).

Objective 14: By December 31, 2010, at least 100 schools will provide opportunities for students to be physically active on school property before and after school.

Strategies

1. Provide information, resource materials and training to schools on before and after school models for implementing physical activity clubs, intramural sports and extended use of school physical activity facilities.
2. Partner with after school providers such as SC After School Alliance, AFHK, SC Recreation and Parks Association, and the YMCA, to adopt policies that require the incorporation of physical activity as a portion of their programming.

Goal 2: Increase the percentage of South Carolinians who consume at least 5 servings of fruits and vegetables a day.

Objective 1: By July 31, 2007, at least 3 South Carolina communities will have newly operating Farmers' Markets.

Strategies

1. In collaboration with other state agencies, clarify certification process for Farmers' Markets.
2. Work across state agencies to make it easier to set up local Farmers' Markets.
3. Through focus groups or key informant interviews with community partners/coalitions, identify 3 communities for implementation.
4. Educate and distribute information to farmers, churches, schools, and businesses in identified communities.
5. Review certification process and investigate use of Clemson Extension agents as certifiers to increase the number of certifiers so that more farmers are able to sell produce directly to consumers.
6. Publicize certification program.
7. Set policy so that all farmers want to be certified to sell in Farmers' Markets.



Objective 2: By September 30, 2007, 25% more seniors will be participating in the Senior Farmers' Market voucher program.

Strategies

1. In collaboration with other state agencies, simplify application procedures and help farmers with applications to accept vouchers.
2. In collaboration with other state agencies, simplify application procedures and help seniors with applications for vouchers.
3. Work with community leaders to set up a system so that farmers can bring produce to community locations (such as housing authority neighborhoods, senior centers, and churches).
4. Work with community leaders and state agencies to set up a system of transportation from low-income neighborhoods to Farmers' Markets and community market locations.
5. Publicize the Senior Farmers' Market.

Objective 3: By September 30, 2007, 25% more WIC participants will be participating in the WIC Farmer's Market program.

Strategies

1. In collaboration with other state agencies, simplify application procedures and help farmers with applications to accept vouchers.
2. In collaboration with other state agencies, simplify application procedures and help WIC participants with applications for vouchers.
3. Work with community leaders to set up a system so that farmers can bring produce to community locations (such as housing authority neighborhoods, worksites, child care centers, schools, and churches).
4. Work with community leaders and state agencies to set up a system of transportation from low-income neighborhoods to Farmers' Markets and community market locations.
5. Publicize the WIC Farmers' Market program.

Objective 4: By July 31, 2007, at least 3 communities will establish delivery of fresh produce to various sites, such as child care centers, faith-based organizations, schools, worksites, and hospitals.

Strategies

1. In identified communities, promote the delivery of farm produce to child care centers, faith-based organizations, schools, worksites, and hospitals.

Action Steps:

- *Encourage collaboration between Department of Agriculture, State Department of Education, Department of Social Services, Department of Health and Environmental Control, Chamber of Commerce, and Hospital Association to help farmers bring produce directly to consumers.*
 - *Investigate the Department of Defense fresh buying program and opportunities for expansion into communities, especially in rural areas where access and transportation issues are barriers to purchasing healthy foods.*
2. Market and publicize the distribution program.



Objective 5: By July 31, 2007, at least 3 communities will establish delivery of fresh produce from local farmers to small grocers in the area.

Strategies

1. Build a coalition of small grocers, farmers, SC Department of Agriculture, and commodity boards to develop relationships of benefit to the farmers, grocers, and community.
2. In identified communities, discuss distribution plans for delivery of produce to grocers.
3. In identified communities, promote and publicize the “farm to small grocer” program.

Objective 6: By July 31, 2008, at least 3 communities will have a communication plan for consumers, including information on buying, storing, and using fresh fruits and vegetables.

Strategies

1. Identify or develop multi-lingual, multi-cultural tapes, videos, printed materials, and calendars to help consumers use fresh produce.
2. Identify or develop limited literacy materials suitable for families with limited resources.
3. Develop system to print and distribute available printed materials (Commodity Board, USDA, EFNEP, NCI, etc.) to consumers at markets.
4. Develop system to provide demonstrations at the markets on how to prepare fresh produce (chefs/nutritionists at markets).
5. Work with local supermarkets to help communicate message of eating more fruits and vegetables and distribution of materials at their stores (print messages on bags, signs in stores, etc.).

Objective 7: By December 31, 2008, at least 3 school districts will participate in a social marketing campaign to encourage students to consume 2 or more fruit and vegetable (non-fried) servings during the school day.

Strategies

1. Provide training and resources for conducting an age appropriate social marketing campaign in schools, making eating F/V “cool”.
2. Provide resources to school on ways improve the packaging of available fruits and vegetables, making servings more individualized (cups of F/V that they can take, rather than being served, or single serving packages),

Objective 8: By July 31, 2009, at least 100 schools will implement the Five-A-Day programs in schools.

Strategies

1. Provide training and share model programs to school personnel on the 5-A-Day campaign at the SCASA , School Nurses, SCAHPERD, Early Childhood and Elementary Education conferences.
2. Provide a one-day training to potential school health leaders through the SC Healthy Schools Leadership Institute.
3. Provide a 5 A Day training as part of the SC Healthy Schools Summer Institute.
4. Educate teachers on the variety of 5 A Day resources for use in the classroom.



Objective 9: By December 31, 2007, at least 25 school districts will receive training on policies and other strategies for increasing the availability and consumption of fruits and vegetables.

Strategies for School Meals

1. Disseminate “how to” strategies to increase fruit and vegetable options including menu suggestions to district school food service directors, managers and staff.
2. Provide training to Food Service Personnel on the importance of having more fruits and vegetable options available and provide strategies to increase these options using model meal programs and marketing these options to students, staff and parents.
3. Provide training and ideas to above groups on how schools can afford more fresh fruits and vegetables as part of the school meal (school gardens, farmers markets)
4. Provide training on implementing school community gardens to interested teachers/staff.

*Strategies for Other Foods and Beverages**

*Other Foods and Beverages refer to any food sold or served on school grounds outside of the USDA Reimbursable meal program.

1. Develop and disseminate model policies that increase the availability of fruits and vegetables (and 100% fruit and vegetable products) through all other food and beverage sales outlets.
 - A. **Vending Machines**
 - Distribute policy that assures that vending machines are stocked with fruits and vegetables and 100% fruit and vegetable products.
 - B. **A-La-Carte**
 - Distribute policy that assures that all fruit and vegetable components of the school meal are available to purchase as a-la-carte.
 - C. **Concessions**
 - Distribute policy that assures that fruits and vegetables and 100% fruit and vegetable products are sold at concession stands.
2. Disseminate model programs that increase the availability of fruit and vegetable options for students. (This includes 100% F& V juice products)
 - A. **Vending Machines**
 - Provide information about model vending programs that increase fruit and vegetable options while maintaining profit margins.
 - Provide information to Principals and District personnel on negotiating vending contracts that provide healthy choices, including fruit and vegetable options.
 - B. **A-La-Carte**
 - Disseminate model school food service programs that increase fruit and vegetable options on a-la-carte offerings.
 - C. **Concessions**
 - Distribute model guideline and suggestions for having F/V available at concession stands, school stores and other school sponsored events



D. Fundraisers

- Distribute ideas for selling fruits and vegetables as fundraisers to Principals, PTA/PTO and booster club leaders

E. Parties

- Distribute model guidelines and suggestions for having F/V available during parties and class rewards

Goal 3: Increase the percentage of South Carolina mothers who breastfeed for at least six months.

Objective 1: By July 31, 2010, at least 10 worksites in SC will promote and support breastfeeding practices in the workplace.

Strategies

1. Employers will be provided with education on ROI (return on investment) and health benefits of breastfeeding.
2. Facilities will support breastfeeding by providing a private area for mothers, and equipment, such as hospital grade breast pumps and refrigerators for storage of expressed breast milk.
3. A policy will be implemented to ensure that nursing mothers will be allotted the necessary breaks from work to express milk.
4. Employers will educate all employees on the benefits of sustained breastfeeding.

Objective 2: By July 31, 2009, at least 10 health care facilities in South Carolina will have a breastfeeding policy in place.

Strategies

1. Through collaboration with organizations such as the SC Breastfeeding Coalition, SC Primary Health Care Association, and the La Leche League, complete an assessment of breastfeeding policies in health care organizations in the state to establish baseline measurements of policy and environmental supports for breastfeeding.
2. Provide sample policy statements and examples of environmental supports for breastfeeding to health care organizations in the state.
3. Work with hospitals, maternity centers, physician offices, and clinics to reinforce guidelines from WHO/UNICEF (International Code on the Marketing of Breast Milk Substitutes) and work toward eliminating practices that discourage breastfeeding (such as visible signs of formula promotion and infant formula discharge packs).
4. Work with hospitals and maternity centers to adopt the "Ten Steps to Successful Breastfeeding."



Objective 3: By July 31, 2008, at least 50 health care providers in South Carolina will provide education and counseling in support of breastfeeding.

Strategies

1. Identify breastfeeding “champions” to assist in educating peers about the importance of promoting and supporting breastfeeding.
2. Conduct trainings for health care providers and disseminate current, evidence-based information on the importance of breastfeeding and its benefit in reducing obesity and other chronic diseases.
3. Promote breastfeeding education as a routine component in professional education/curricula, including medical, nursing, nutrition, health education, and social work programs.
4. Develop and disseminate materials to educate health care providers about the need to promote and support breastfeeding efforts.
5. Develop and disseminate a listing of breastfeeding resources (such as local lactation consultants, breastfeeding peer counselors, and lay support groups) to health care providers for use in the promotion and support of breastfeeding.

Action Step:

- *Inform and educate health care providers about the importance of referring mothers with breastfeeding questions, concerns, or problems to a specialized professional.*
6. Provide positive public messages in support of breastfeeding.

Goal 4: Increase the percentage of South Carolina children and adults who achieve and maintain a healthy weight

Objective 1: By July 31, 2008, at least 50 worksites in SC will promote healthy nutrition in the workplace.

Strategies

1. SCCOPE will ensure that employers have current, science-based nutrition information and resources.
2. Increase the number of worksites providing nutrition-related educational materials to employees, such as the 5 A Day program.
3. Increase the number of worksites providing access to nutrition counseling by a registered dietitian.

Objective 2: By July 31, 2008, at least 25 worksites will adopt healthy nutrition policies.

Strategies

1. SCCOPE Workgroup on Business and Industry will develop and disseminate a *Nutrition in the Workplace Policy Guide*.
2. Employers and agencies will provide opportunities for employees to provide feedback on healthy food policy development.
3. Provide healthy choices of food and drink (water, juice, yogurt, fruits, vegetables, salads, low fat foods) in vending machines, snack rooms, and/or cafeteria.
4. Provide healthy refreshments at worksite events, meetings, and conferences.
5. Require vendors/food service providers to visibly post nutrition information for all foods served and sold.
6. Employers, when feasible, will provide space and encourage employees to eat at a separate area away from their workstation.



Objective 3: By July 31, 2009, at least 15 worksites in SC will participate in and promote healthy weight initiatives to include environmental and policy change.

Strategies

1. Form a collaborative group comprised of South Carolina business and industry professionals, employees, and health professionals to advise and consult with SC employers on productivity and health.
2. Identify champions in the business and industry setting to provide peer education on the ROI of programs addressing nutrition, physical activity, and breastfeeding.
3. Increase the number of SC employers with a wellness council or committee responsible for worksite wellness.
4. Provide training for such individuals or groups, for example, at the SCCPPA 2006 fall conference.

Objective 4: By July 31, 2010, at least 15 worksites in SC will provide and support on-site healthy weight-related activities and initiatives.

Strategies

1. Employers will request, from insurers, weight-related benefit/cost and utilization data for their employee population.
2. Employers will perform a healthy weight policy and environmental assessment of their worksite.
3. Employers will provide access to wellness counseling services to include nutrition, breastfeeding, weight loss, physical activity, and stress management.
4. Employers will offer health risk appraisals and provide targeted interventions to those with a BMI of 25 or greater.
5. Employers will provide incentives for those employees participating in a disease prevention program or disease management program containing a healthy weight component.
6. Employers will provide incentives for those employees who document the attainment of established and significant weight reduction goals or who are at a healthy BMI.
7. The business community will help develop and support the delivery of messages concerning overweight, obesity, and productivity on radio, TV, and elsewhere.
8. SCCOPE will create a Healthy Worksite Award Program to include recognition and incentives for businesses exhibiting leadership in healthy weight-related policies and programs.
9. Designate a week or month, sponsored by the State or by SCCOPE, which challenges employers to communicate healthy weight initiatives to their employees and community (Employee Health and Fitness Day).

Objective 5: By December 31, 2008, at least 3 communities in SC will have effective healthy dining programs.

Strategies

1. Through processes such as focus groups or key informant interviews with community partners/ coalitions, select communities to participate in a healthy dining program.
2. Identify model dining programs, such as *NC's Winner's Circle; Eat Smart! Ontario's Healthy Restaurant Program; and Maine's Diner's Choice*, that would be appropriate for use in SC.
3. Work with professional restaurant industry groups to identify incentive options for participating restaurants, such as a healthy dining certificate/award similar to inspection ratings, or recognition through local media, local restaurant reviews, etc.
4. Develop the healthy dining program. Criteria examples may include:



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- Healthy menu options for children;
 - Nutrient analysis of menu items (calories, carbohydrates, saturated fat, trans fat, protein);
 - Trained wait staff on assisting customers with healthy selections;
 - Half portion sizes available as menu options;
 - Trained chefs on incorporating healthy foods;
 - Increased fruit and vegetable options available.
5. Develop a plan for implementation and evaluation of the program.
 6. Work with media, community leaders, DHEC, and restaurants in communities to advertise the program and encourage participation.
 7. Implement the healthy dining program.
 8. Evaluate the program.

Objective 6: By July 31, 2007, at least three 4-H youth programs or camps will pilot food, fitness and health programs.

Strategies

1. Through collaboration with Clemson Extension, identify three 4-H youth programs or camps for pilot programs.
2. Work with 4-H parents, leaders, and youth to identify ways to increase healthy eating and physical activity options available in programs.
3. Explore alternative low cost options so that youth sites can obtain healthy food alternatives.

Action Steps:

- *Develop cooperatives for buying products for programs.*
 - *Explore Department of Defense fruit and vegetable program (possibly link with purchases for military bases).*
 - *Determine if youth programs can participate in DSS summer food program and/or after school food program; work with DSS on ways to make application process easier.*
4. Ensure that foods served in the pilot youth programs follow 2005 Dietary Guidelines.
 5. Demonstrate that children will eat the healthy foods and that costs can be contained.
 6. Encourage older youth to do community projects (such as 4-H pinnacle projects), which encourage other youth and younger children to enjoy more fruits and vegetables and be more physically active (farm projects, garden projects, shopping and cooking projects).
 7. Evaluate program efforts.

Objective 7: By July 31, 2010, at least 25 youth programs or camps across the state will offer healthy food choices.

Strategies

1. Investigate youth programs such as Boy and Girl Scouts, Boys and Girls Clubs, YMCA, and faith-based programs to identify foods served at youth programs and identify food-related activities.
2. Bring together partnership of parents, youth workers, school leaders, and youth group funders for update on results of pilot programs at 4-H camps and discussion on ways to expand program statewide.
3. Identify and advertise clear, consistent messages (more fruits and vegetables and healthy foods) in youth- and youth group-specific educational and promotion materials.
4. Develop and distribute a new "Guide for Food to be Served at Youth Programs and Camps" based on the 2005 Dietary Guidelines.



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5. Work with youth organizations to add training modules related to healthy weight, foods served, physical activity, and reducing TV/screen time to existing trainings.
 6. Encourage older youth to do community projects (Eagle service projects, badges, 4-H pinnacle projects, etc.) that encourage other youth and younger children to enjoy more fruits and vegetables (farm projects, garden projects, shopping and cooking projects).
 7. Explore alternative low-cost options so that youth sites can obtain and sustain healthy food alternatives.

Action Steps:

- *Develop cooperatives for buying products for programs.*
- *Identify and widely distribute lists of healthy foods and beverages that are inexpensive, easy to prepare, easy for children to eat, taste good, are easy to store, and have a long shelf-life.*
- *Encourage potential participation in DSS summer food program and/or after school food program.*

Objective 8: By July 31, 2006, increase by 20% the percentage of child care centers in the state implementing the *Color Me Healthy* curriculum.

Strategies

1. Increase the number of participants who complete the Color Me Healthy “train the trainer” workshop.
2. Increase the number of Color Me Healthy trainings provided to child care centers.
3. Inform and educate parents/caregivers about the importance of nutrition and physical activity programs for preschoolers.
4. Publicize to child care centers that the Color Me Healthy training has been approved for 4 hours of continuing education through the South Carolina Child Care Training System.
5. The Color Me Healthy State Trainer will present program updates at the annual meeting of the South Carolina Early Childhood Association and other statewide, regional, and local meetings.

Objective 9: By July 31, 2010, at least 25 child care centers in SC will implement the expanded Color Me Healthy curriculum.

Strategies

1. Expand the *Color Me Healthy* curriculum to include impact and process evaluation measures.

Action Steps

- *Investigate examples of pertinent surveys to identify variables to measure.*
 - *DOPC will take the lead on the development of evaluation measures, monitoring the impact of the curriculum on children, parents/caregivers, and child care providers.*
2. Expand the *Color Me Healthy* curriculum to include additional components, such as reducing TV/screen time, enhancing family/parental involvement, and enhancing policy and environmental supports.

Action steps

- *Identify models and resources for child care centers to assist in development of expanded curriculum.*
- *Collaborate with Clemson Extension and the “Cooking with a Chef” program to provide food/cooking demonstrations and nutrition education as part of the enhanced curriculum components.*



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3. Increase the number of participants who complete the Color Me Healthy “train the trainer” workshop.
 4. Increase the number of trainings provided to child care centers throughout the state.
 5. Inform and educate parents/caregivers about the importance of nutrition and physical activity programs for preschoolers.
 6. Establish a “Healthy Child Care Center Award” program for centers effectively implementing the curriculum.

Objective 10: By July 31, 2008, 50 SC faith-based settings will have policies in place and offer formal or informal programs that support healthy eating and physical activity.

Strategies

1. Identify churches that have already established “healthy foods at church” policies.
2. Identify existing on-going educational programs and workshops available at faith-based settings that help adults and children improve eating habits and increase physical activity.
3. Develop and conduct 6 training workshops for health and faith leaders (congregational nurses, health ministers, other interested congregants) on how to introduce and sustain healthy eating and physical activity policies and programs at their churches.
4. Identify, obtain permissions, and duplicate program resources for use at the workshops, including examples of policies, practices, and program curricula already in use in other faith-based settings.
5. Establish and maintain a health and faith resources website with links to *Search Your Heart, Body and Soul*, *Health-e-AME Physical-e-Fit* program and other programs and materials, and links to other websites for information on obesity and health, such as CDC sites, 5-A-Day, WIN, and NHLBI sites.
6. Pilot the development of policies and programs to help members improve eating habits and increase physical activity at 10 additional SC churches.

Action Steps

- *Survey SC churches to find out if churches have healthy food and activity policies and programs, the details about the policies and programs, and whether they have any information on program outcomes.*
- *Develop working groups of church members and pastors at 10 interested churches to develop recommendations that encourage healthy meal and food choices at church events and more physical activity. Examples of activities these groups might consider:*
 - * Establish a church vegetable garden
 - * Support bringing farmer's market to churches on regular schedule
 - * Have recipe contests / develop a collection of winning recipes for reduced fat salads, vegetables, soups, fruit desserts, one-dish meals for church suppers.
 - * Establish recommendations for foods to serve at church events. Duplicate recipes from contest.
 - * Encourage church members to form walking groups. Post group mileage in prominent place in church.



Objective 11: By July 31, 2007, at least 100 congregational pastors, ministers, and other leaders in the faith based setting will receive information and assistance regarding promoting and supporting faith and health messages, policies and programs.

Strategies

1. Convene group of spiritual leaders interested in bringing a model faith and health curriculum to one seminary in SC.
2. Determine if there are any faith and health programs or curricula in use in SC seminaries.
3. Select a faith and health curricula for use / dissemination. (from other states if not already in SC)
4. Identify speakers/ champions/ leaders; incorporate segments on faith and health into conference agendas to build support and interest.
5. Help spiritual leaders identify and support appropriate groups in their churches who can lead faith and health programs, such as: congregational / parish nurses, health educators, lay health coordinators, lay health promoters, youth health 'promoters'.

Objective 12: By December 31, 2010, at least 75 health care providers will follow national guidelines and standard protocols for weight management and the treatment of obesity.

Strategies

1. Collaborate with leadership of SC medical schools and other health care professional programs to include the prevention and treatment of obesity as a module in the curriculum.
2. Educate health care providers about the importance of healthy weight maintenance and prevention of overweight and obesity across the lifespan.

Action Steps:

- *Distribute NHLBI Clinical Guidelines.*
 - *Conduct trainings on assessment of overweight and obesity using BMI and BMI-for-age.*
3. Promote self-study modules on healthy weight/weight management, which will include appropriate counseling and behavior change theory.

Action Step:

- *Educate health care professionals on patient self-management models using examples such as the Chronic Care Model.*
4. Provide resources to health care providers to assist with referrals for healthy weight maintenance.

Action Steps:

- *Develop and maintain a website accessible to health care providers that includes information about weight management programs and patient education materials.*
- *Maintain a resource listing of health care professionals trained to provide weight management services, including physical activity and nutrition specialists.*
- *Initiate a statewide referral phone line accessible to health care providers for weight loss/prevention programs.*



Objective 13: By July 31, 2007, at least 3 health care champions will assist with advocacy efforts in support of healthy weight management services.

Strategies

1. Identify health care providers interested in being advocates for healthy weight management efforts throughout the state.
2. Advocate for the state legislature to establish policies for insurance coverage of weight management services by registered dietitians, social workers, psychologists, health educators, and other health professionals.
3. Collaborate with insurance regulators and insurance companies to enhance advocacy for initiatives and policies that support breastfeeding, healthful eating habits, physical activity, and healthy weight maintenance.
4. Champions to encourage peers to offer weight management programs at physician offices, managed-care settings, and health departments.

Objective 14: By December 31, 2008, at least 100 schools will implement proven, effective nutrition and physical activity curricula.

Strategies

1. Provide training to schools on proven, effective nutrition and physical activity curricula (*Planet Health, Eat Well, Keep Moving* and *Color Me Healthy*).

Action Items

- *Provide Train the Trainer programs in school districts and regions*
- *Trainers provide training on curricula to teachers*
- *Teachers implement curricula in schools.*
- *Evaluate and follow up to determine implementation and technical assistance needs.*

Objective 15: By December 31, 2008, at least 25 % of students will consume three or more servings of calcium rich low fat dairy daily.

Strategies

1. Partner with AFHK.
2. Partner with milk bottlers to improve the packaging of 1% or less milk making it more appealing to students.

Objective 16: By December 31, 2008, at least 70% of students will report eating breakfast.

Strategies

1. Provide parent and student education regarding the importance of breakfast.
2. Provide information and technical assistance to school food service personnel and principals on alternative breakfast delivery strategies such as breakfast in the classroom, grab and go stations and the Universal Breakfast Program.
3. Provide marketing strategies to schools to promote eating breakfast.



Objective 17: By December 31, 2009, at least 300 schools will adopt the *SDE Task Force Recommendations for Improving Student Nutrition and Physical Activity*.

Strategies

1. Provide all school principals with a copy of the SDE Task Force Recommendations.
2. Develop a rating system to award schools that have implemented the recommendations.
3. Adopt state level policy that establishes nutrition and physical activity standards for k-12. Refer to the *SDE Task Force on Improving Student Nutrition and Physical Activity* and work with the Legislature or the State Board of Education.

Objective 18: By December 31, 2008, at least 150 schools will provide education and awareness to students and parents on the importance of achieving and maintaining a healthy weight.

Strategies

1. Include BMI fields in the SASSI reporting system.
2. Educate school nurses and PE teachers on how to measure BMI and record in SASSI.
3. Develop a local resource and referral list to give to families of students who are overweight.
4. SDE, in conjunction with partners will develop suggested procedures for schools regarding communication of BMI and suggestions for reaching and maintaining a healthy weight to students and parents.

Goal 5: Decrease the burden of obesity and obesity-related chronic diseases.

Objective 1: By July 31, 2007, at least 200 health care providers will be trained on the health and economic implications of obesity and obesity-related chronic diseases.

Strategies

1. In collaboration with DHEC chronic disease program areas, state and community coalitions/alliances, educate health care providers on the health implications of obesity and obesity-related chronic diseases.

Action Steps:

- *DOPC will collaborate with DHEC chronic disease program areas and state and community coalitions/alliances to incorporate education on the burden of obesity during health care provider trainings.*
- *Collaborate with ORS and health economists to obtain data on the economic costs of obesity for trainings for health care providers.*

Objective 2: By December 31, 2008, at least 50 policy and decision makers will be provided training on the burden of obesity and obesity-related chronic diseases.

Strategies

1. Educate health care plan policy makers and purchasers of health care plans regarding the cost of overweight and obesity to the health care system.
2. Educate policy makers on the economic benefit of initiatives and policies that support healthful eating habits, physical activity, and healthy weight maintenance for treatment of obesity-related chronic diseases.



Goal 6: Increase the number of research projects in South Carolina related to obesity prevention and control.

Objective 1: By December 31, 2010, collaborate with the South Carolina Nutrition Research Consortium (SCNRC) on at least 3 research efforts dealing with obesity in the state.

Strategies

1. At least one member of the South Carolina Nutrition Research Consortium will serve as an Advisory Council member for SCCOPE.
2. DOPC will correspond at least monthly with the Nutrition Research Consortium contact to maintain communication on potential research opportunities.
3. SCCOPE will use research results to implement proven effective state-wide obesity related activities.

Objective 2: By December 31, 2009, DOPC will have provided ongoing updates to partners on potential obesity related research opportunities for the state.

Strategies

1. Establish and maintain a clearinghouse for obesity research opportunities.
2. Provide technical assistance on grant writing and community based participatory research to community partners and grass roots organizations.

Objective 3. By July 31, 2010, SCCOPE through its partners, will have obtained at least 5 obesity related research grants for the state.

Strategies

1. Within SCCOPE, form a research and grant writing subcommittee to lead the SCCOPE research efforts.
2. DOPC will identify individuals within DHEC who are interested and skilled in research activities.



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Glossary:

Body Mass Index (BMI) BMI is an indicator of body size based on height and weight. It is calculated as weight in kilograms divided by height in meters squared. The standard adult categories are underweight (BMI less than 18.5 kg/m²), normal (18.5 – 24.9 kg/m²), overweight (25 – 29.9 kg/m²), and obese (30 or more). For children (ages 2-20), a BMI below the 5th percentile for age and gender is underweight; between the 85th and 95th percentile is at risk for overweight; at or above the 95th percentile is overweight.

$$\text{Formula: BMI} = \frac{\text{Weight (kg)}}{\text{Height (m)}^2} \left\{ \frac{\text{Weight in Pounds}}{(\text{Height in inches}) \times (\text{Height in inches})} \times 703 \right\}$$

Behavioral Risk Factor Surveillance System (BRFSS) is a major source of data, is a telephone survey conducted by all state health departments, the District of Columbia, Puerto Rico, the Virgin Islands, and Guam with assistance from CDC. BRFSS is the largest continuously conducted telephone health survey in the world, monitoring preventable chronic diseases, injuries, and infectious diseases. States use BRFSS data to track health problems and to develop and evaluate public health programs. Data are collected by using standard procedures through monthly telephone interviews with adults aged >18 years.

Capacity Building is a process to enhance the ability of a group or institution to manage change, resolve conflict, enhance coordination, foster communication, and ensure that data and information are shared.

Community Based Participatory Research is a collaborative process of research involving researchers and community representatives. It engages community members, employs local knowledge in the understanding of health problems and the design of interventions, and invests community members in the processes and products of research.

Guide to Community Preventive Services (Community Guide):

In developing the Guide to Community Preventive Services (Community Guide), the Task Force on Community Preventive Services uses a variety of both qualitative and quantitative factors to assess the strength of evidence for population-based interventions to promote health and prevent disease.

www.thecommunityguide.org

Strength of Evidence of Effectiveness	Task Force Recommendation
Strong	Strongly recommended
Sufficient	Recommended
Insufficient empirical information but supplemented by expert opinion	Recommended based on expert opinion
Available studies do not provide sufficient evidence	Insufficient evidence to determine effectiveness
Sufficient or strong evidence of ineffectiveness or harm	Discouraged



Evidence Based Practices are critical to expanding the knowledge base of what is or is not effective in addressing obesity and obesity-related chronic diseases.

Impact Evaluation is a systematic way of identifying if a program was responsible, in whole or in part, for causing the results, or if there are other factors that influenced the results.

Outcome Evaluation is a systematic way of evaluating if the actual outcomes or results of a program are consistent with the desired outcomes. Tools are used to assess if the program worked.

National Immunization Survey is sponsored by the Centers for Disease Control and Prevention for children between the ages of 19 and 35 months living in the United States at the time of the interview.

Pediatric Nutrition Surveillance System (PedNSS) is a program-based surveillance system that monitors the nutritional status of low-income infants, children, and women in federally funded maternal and child health programs.

Process Evaluation methods are used to document program implementation in order to monitor program fidelity and quality.

Promising Practices is a commitment to use the best evidence currently available to guide initial recommendations, and at the same time, develop a structure that is sufficiently flexible to incorporate new information.

Social Ecological Model (SEM) is a model that depicts how multiple factors influence (either positively or negatively) the health behavior of an individual. At the center of the model is the individual. At this level, we consider the internal determinants of behavior, such as knowledge, attitudes, beliefs, and skills. This is the foundational level, but the model recognizes that many external forces (interpersonal, organizational, community, and society) influence these individual determinants. In order to facilitate behavior change it is important to address these external forces.

Social Marketing is the application of advertising and marketing principles and techniques to health or social issues with the intent of bringing about behavior change. The social marketing approaches used to reduce the barriers to and increase the benefits associated with the adoption of a new idea or practice within a selected population.



South Carolina Coalition for Obesity Prevention Efforts (SCOPE) is a diverse group of partners, consisting of representatives from state government agencies, businesses, academia, faith-based organizations, health care organizations, and community-based groups, working together to promote healthy lifestyles and healthy communities.

Waist Circumference measurement is a tool to assess abdominal obesity, which is an independent risk factor for diseases.

Women, Infants, and Children (WIC) program serves to safeguard the health of low-income women, infants, & children up to age 5 who are at nutritional risk by providing nutritious foods to supplement diets, information on healthy eating, and referrals to health care.

Youth Risk Behavior Surveillance System (YRBS) monitors priority health risk behaviors that contribute markedly to the leading causes of death, disability and social problems among youth and adults in the United States. These behaviors, often established during childhood and early adolescence, include tobacco use, unhealthy dietary behaviors, inadequate physical activity, alcohol and other drug use, risky sexual behaviors that contribute to unintentional injuries and violence. Conducted as school-based survey every 2 years, YRBSS includes national, state, and local representative samples of students in grades 9 – 12. For states that do not participate in YRBSS, the Youth Tobacco Survey (YTS) can provide data on the prevalence of tobacco use among high school students.



Goals Data

1. Increase the percentage of South Carolina children and adults who meet the current age specific recommendations for regular physical activity.

* Adults should engage in moderate-intensity physical activities for at least 30 minutes on 5 or more days of the week.

* Adults should engage in vigorous-intensity physical activity 3 or more days per week for 20 or more minutes per occasion.

Adults (2003 BRFSS)

◆ Meets recommendations for regular physical activity

⇒ Total

- 46.2% of South Carolinians meet recommendations for regular physical activity.

⇒ By race

- 48.9% of Caucasians in SC meet recommendations for regular physical activity
- 37.1% of African-Americans in SC meet recommendations for regular physical activity
- 42.9% of Hispanics in SC meet recommendations for regular physical activity

⇒ By gender

- 50.1% of males in SC meet recommendations for regular physical activity
- 42.6% of females in SC meet recommendation for regular physical activity

◆ Classified as Physically Inactive

⇒ Total

- 14.8% of South Carolinians are classified as physically inactive

⇒ By race

- 11.8% of Caucasians in SC are classified as physically inactive
- 22.5% of African-Americans in SC are classified as physically inactive
- 19.9% of Hispanics in SC are classified as physically inactive

⇒ By gender

- 13.4% of males in SC are classified as physically inactive
- 16.2% of females in SC are classified as physically inactive

High Schoolers (1999 YRBS)

◆ Meets recommendations for regular physical activity

⇒ Total

- 60.0% of SC high schoolers meet recommendations for regular physical activity.

⇒ By race

- 66.4% of high school age Caucasians in SC meet recommendations for regular physical activity
- 52.9% of high school age African-Americans in SC meet recommendations for regular physical activity
- 60.9% of high school age Hispanics in SC meet recommendations for regular physical activity

⇒ By gender

- 66.1% of high school age males in SC meet recommendations for regular physical activity
- 54.0% of high school age females in SC meet recommendation for regular physical activity



2. Increase the percentage of South Carolina children and adults who consume at least five servings of fruits and vegetables a day.

Adults (2003 BRFSS)

◆ Consume at least 5 servings of fruits and vegetables a day

⇒ Total

- 22.3% of South Carolinians consume at least 5 servings of fruits and vegetables a day

⇒ By race

- 22.7% of Caucasians in SC consume at least 5 servings of fruits and vegetables a day
- 19.5% of African-Americans in SC consume at least 5 servings of fruits and vegetables a day
- 27.8% of Hispanics in SC consume at least 5 servings of fruits and vegetables a day

⇒ By gender

- 18% of males in SC consume at least 5 servings of fruits and vegetables a day
- 26.2% of females in SC consume at least 5 servings of fruits and vegetables a day

High Schoolers (1999 YRBS)

◆ Consume at least 5 servings of fruits and vegetables a day

⇒ Total

- 17.6% of SC high schoolers consume at least 5 servings of fruits and vegetables a day

⇒ By race

- 13.9% of high school age Caucasians in SC consume at least 5 servings of fruits and vegetables a day
- 20.6% of high school age African-Americans in SC consume at least 5 servings of fruits and vegetables a day
- 20% of high school age Hispanics in SC consume at least 5 servings of fruits and vegetables a day

⇒ By gender

- 18.3% of high school age males in SC consume at least 5 servings of fruits and vegetables a day
- 17% of high school age females in SC consume at least 5 servings of fruits and vegetables a day



3. Increase the percentage of South Carolina mothers who breastfeed for at least six months.

Mothers (2003 National Immunization Survey)

◆ Breastfeed for at least 6 months

⇒ Total

- 27.3% of SC mothers breastfeed for at least 6 months
- 3.6% of SC mothers exclusively breastfeed for at least 6 months

4. Increase the percentage of South Carolina children and adults who achieve and maintain a healthy weight.

Adults (2003 BRFSS)

◆ Achieve and maintain a healthy weight (RECOMMENDED RANGE)

⇒ Total

- 37.5% of South Carolinians are within the recommended range for healthy weight based on BMI

⇒ By race

- 41.9% of Caucasians in SC are within the recommended range for healthy weight based on BMI
- 26.6% of African-Americans in SC are within the recommended range for healthy weight based on BMI
- 26.6% of Hispanics in SC are within the recommended range for healthy weight based on BMI

⇒ By gender

- 31.9% of males in SC are within the recommended range for healthy weight based on BMI
- 42.9% of females in SC are within the recommended range for healthy weight based on BMI

◆ Achieve and maintain a healthy weight (OVERWEIGHT)

⇒ Total

- 35.8% of South Carolinians are overweight based on BMI

⇒ By race

- 35.4% of Caucasians in SC are overweight based on BMI
- 34.5% of African-Americans in SC are overweight based on BMI
- 37.9% of Hispanics in SC are overweight based on BMI

⇒ By gender

- 43.6% of males in SC are overweight based on BMI
- 28.3% of females in SC are overweight based on BMI



◆ **Achieve and maintain a healthy weight (OBESE)**

- ⇒ Total
 - 24.5% of South Carolinians are obese based on BMI
- ⇒ By race
 - 20.4% of Caucasians in SC are obese based on BMI
 - 37.8% of African-Americans in SC are obese based on BMI
 - 24.9% of Hispanics in SC are obese based on BMI
- ⇒ By gender
 - 23.2% of males in SC are obese based on BMI
 - 25.6% of females in SC are obese based on BMI

◆ **Achieve and maintain a healthy weight (Intent)**

- ⇒ Total
 - 39.3% of South Carolinians have tried to lose weight in the last year
- ⇒ By race
 - 8.1% of Caucasians in SC have tried to lose weight in the last year
 - 44% of African-Americans in SC have tried to lose weight in the last year
 - 43.4% of Hispanics in SC have tried to lose weight in the last year
- ⇒ By gender
 - 31.5% of males in SC have tried to lose weight in the last year
 - 46.5% of females in SC have tried to lose weight in the last year

High Schoolers (1999 YRBS)

◆ **Achieve and maintain a healthy weight (OVERWEIGHT)**

- ⇒ Total
 - 11.7% of SC high schoolers are overweight based on BMI
- ⇒ By race
 - 9.1% of high school age Caucasians in SC are overweight based on BMI
 - 15.1% of high school age African-Americans in SC are overweight based on BMI
 - 0.4% of high school age Hispanics in SC are overweight based on BMI
- ⇒ By gender
 - 14.6% of high school age males in SC are overweight based on BMI
 - 8.9% of high school age females in SC are overweight based on BMI

◆ **Achieve and maintain a healthy weight (AT RISK FOR OVERWEIGHT)**

- ⇒ Total
 - 12.9% of SC high schoolers are at risk for becoming overweight based on BMI
- ⇒ By race
 - 10.3% of high school age Caucasians in SC are at risk for becoming overweight based on BMI
 - 15.4% of high school age African-Americans in SC are at risk for becoming overweight based on BMI
 - 17.3% of high school age Hispanics in SC are at risk for becoming overweight based on BMI
- ⇒ By gender
 - 13.3% of high school age males in SC are at risk for becoming overweight based on BMI
 - 12.4% of high school age females in SC are at risk for becoming overweight based on BMI



◆ **Achieve and maintain a healthy weight (Intent)**

⇒ Total

- 39.8% of SC high schoolers have tried to lose weight in the last year

⇒ By race

- 41.9% of high school age Caucasians in SC have tried to lose weight in the last year
- 37.3% of high school age African-Americans in SC have tried to lose weight in the last year
- 46% of high school age Hispanics in SC have tried to lose weight in the last year

⇒ By gender

- 25.7% of high school age males in SC have tried to lose weight in the last year
- 53.7% of high school age females in SC have tried to lose weight in the last year

High Schoolers (1999 YRBS)

◆ **Watch two or fewer hours of television per day.**

⇒ Total

- 52.5% of SC high schoolers watch two or fewer hours of television per day

⇒ By race

- 66.6% of high school age Caucasians in SC watch two or fewer hours of television per day
- 35.4% of high school age African-Americans in SC watch two or fewer hours of television per day
- 53.8% of high school age Hispanics in SC watch two or fewer hours of television per day

⇒ By gender

- 53% of high school age males in SC watch two or fewer hours of television per day
- 51.9% of high school age females in SC watch two or fewer hours of television per day



5. Decrease the burden of obesity-related chronic disease.

Quality of Life Impact:

A significant percentage of obese individuals do not rate their general health as excellent or very good as compared to those with lower BMI. Obese individuals in the state also report a significantly higher average of physical or mental health days that were “Not Good” as compared to those with a lower BMI.

Economic Impact:

In 2003, obesity-attributable medical expenditures in SC totaled \$1.06 billion.

Obesity-Related Chronic Diseases:

DHEC Office of Chronic Disease Epidemiology is developing attributable risk calculations for obesity on the following diseases: CHD, Stroke, Diabetes, Cancer, and Arthritis. When calculated, health expenditures related to obesity can also be analyzed in greater detail.

6. Increase the number of research projects in South Carolina related to obesity prevention and control.

No baseline currently exists that captures this information on a statewide level.



Resources

www.nhlbi.nih.gov/guidelines/obesity/practgde.htm

Practical Guide to the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults

<http://www.ama-assn.org/ama/pub/category/10931.html>

American Medical Association: Assessment and Management of Adult Obesity

<http://www.cdc.gov/nccdphp/dnpa/growthcharts/training.htm>

BMI for age Growth Chart Modules

<http://www.acsm-msse.org/pt/pt-core/template-journal/msse/media/1201.pdf>

American College of Sports Medicine's Position Stand on Appropriate Interventions for Weight loss and Prevention of Weight Regain for Adults

Patient Centered Assessment and Counseling for Exercise and Nutrition

<http://aappolicy.aappublications.org/cgi/content/full/pediatrics;112/2/424>

American Academy of Pediatrics

Policy Statement on the Prevention of Pediatric Overweight and Obesity

<http://aappolicy.aappublications.org/cgi/reprint/pediatrics;113/1/152.pdf>

American Academy of Pediatrics

Policy Statement on Soft Drinks in Schools

<http://pediatrics.aappublications.org/cgi/content/full/115/2/496>

American Academy of Pediatrics

Updated Statement on Breastfeeding

<http://www.obesity.org>

American Obesity Association

http://www.cfah.org/pdfs/health_monograph.pdf

Health Behavior Change in Managed Care: A Status Report

www.surgeongeneral.gov/sgoffice.htm

Office of the Surgeon General

<http://www.healthinschools.org/sh/obesityfs.pdf>

Childhood Obesity Fact Sheet

www.nlm.nih.gov/medlineplus/obesity.html

National Library of Medicine Obesity Resources

www.cdc.gov/nccdphp/

CDC's Division of Chronic Disease Prevention and Health Promotion



<http://www.mayoclinic.com/invite.cfm?id=FL00058>
Childhood obesity: Parenting advice

<http://www.mayoclinic.com/invite.cfm?id=FL00057>
Sensible approaches to children's weight problems

www.healthysc.gov
Healthy South Carolina Challenge

www.eatright.org
American Dietetic Association

<http://www.thecommunityguide.org/>
Guide to Community Preventive Services

<http://www.cspinet.org/nutritionpolicy/nana.html>
National Alliance for Nutrition and Activity (Center for Science in the Public Interest)

odphp.osophs.dhhs.gov/
Office of Disease Prevention & Health Promotion

http://www.cdc.gov/nccdphp/promising_practices/
CDC's Promising Practices in Chronic Disease Prevention and Control: A Public Health Framework For Action

<http://www.cdc.gov/phppo/pce/index.htm>
A CDC document on principles for engaging the community.

ctb.lsi.ukans.edu/
Community Tool Box

<http://www.healthpolicycoach.org>
Health Policy Guide

http://www.prevent.org/publications/Physical_Activity_Roundtable_FINAL.pdf
Promoting Physical Activities in Communities: Forward Looking Options From An Executive Roundtable

www.usda.gov/cnpp
USDA's Center for Nutrition Policy and Promotion
Includes the Interactive Healthy Eating Index

www.cdc.gov/nccdphp/
CDC's Division of Chronic Disease Prevention and Health Promotion



www.usda.gov/fnic
Food and Nutrition Information Center

www.dole5aday.com
Dole Food Company

www.5aday.com
Produce for a Better Health Foundation

www.pma.com
Produce Marketing Association

<http://www.4woman.gov/Breastfeeding/bluprntbk2.pdf>
HHS Blueprint for Action on Breastfeeding

<http://www.usbreastfeeding.org/>
United States Breastfeeding Committee

<http://www.unicef.org/newsline/tenstps.htm>
WHO/UNICEF Ten Steps to Successful Breastfeeding

<http://www.cdc.gov/breastfeeding/compend-babyfriendlywho.htm>
Breastfeeding Friendly Hospital Program

<http://www.ers.usda.gov/publications/fanrr13/>
The Economic Benefits of Breastfeeding

http://www.who.int/nut/documents/code_english.PDF
International Code of Marketing Breast Milk Substitutes

http://www.preventioninstitute.org/pdf/CHI_breastfeeding.pdf
Promising Practices in Breastfeeding Promotion

<http://www.dshs.state.tx.us/wichd/lactate/mother.shtm>
Breastfeeding friendly worksite

<http://www.usbreastfeeding.org/Issue-Papers/Checklist-WP-BF-Support.pdf>
Worksite Breastfeeding Checklist

<http://www.phppo.cdc.gov/documents/faithhealth.pdf>
A CDC document on how to collaborate and engage faith-based communities around public health issues

<http://www.health-e-ame.com/>
AME Church Health/Wellness



http://www.prevent.org/publications/Healthy_Workforce_2010.pdf
Healthy Workforce 2010

<http://www.welcoa.org/freeresources/>
Free worksite resources and presentations from Welcoa

<http://www.wbgh.com/>
Washington Business Group on Health

<http://www.phi.org/pdf-library/dhs-worksite.pdf>
Fruits and Vegetables and Physical Activity at The Worksite: Business Leaders and Working Women Speak Out on Access and Environment

<http://www.shapingamericasyouth.com/Default.aspx>
Shaping America's Youth

www.cdc.gov/nccdphp/dash/SHI/index.htm
School Health Index

<http://www.schoolwellnesspolicies.org/WellnessPolicies.html>
Model School Wellness Policies

<http://www.schoolnutrition.org/Index.aspx?id=1173>
Model School Wellness Policies

www.cdc.gov/nccdphp/dash/nutguide.htm
CDC's Guidelines for School Health Programs to Promote Lifelong Healthy Eating

<http://www.cdc.gov/nccdphp/dnpa/kidswalk/>
Walk to School Day

http://www.bikewalk.org/ncbw_forum/livable1_8.pdf
Safe Routes to School

www.usda.gov/news/usdakids/index.html
USDA for Kids

www.sph.uth.tmc.edu/catch
Coordinated Approach to Child Health (CATCH)

<http://www.rwjf.org/publications/publicationsPdfs/healthySchools.pdf>
Healthy Schools for Healthy Kids

www.nasbe.org/HealthySchools/fithealthy.mgi
Fit, Healthy and Ready to Learn: A School Health Policy Guide



www.aahperd.org

American Association for Health, Physical Education, Recreation, and Dance

http://www.aahperd.org/naspe/template.cfm?template=pr_032504.html

National Physical Education Standards

http://www.aahperd.org/naspe/template.cfm?template=kids_brochure.html

Kids in Action: Activity Guide for Children Birth to Five Years of Age

<http://www.aahperd.org/naspe/template.cfm?template=stats.html>

Physical Education Statistics

http://www.aahperd.org/naspe/template.cfm?template=pr_123103.html

Summary of Physical Activity for Children: A Statement of Guidelines for Children Ages 5-12

www.cdc.gov/nccdphp/dash/nutguide.htm

CDC Guidelines for School Health Programs to Promote Lifelong Healthy Eating

www.fns.usda.gov/tn/Healthy/changing.html

Changing the Scene (School Nutrition)

http://kidshealth.org/research/health_report.html

Health Report Cards increase Parents' Awareness of Obesity/Overweight

<http://www.eatsmartmovemoreenc.com/tools.htm>

Standards, fact sheets, tools and modules for school nutrition
Also contains a SyberShop module for ages 13-19

<http://www.actionforhealthykids.org/>

Action for Healthy Kids

<http://www.eatsmartmovemoreenc.com/colormehealthy/>

Color Me Healthy Curriculum

http://www.hsph.harvard.edu/prc/proj_eat.html

Eat Well and Keep Moving – integrated elementary nutrition/pa curriculum

http://www.hsph.harvard.edu/prc/proj_planet.html

Planet Health – integrated upper elementary nutrition/pa curriculum

www.sph.uth.tmc.edu/catch

Coordinated Approach to Child Health (CATCH) – curriculum



<http://www.sparkpe.org/index.jsp>
PE (k-8) and afterschool curriculum

<http://www.take10.net/whatistake10.asp?page=new>
Take 10! physical activity program

<http://www.creativewalking.com/school.html>
Resources for school-based walking programs

<http://www.cdc.gov/youthcampaign/>
CDC's VERB campaign for physical activity

http://www.squaremeals.org/fn/home/page/0,1248,2348_0_0_0,00.html
Variety of tools for school nutrition from the TX Department of Agriculture

<http://www.farmentoschool.org/>
Farm to School Nutrition Program

http://cspinet.org/nutritionpolicy/policy_options.html#school_foods
PA & NU resources, vending options, fundraisers, F & V program in schools, classroom rewards, policies, revenue impact when improving school foods, strengthening NU ed, etc

http://nutrition.hhdev.psu.edu/projectpa/frames_html/frames_homepage.html
tools and resources for improving school nutrition

<http://www.walkableamerica.org/>
Partnership for a Walkable America

www.americaonthemove.org
America On the Move

<http://www.activelivingbydesign.org/>
Active Living By Design

www.sccppa.org
South Carolina Coalition for Promoting Physical Activity

<http://www.bikewalk.org/>
Pedestrian and Biking Information

<http://www.cdc.gov/nccdphp/dnpa/physical/handbook/index.htm>
The Physical Activity Evaluation Handbook



www.cdc.gov/nccdphp/dash/physact.htm

CDC's Guidelines for School and Community Programs to Promote Lifelong Physical Activity Among Young People

www.ncsl.org

National Council of State Legislatures



OVERWEIGHT IN SOUTH CAROLINA

Children

The Problem

- Approximately **1 out of 8** high school students in South Carolina is overweight.⁽¹⁾
- Over **25%** of low-income children ages 2-5 in South Carolina are overweight or at risk of overweight.⁽²⁾
- Nationally, overweight rates in children ages 6-11 have **tripled** since the late 1970s, while rates for adolescents ages 12-19 have **more than doubled** in the same time period.⁽³⁾
- Overweight adolescents have a **70%** chance of becoming overweight or obese adults.⁽⁴⁾
- Overweight children are at increased risk for high blood pressure, asthma, sleep apnea, diabetes, and decreased well-being.⁽⁴⁾
- If current trends continue, **1 out of every 3 children** born in 2000 will be diagnosed with type 2 diabetes, primarily due to a poor diet and lack of physical activity.⁽⁵⁾

*Data courtesy of the National Health and Medical Research Council

Risk Factors

- **Less than 20%** of adolescents in South Carolina eat the recommended 5-9 servings of fruits and vegetables per day.⁽¹⁾
- Nearly **50%** of adolescents in South Carolina do not meet the minimum recommendations for adequate physical activity.⁽¹⁾
- In the US, children watch TV an average of 1,023 hours per year (compared to 900 hours per year spent in school).⁽⁶⁾
- Nationally, sweetened beverage consumption has **doubled** among youth in the last 30 years.⁽⁶⁾
- By the time children are 14 years or older, 32% of young women and 52% of young men are consuming **3 or more sugared soft drinks daily**.⁽⁷⁾
- South Carolina mothers rank **43rd out of all states** in breastfeeding rates (breastfeeding has been shown to reduce the risk of overweight in children).⁽⁸⁾

"We must...intensify efforts for early identification and prevention of overweight, or we are going to have the first generation of children who are not going to live as long as their parents."

*Dr. George Blackburn
Harvard Medical School*

Keys to Healthy Kids at a Healthy Weight



Get at least 60 minutes of moderate to vigorous exercise every day.



Eat at least 5 servings of fruits and vegetables every day.



Drink 1% or less milk.



New moms should breastfeed for at least 6 months.



Limit foods and beverages with added sugars (soft drinks, soda, candy).



Support school and local efforts to adopt policies supportive of good nutrition and active living.

Please see other side for information about healthy weight.



OVERWEIGHT IN SOUTH CAROLINA

Children

Weight in Children

The term obesity is not used when describing children and youth. Instead, children and youth are said to be “at risk of overweight” or “overweight.” This terminology is used because children and youth are growing and their weight may significantly change during the growth period. Because ideal weight for children and youth is dependent on age and gender (as well as height), adult BMI charts are not appropriate for children. BMI-for-age growth charts are used to determine a child’s BMI percentile as compared to other children of the same age and gender. Categories of BMI for children and youth under 20 years of age are divided into the following percentiles:

Category	Percentile
Underweight	Less than 5 th
Normal	5 th to 84 th
At risk of overweight	85 th to 94 th
Overweight	95 th and higher

For example, a 10-year old boy with a BMI-for-age at the 90th percentile means that 90% of males of the same age and height have a lower BMI. This child would be considered overweight.

More information on the 2002 CDC Growth Charts can be found at <http://www.cdc.gov/growthcharts>

1. Youth Risk Behavior Surveillance Survey (YRBSS), 1999
2. Pediatric Nutrition Surveillance System (PedNSS), 2003
3. Centers for Disease Control, National Center for Health Statistics. (2004). *BHAFETV's short report*
4. 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; (2007).
5. Vekkal-Rauyan, K. *The Journal of the American Medical Association*, Oct. 8, 2003, vol 290; pp 1684-1690.
6. Gleason P and Juiiter C. *Children's diets in the mid-1990s: dietary intake and its relationship with school meal participation*. *USDA Report No. : (CR-07-CD), (2007).*
7. *Wilson J and Pophin B. Changes in beverage intake between 1977 and 2001. American Journal of Preventive Medicine 2004; 27(3):205-210.*
8. *National Immunization Survey, National Center for Health Statistics (NCHS), 2003. (Measure taken at 6 months after delivery). Obesity Research 12(1): 10-24 (January 2004).*
9. *Wilson Media Research, 2000*



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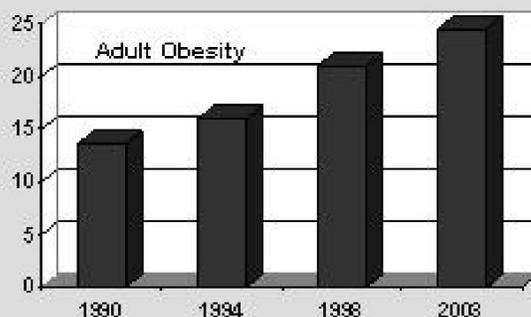


OVERWEIGHT IN SOUTH CAROLINA

Obesity in SC

The Problem

- Obesity rates in South Carolina have nearly **doubled** since 1990. ⁽¹⁾
- In 2003, South Carolina had the **13th worst** obesity rate in the nation.
- **61%** of adults in South Carolina are either overweight or obese. ⁽¹⁾
- **25%** of adults in South Carolina are obese. ⁽¹⁾
- Obesity-related medical costs in South Carolina topped **\$1 billion in 2003**. This translates to a cost of **\$256 per South Carolinian**. ⁽²⁾
- Of the \$1 billion dollars spent on obesity-related medical costs in SC, **over half of these costs were through Medicaid/Medicare**. ⁽²⁾
- Although obesity affects all populations, rates of obesity are higher among minorities and the underserved.
- South Carolina has one of the **highest rates** of obesity-related chronic disease such as heart disease, stroke, and diabetes in the nation.



¹ Obesity in SC has nearly doubled since 1990.



Factors Leading to Obesity

- Over **half** of South Carolinians are either totally inactive or do not get the recommended amount of physical activity. ⁽³⁾
- Over **75%** of South Carolinians do not consume the recommended number of fruits and vegetables per day. ⁽³⁾
- South Carolina mothers rank **43rd** out of all states in breastfeeding rates (breastfeeding has been shown to reduce the risk of obesity in children). ⁽⁴⁾

Diseases Related to Obesity

Heart Disease	Diabetes
High Blood Pressure	Sleep Apnea
High Cholesterol	Depression
Some Cancers	Osteoarthritis
Gall Bladder Disease	Asthma

What Can You Do?

- Become an advocate for policies supportive of active living, such as Safe Routes to School and Smart Growth initiatives.
- Be active for at least 30 minutes on most days of the week.
- Support policies and programs designed to increase access to healthy foods such as Farmer's Markets and adopting standards for all foods served in schools.
- Eat at least 5 servings of fruits and vegetables a day.
- Reduce portion sizes.
- Limit TV time to less than 2 hours a day.
- New mothers should breastfeed for at least six months.

Please see other side for information about healthy weight.



OVERWEIGHT IN SOUTH CAROLINA

Obesity in SC

What's the difference between overweight and obesity?

A BMI between 18.5 and 24.9 is considered normal weight for adults. A BMI from 25 and 29.9 is considered overweight, and a BMI of 30 or higher is considered obese. Obesity is further classified based on severity: BMI of 30 - 34.9 is Class I, BMI of 35 - 39.9 is Class II Obesity, and Class III Obesity is a BMI over 40. Research has shown that as BMI rises into the more severe ranges (Class II and Class III), the risk for morbidity and mortality also increase.

BMI

The commonly accepted measure of being overweight and obesity in adults is the Body Mass Index, or BMI. In adults, the BMI measurement is determined by body weight relative to height. BMI is best used as a screening tool and not a diagnostic tool. Additionally, BMI is only one piece of a person's health profile, and other measures and risk factors (e.g., waist circumference, smoking, physical activity level, diet) should also be addressed.

Body Mass Index or BMI is a tool for indicating weight status in adults. It is a measure of weight for height. For adults *over 20 years old*, BMI falls into one of these categories:

BMI	Weight Status
Below 18.5	Underweight
18.5 - 24.9	Normal
25.0 - 29.9	Overweight
30.0 & above	Obese

Body Mass Index can be calculated using pounds and inches with this equation

$$\text{BMI} = \left(\frac{\text{Weight in Pounds}}{(\text{Height in inches}) \times (\text{Height in inches})} \right) \times 703$$

For example, a person who weighs 220 pounds and is 6 feet 3 inches tall has a BMI of 27.5.

$$\left(\frac{220 \text{ lbs.}}{(75 \text{ inches}) \times (75 \text{ inches})} \right) \times 703 = 27.5$$

1. *Behavioral Risk Factor Surveillance Survey (BRFSS), 2003.*
2. *Eric A. Finkelstein, Ian C. Feibelham, and Fujing Wang. State level estimates of annual medical expenditures attributable to obesity. Obesity Research 12(1):18-24 (January 2004).*
3. *National Vital Statistics Report (NVR), 2007.*
4. *National Immunization Survey, National Center for Health Statistics (NCHS), 2003. (Measure taken at 6 months after delivery). Obesity Research 12(1):18-24 (January 2004).*



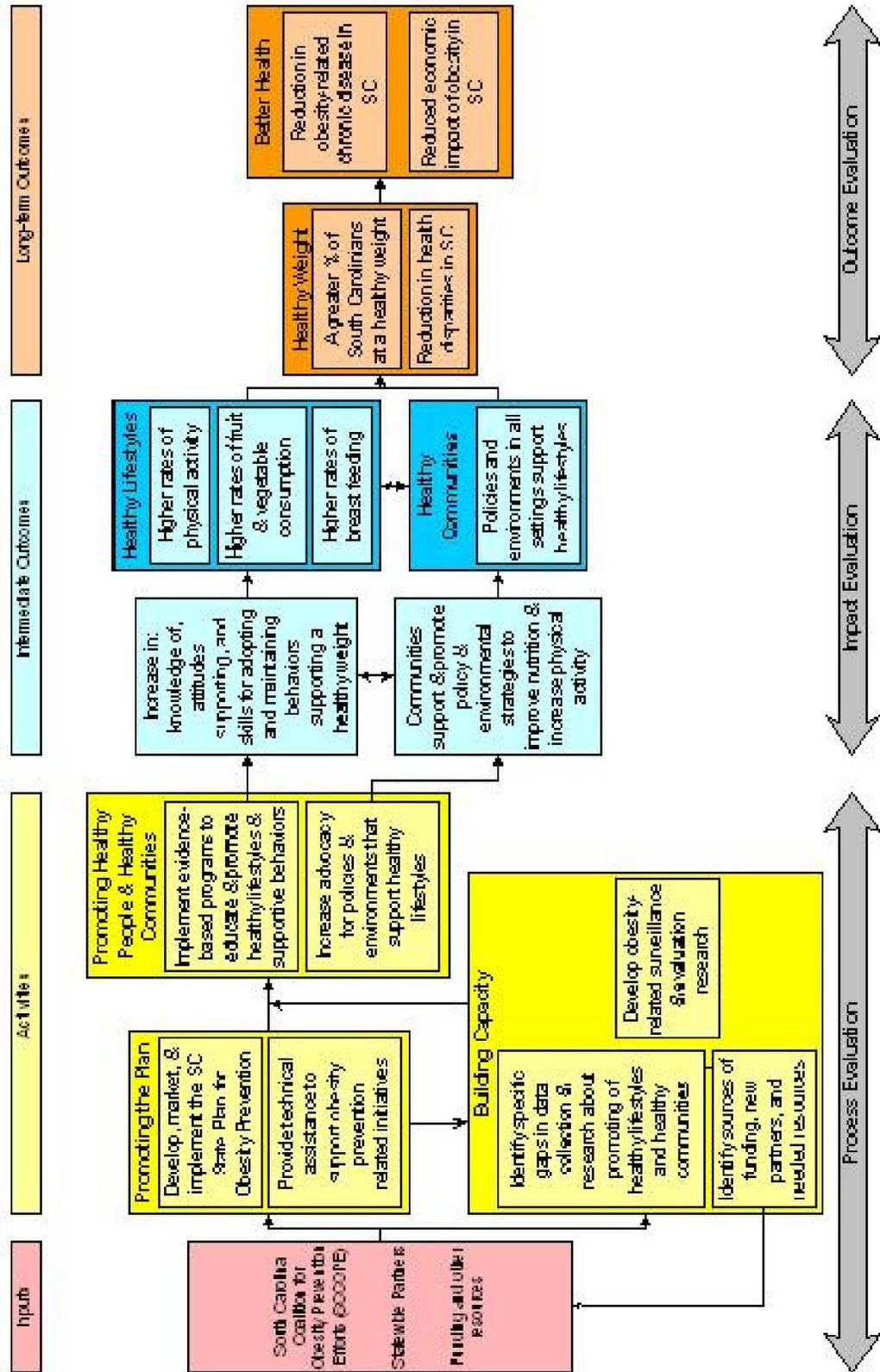
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Moving South Carolina Toward a Healthy Weight Promoting Healthy Lifestyles and Healthy Communities



The *Moving South Carolina Toward a Healthy Weight* Logic model was developed to illustrate the relationships between inputs, activities and outcomes associated with South Carolina’s statewide plan to address obesity. This tool is intended to aid in describing the causal relationships between inputs and activities and how they are expected to lead to intermediate changes necessary in facilitating the attainment of specific goals outlined in *The State Plan* for obesity prevention.

Inputs

The first column of the logic model, Inputs, lists the work groups, partners and resources that provide infrastructure for obesity prevention and control efforts in South Carolina. SCCOPE Work Groups were charged with identifying and defining specific goals and objectives related to business and industry, community and faith-based organizations, school, and health care systems. These Work Groups will continue to provide guidance during implementation of the state plan. Of course, none of the efforts outlined in this document could be possible without CDC funding, in-kind support and other external funding/resources.

Activities

The second and third columns highlight the activities necessary for implementation of the state plan. These activities are sub-divided into promoting the plan, building capacity, and promoting healthy people and healthy communities,

Promoting the Plan. Marketing will involve distribution of the plan, a “kick off” at the state capital with speakers/partners promoting the plan, as well as plans to highlight specific obesity prevention and control efforts going on around the state. Another aspect of promoting the plan will involve providing ongoing technical support to statewide partners in obesity related efforts.

Milestone 1: The first few pages of this document describe three desired outcomes indicative of success in obesity prevention and control in SC. Inputs and plan promotion activities described above represent the first of those desired outcomes: *A comprehensive, coordinated statewide effort to promote healthy weight.*

Building Capacity. The Obesity Prevention and Control Program of DHEC and SCCOPE are committed to the identification of gaps in surveillance data related to obesity and identifying evidence based approaches for obesity prevention and control. In order to facilitate surveillance, research and evidence-based capacity, planning is underway to provide available funds and seek additional funding to aid the efforts of our current and new partners in obesity-related surveillance, research and program evaluation.



Promoting Healthy People and Healthy Communities. Promoting the Plan and building surveillance, research and program evaluation capacity is necessary in promoting the health of communities through data driven programs. Such evidence can bolster policy advocacy and environmental changes supportive of obesity prevention and control.

Note: Intermediate outcomes are also expected to interact with one another in a way that changes in one outcome may directly affect changes in another outcome.

Intermediate Outcomes

The fourth and fifth columns show expected intermediate outcomes resulting from proposed activities. Evidence-based obesity programs should result in increases in knowledge, attitudes, support, and skills (antecedents) necessary in adopting and maintaining behaviors associated with healthy weight. It is expected that increased policy advocacy and environmental changes (predisposing, enabling, and reinforcing factors) will support strategies to improve nutrition and increase physical activity.

Milestone 2: *Communities support and promote the adoption of policy and environmental strategies to improve nutrition and increase physical activity.*

Healthy Lifestyles. By addressing the antecedents of behavior change among individuals, groups and communities across SC, higher rates of physical activity, increased fruit and vegetable consumption, and a greater number of mothers breast feeding are expected.

Healthy Communities. Another intermediate outcome includes environmental and policy changes in all settings (i.e., business and industry, community and faith-based organizations, schools, and health care systems) that support healthy lifestyles.

Long-term Outcomes

The sixth and seventh columns represent the ultimate goals to be attained by moving SC toward a healthy weight.

Healthy Weight. All of the activities and intermediate outcomes described are intended to increase the percentage of South Carolinians at a healthy weight. Secondarily, moving the population toward a healthy weight may aid in the reduction of health disparities in SC.

Better Health. Ultimately, reducing overweight and obesity can tremendously impact the prevalence and incidence of certain chronic diseases/conditions and will reduce the burden and economic impact of these diseases/conditions in SC.

Milestone 3: *Improved health of all populations who are affected by the burden of obesity and chronic diseases.*



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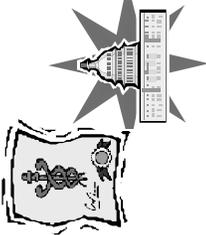
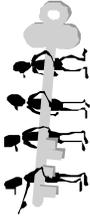
Obesity State Plan Goals	Other Relevant Plans
<p>1. Increase the percentage of South Carolinians and adults who meet the current age specific recommendations for regular physical activity.</p>	<p>Coach: School based programs, community activities, locating walking/biking areas</p> <p>Palmetto Project: Heart & Soul Project</p> <p>Prevention Partners: Employee insurance program</p> <p>USC Prevention Research Center</p> <p>WIC State Nutrition: Education/Breastfeeding Plan</p> <p>USC Sumter: Sumter County Active Lifestyles Impact Objectives</p> <p>USC School of Medicine: Community Nutrition Network (USC/Duke partnerships)</p> <p>SCCPA: Working to bring about improved health & quality of life for all people in SC by encouraging & facilitating increased participation in regular physical exercise</p>
<p>2. Increase the percentage of South Carolina children and adults who consume at least five servings of fruits and vegetables a day.</p>	<p>Coach: Expanding breakfast program; vending machines; parent education</p> <p>Palmetto Project: Heart & Soul Project</p> <p>Prevention Partners: Employee insurance program</p> <p>WIC State Nutrition: State Farmer's Market Plan</p> <p>DHEC/Cancer: DHEC/SCCA Cancer plan will address 5-A-Day (not available until 7/05)</p>
<p>3. Increase the percentage of South Carolina mothers who breast-feed for at least six months.</p>	<p>Coach: Parent education task force goal</p> <p>Prevention Partners: Employee insurance program</p> <p>WIC State Nutrition: Education/Breastfeeding Plan</p>
<p>4. Increase the percentage of South Carolina children and adults who achieve and maintain a healthy weight.</p> <p>Increase the percentage of South Carolina children who watch two or fewer hours of screen time per day.</p>	<p>Coach: TV Turn off Week 4/25-5/1/05</p> <p>Palmetto Project: Heart & Soul Project</p> <p>Prevention Partners: Employee insurance program</p> <p>WIC State Nutrition: Education/Breastfeeding Plan</p>

Continued on next page



	<p>DHEC/Minority Health: AMEC Strategic Health Plan; OMH Initiatives – “It’s Your Health Take Charge” Calendar 2005</p> <p>DHHS: Launched a small pilot in Anderson, Oconee, & Pickens counties to have BMI assessed on children age 8 & up during physical office visits</p> <p>United Way of Midlands: Funds two initiatives that address childhood obesity with Palmetto Health Richland & Fairfield Behavioral Health Services</p>
<p>5. Decrease the burden of obesity and obesity-related chronic diseases.</p>	<p>Coach: Improving the nutrition & physical environments</p> <p>Palmetto Project: Heart & Soul Project</p> <p>Prevention Partners: Employee insurance program</p> <p>USC Prevention Research Center</p> <p>WIC State Nutrition: Education/Breastfeeding Plan</p> <p>SC Primary Health Care Assoc: South East Disparities Collaborative of SC</p>
<p>6. Increase the number of research projects in South Carolina related to obesity prevention and control.</p>	<p>Coach: School based intervention surveys/projects that will relate to obesity prevention and control</p> <p>Prevention Partners: Employee insurance program</p> <p>Companion Healthcare: SC Coalition for Obesity Prevention & Education which dispenses educational DVDs on obesity prevention to all elementary schools in SC.</p> <p>USC Prevention Research Center</p> <p>Clemson: The EXPORT Center – a Clemson & Voorhees College Partnership</p>



	LEVEL	APPLICATION
<p>Policy & Environmental Strategies (Systems - Level Change)</p>	<p>Society</p> 	<p>Developing and enforcing state policies and laws that can increase beneficial health behaviors. Developing media campaigns that promote public awareness of the health need and advocacy for change.</p> <p>Examples: Partnering with the Department of Agriculture to increase facilities (Farmer's Market programs) for increasing the availability of fruits and vegetables; improving the quality of all foods and beverages sold in schools; increasing incentives for the planning and development of healthier menus in communities; developing statewide media campaigns promoting the need for environments t</p> <p>Coordinating the efforts of all members of a community (organizations, community leaders, and citizens) to bring about change. Developing and enforcing local policies that support beneficial health behaviors.</p> <p>Examples: Collaboration among community leaders to influence social norms and policies about nutrition; forming a community coalition to assess availability of high quality, nutritious foods in neighborhoods and local food establishments; local physical activity and nutrition coalitions develop educational presentations for other groups; developing a media advocacy strategy promoting the need for environments that support healthy eating; working with local community groups to establish</p> <p>Changing the policies, practices, and physical environment of an organization (e.g., a workplace, health care setting, a school/child care, a faith organization, or another type of community organization) to support behavior change.</p> <p>Examples: Setting policy about healthy foods to be included in all menus planned for events; sponsoring school, faith organization, and worksite nutrition events, including healthy eating messages in newsletters and websites; adoption of worksite policies that provide time off or flex time during work hours for physical activity; establishing a policy allowing community members access to indoor and outdoor school facilities before and after regular school hours.</p>
<p>Individual Interpersonal Strategies</p>	<p>Interpersonal</p>  <p>Individual</p> 	<p>Recognizing that groups provide social identity and support; interpersonal interventions target groups, such as family members or peers.</p> <p>Examples: Written information given to parents; training lay health advisors; developing buddy systems and support groups like weight management clubs.</p> <p>Motivating change in individual behavior by increasing knowledge, or influencing attitudes or challenging beliefs.</p> <p>Examples: Offering cooking classes; developing booths and displays for county fairs and community events; offering one-on-one counseling; targeting behavior change through media campaigns (posters, billboards, newspaper stories, and radio/television/newspaper advertisements.)</p>



The Development of Healthy People 2010 Goals and Objectives

Healthy People 2010 represents the ideas and expertise of a diverse range of individuals and organizations concerned about the Nation's health. The Healthy People Consortium—an alliance of more than 350 national organizations and 250 State public health, mental health, substance abuse, and environmental agencies—conducted three national meetings on the development of Healthy People 2010. In addition, many individuals and organizations gave testimony about health priorities at five Healthy People 2010 regional meetings held in late 1998.

On two occasions—in 1997 and in 1998—the American public was given the opportunity to share its thoughts and ideas. More than 11,000 comments on draft materials were received by mail or via the Internet from individuals in every State, the District of Columbia, and Puerto Rico.

The final Healthy People 2010 objectives were developed by teams of experts from a variety of Federal agencies under the direction of Health and Human Services Secretary Donna Shalala, Assistant Secretary for Health and Surgeon General David Satcher, and former Assistant Secretaries for Health. The process was coordinated by the Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services.

Healthy People 2010 Goals

Goal 1: Increase Quality and Years of Healthy Life

The first goal of Healthy People 2010 is to help individuals of all ages increase life expectancy and improve their quality of life.

Goal 2: Eliminate Health Disparities

The second goal of Healthy People 2010 is to eliminate health disparities among segments of the population, including differences that occur by gender, race or ethnicity, education or income, disability, geographic location, or sexual orientation. This section highlights ways in which health disparities can occur among various demographic groups in the United States.

The Nation's progress in achieving the two goals of Healthy People 2010 will be monitored through 467 objectives in 28 focus areas. Many objectives focus on interventions designed to reduce or eliminate illness, disability, and premature death among individuals and communities. Others focus on broader issues, such as improving access to quality health care, strengthening public health services, and improving the availability and dissemination of health-related information. Each objective has a target for specific improvements to be achieved by the year 2010.

How Healthy People 2010 Will Improve the Nation's Health

One of the most compelling and encouraging lessons learned from the Healthy People 2000 initiative is that we, as a Nation, can make dramatic progress in improving the Nation's



health in a relatively short period of time. For example, during the past decade, we achieved significant reductions in infant mortality. Childhood vaccinations are at the highest levels ever recorded in the United States. Fewer teenagers are becoming parents. Overall, alcohol, tobacco, and illicit drug use is leveling off. Death rates for coronary heart disease and stroke have declined. Significant advances have been made in the diagnosis and treatment of cancer and in reducing unintentional injuries.

But we still have a long way to go. Diabetes and other chronic conditions continue to present a serious obstacle to public health. Violence and abusive behavior continue to ravage homes and communities across the country. Mental disorders continue to go undiagnosed and untreated. Obesity in adults has increased 50 percent over the past two decades. Nearly 40 percent of adults engage in no leisure time physical activity. Smoking among adolescents has increased in the past decade. And HIV/AIDS remains a serious health problem, now disproportionately affecting women and communities of color.

Healthy People 2010 will be the guiding instrument for addressing these and emerging health issues, reversing unfavorable trends, and expanding past achievements in health.

Community partnerships, particularly when they reach out to nontraditional partners, can be among the most effective tools for improving health in communities.

For the past two decades, Healthy People has been used as a strategic management tool for the Federal Government, States, communities, and many other public- and private sector partners. Virtually all States, the District of Columbia, and Guam have developed their own Healthy People plans modeled after the national plan. Most States have tailored the national objectives to their specific needs.

Businesses; local governments; and civic, professional, and religious organizations also have been inspired by Healthy People to print immunization reminders, set up hotlines, change cafeteria menus, begin community recycling, establish worksite fitness programs, assess school health education curriculums, sponsor health fairs, and engage in myriad other activities.

Everyone Can Help Achieve the Healthy People 2010 Objectives

Addressing the challenge of health improvement is a shared responsibility that requires the active participation and leadership of the Federal Government, States, local governments, policymakers, health care providers, professionals, business executives, educators, community leaders, and the American public itself. Although administrative responsibility for the Healthy People 2010 initiative rests in the U.S. Department of Health and Human Services, representatives of all these diverse groups shared their experience, expertise, and ideas in developing the Healthy People 2010 goals and objectives.

Healthy People 2010, however, is just the beginning. The biggest challenges still stand before us, and we all have a role in building a healthier Nation.

Regardless of your age, gender, education level, income, race, ethnicity, cultural customs, language, religious beliefs, disability, sexual orientation, geographic location, or occupation, Healthy People 2010 is designed to be a valuable resource in determining how you can participate most effectively in improving the Nation's health. Perhaps you will recognize the



need to be a more active participant in decisions affecting your own health or the health of your children or loved ones. Perhaps you will assume a leadership role in promoting healthier behaviors in your neighborhood or community. Or perhaps you will use your influence and social stature to advocate for and implement policies and programs that can improve dramatically the health of dozens, hundreds, thousands, or even millions of people.

A Systematic Approach to Health Improvement

Healthy People 2010 is about improving health—the health of each individual, the health of communities, and the health of the Nation. However, the Healthy People 2010 goals and objectives cannot by themselves improve the health status of the Nation. Instead, they need to be recognized as part of a larger, systematic approach to health improvement.

This systematic approach to health improvement is composed of four key elements:

- Goals
- Objectives
- Determinants of health
- Health status

Leading Health Indicators

The Leading Health Indicators reflect the major public health concerns in the United States and were chosen based on their ability to motivate action, the availability of data to measure their progress, and their relevance as broad public health issues.

The Leading Health Indicators illuminate individual behaviors, physical and social environmental factors, and important health system issues that greatly affect the health of individuals and communities. Underlying each of these indicators is the significant influence of income and education.

The process of selecting the Leading Health Indicators mirrored the collaborative and extensive efforts undertaken to develop Healthy People 2010. The process was led by an interagency work group within the U.S. Department of Health and Human Services. Individuals and organizations provided comments at national and regional meetings or via mail and the Internet. A report by the Institute of Medicine, National Academy of Sciences, provided several scientific models on which to support a set of indicators. Focus groups were used to ensure that the indicators are meaningful and motivating to the public.

For each of the Leading Health Indicators, specific objectives derived from Healthy People 2010 will be used to track progress. This small set of measures will provide a snapshot of the health of the Nation. Tracking and communicating progress on the Leading Health Indicators through national- and State-level report cards will spotlight achievements and challenges in the next decade. The Leading Health Indicators serve as a link to the 467 objectives in *Healthy People 2010* and can become the basic building blocks for community health initiatives.



The Leading Health Indicators are intended to help everyone more easily understand the importance of health promotion and disease prevention and to encourage wide participation in improving health in the next decade. Developing strategies and action plans to address one or more of these indicators can have a profound effect on increasing the quality of life and the years of healthy life and on eliminating health disparities—creating *healthy people in healthy communities*.

Health Impact of Overweight and Obesity

Overweight and obesity substantially raise the risk of illness from high blood pressure, high cholesterol, type 2 diabetes, heart disease and stroke, gallbladder disease, arthritis, sleep disturbances and problems breathing, and certain types of cancers. Obese individuals also may suffer from social stigmatization, discrimination, and lowered self-esteem.

Populations With High Rates of Overweight and Obesity

More than half of adults in the United States are estimated to be overweight or obese. The proportion of adolescents from poor households who are overweight or obese is twice that of adolescents from middle- and high-income households. Obesity is especially prevalent among women with lower incomes and is more common among African American and Mexican American women than among white women. Among African Americans, the proportion of women who are obese is 80 percent higher than the proportion of men who are obese. This gender difference also is seen among Mexican American women and men, but the percentage of white, non-Hispanic women and men who are obese is about the same.

Reducing Overweight and Obesity

Obesity is a result of a complex variety of social, behavioral, cultural, environmental, physiological, and genetic factors. Efforts to maintain a healthy weight should start early in childhood and continue throughout adulthood, as this is likely to be more successful than efforts to lose substantial amounts of weight and maintain weight loss once obesity is established.

A healthy diet and regular physical activity are both important for maintaining a healthy weight. Over time, even a small decrease in calories eaten and a small increase in physical activity can help prevent weight gain or facilitate weight loss. It is recommended that obese individuals who are trying to lose substantial amounts of weight seek the guidance of a health care provider.

Dietary and Physical Activity Recommendations

The *Dietary Guidelines for Americans* recommend that to build a healthy base, persons aged 2 years and older choose a healthful assortment of foods that includes vegetables; fruits; grains (especially whole grains); fat-free or low-fat milk products; and fish, lean meat, poultry, or beans. The guidelines further emphasize the importance of choosing foods that are low in saturated fat and added sugars most of the time and, whatever the



food, eating a sensible portion size. It is recognized, however, that this guidance may be particularly challenging when eating out because the consumer may be offered large portion sizes with unknown amounts of saturated fat and added sugars.

The *Dietary Guidelines for Americans* recommend that all adults be more active throughout the day and get at least 30 minutes of moderate physical activity most, or preferably all, days of the week. Adults who are trying to maintain healthy weight after weight loss are advised to get even more physical activity. The guidelines also recommend that children get at least 60 minutes of physical activity daily and limit inactive forms of play such as television watching and computer games.

Regular physical activity is associated with lower death rates for adults of any age; even when only moderate levels of physical activity are performed. Regular physical activity decreases the risk of death from heart disease, lowers the risk of developing diabetes, and is associated with a decreased risk of colon cancer. Regular physical activity helps prevent high blood pressure and helps reduce blood pressure in persons with elevated levels.

HP 2010 Objectives used for the foundation for the Moving South Carolina Towards a Healthy Weight: Promoting Healthy Lifestyles and Healthy Communities

For planning purposes, the following objectives regarding the prevalence of overweight and obesity and related risk factors were used to build the six goals of the Moving South Carolina Towards a Healthy Weight Plan:

- **Objective 16.19.** Increase the proportion of mothers who breastfeed their babies.
- **Objective 19-1.** Increase the proportion of adults who are at a healthy weight.
- **Objective 19.2.** Reduce the proportion of adults who are obese.
- **Objective 19.3.** Reduce the proportion of children and adolescents who are overweight or obese
- **Objective 19.5.** Increase the proportion of persons aged 2 years and older who consume at least two daily servings of fruit.
- **Objective 19.6.** Increase the proportion of persons aged 2 years and older who consume at least three daily servings of vegetables, with at least one-third being dark green or orange vegetables.
- **Objective 22-1.** Reduce the proportion of adults who engage in no leisure-time physical activity.
- **Objective 22.2.** Increase the proportion of adults who engage regularly, preferably daily, in moderate physical activity for at least 30 minutes per day.
- **Objective 22-6.** Increase the proportion of adolescents who engage in moderate physical activity for at least 30 minutes on 5 or more of the previous 7 days.



Body Mass Index Table

BMI	Normal										Overweight										Obese										Extreme Obesity																							
	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54																		
Height (inches)	Body Weight (pounds)																																																					
58	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167	172	177	181	186	191	196	201	205	210	215	220	224	229	234	239	244	248	253	258																		
59	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173	178	183	188	193	198	203	208	212	217	222	227	232	237	242	247	252	257	262	267																		
60	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179	184	189	194	199	204	209	215	220	225	230	235	240	245	250	255	261	266	271	276																		
61	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185	190	195	201	206	211	217	222	227	232	238	243	248	254	259	264	269	275	280	285																		
62	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191	196	202	207	213	218	224	229	235	240	246	251	256	262	267	273	278	284	289	295																		
63	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197	203	208	214	220	225	231	237	242	248	254	259	265	270	278	282	287	293	299	304																		
64	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204	209	215	221	227	232	238	244	250	256	262	267	273	279	285	291	296	302	308	314																		
65	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324																		
66	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216	223	229	235	241	247	253	260	266	272	278	284	291	297	303	309	315	322	328	334																		
67	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223	230	236	242	249	255	261	268	274	280	287	293	299	306	312	319	325	331	338	344																		
68	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230	236	243	249	256	262	269	276	282	289	295	302	308	315	322	328	335	341	348	354																		
69	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236	243	250	257	263	270	277	284	291	297	304	311	318	324	331	338	345	351	358	365																		
70	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243	250	257	264	271	278	285	292	299	306	313	320	327	334	341	348	355	362	369	376																		
71	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250	257	265	272	279	286	293	301	308	315	322	329	336	343	351	358	365	372	379	386																		
72	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258	265	272	279	287	294	302	309	316	324	331	338	346	353	361	368	375	383	390	397																		
73	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265	272	280	288	295	302	310	318	325	333	340	348	355	363	371	378	386	393	401	408																		
74	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272	280	287	295	303	311	319	326	334	342	350	358	365	373	381	389	396	404	412	420																		
75	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279	287	295	303	311	319	327	335	343	351	359	367	375	383	391	399	407	415	423	431																		
76	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287	295	304	312	320	328	336	344	353	361	369	377	385	394	402	410	418	426	435	443																		

Source: Adapted from Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report.



Obesity Report Card

(To be added at a later date)



Inventory of Partner Activities

(To be added at a later date)

