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<http://www.move.va.gov>

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Evidence of Need for MOVE!

Introduction

The [VA National Center for Health Promotion and Disease Prevention \(NCP\)](#), [Veterans Health Administration \(VHA\) Office of Patient Care Services](#) with input from the field, developed a [Weight Management Program for Veterans \(MOVE!®\)](#). This program is based on the [NIH Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report \(1998\)](#)¹ and the United States Preventive Services Task Force (USPSTF) [Screening and Interventions for Obesity in Adults: Summary of the Evidence for the US Preventive Services Task Force](#)² and [Screening for Obesity in Adults](#).³

The following resources provide guidance to VHA clinicians for implementation/maintenance of weight management programs:

[Handbook 1101: Managing Overweight and/or Obesity for Veterans Everywhere \(MOVE!\) Program](#)⁴

[Joint Veterans Affairs \(VA\)/Department of Defense \(DoD\) Clinical Practice Guideline for Screening and Management of Overweight and Obesity \(CPG\) \(2006\)](#)⁵

The MOVE! Reference Manual addresses the full spectrum of weight management. The manual consists of topic-specific chapters, and each topic should be considered in relation to others.

General Information

In the last few decades, the prevalence of obesity and overweight has increased rapidly in the US general populations, including Veterans who receive services within the Veterans Health Administration (VHA). This trend poses major health concerns due to the association of excess body weight with multiple adverse health, social, and economic problems. To address the obesity epidemic in the Veteran population, VHA developed the evidence-based MOVE! Weight Management Program for Veterans. This chapter provides information about the epidemiology of overweight and obesity and the MOVE!® Program.¹

Etiology of Overweight/Obesity

Throughout the lifespan, genetic, environmental, and behavioral factors all contribute to an individual's tendency to gain excess weight. The rapid increase of overweight and obesity at the population level during the last several decades suggests that environmental and/or behavioral influences now play a greater role than genetics.

Because of multiple influences, prevention and treatment of obesity at the population level require a public health approach. Clinical providers, however, have an important role in obesity prevention and treatment at the level of the individual patient. The MOVE! Reference Manual discusses the basics of clinical weight management, providing clinicians with a fundamental knowledge base to guide clinical decisions and interactions with individual patients.

Environmental influences on overweight and obesity are mediated through influences on food intake and physical activity. Environments with easily-accessed, calorie-dense foods and aggressive marketing of these foods contribute to the problem. Furthermore, current work and leisure lifestyles lead people to eat many meals outside of the home, relinquishing control over their food choices and portion sizes. On the physical activity side of the equation, mechanization of everyday tasks and activities limits opportunities to be more active. With the move from a primarily agriculturally-based economy to an industrial and service industry, many people are entrenched in sedentary daily routines.

While no single factor is responsible for obesity in an individual, the current environment of easy access to calorie-dense food and lack of daily physical activity contributes to a net surplus of calories. This mismatch between energy intake (dietary calories) and energy expenditure (physical activity) accounts for much excess weight. Successful weight loss programs thus have one feature in common: they are designed to create a net energy deficit that results in weight loss.

Risks of Overweight/Obesity

Obesity has numerous adverse health effects. The following is a summary of adverse health effects taken from the NIH Guidelines for the Identification and Treatment of Overweight and Obesity in Adults: Evidence Report (henceforth referred to as the NIH Guidelines),¹ as well as a systematic review in support of the USPSTF² and the [Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity.](#)

Mortality

Definitions:¹

BMI—Body Mass Index—The BMI, which describes relative weight for height, estimates total body fat based on height and weight. The BMI should be used to assess overweight and obesity and to monitor changes in body weight. BMI is calculated as weight (kg)/height squared (m^2).

Normal Weight—BMI between 18.5 and 24.9 kg/m^2

Obesity—BMI of 30 kg/m^2 and above

Overweight—BMI of 25-29.9 kg/m^2

Body weight has a “J”-shaped relationship with mortality. Mortality is highest for persons with the lowest and highest body mass indices (BMIs) and lowest for persons in the range of BMIs between 18.5-24.9 kg/m^2 (Figure 1). (For women, the range of lowest mortality extends somewhat into the overweight category.) Small linear increases in mortality begin above a BMI of 25 kg/m^2 . Above a BMI of 30 kg/m^2 , all-cause mortality and cardiovascular mortality increase by 50 to 100 percent. Recent research suggests that abdominal obesity, as determined by waist circumference and the “waist to hip ratio,” may be more closely associated with mortality risks than BMI alone.⁶

As age increases, the relationship between BMI and mortality is not as strong and the mortality risk from excess weight lessens. Mortality risks from obesity beyond age 74 are unclear. Several reasons have been proposed to explain this phenomenon. First, older adults are more likely to have conditions that increase mortality but which also lead to weight loss (e.g., cancer, end-stage heart disease, pulmonary disease). Second, persons most sensitive to adverse effects of obesity are more likely to have died before reaching older age. Finally, BMI generally underestimates adiposity in older adults.

Figure 1-1. J-Shaped Curve Showing Relationship of Health Risks With Body Mass Index

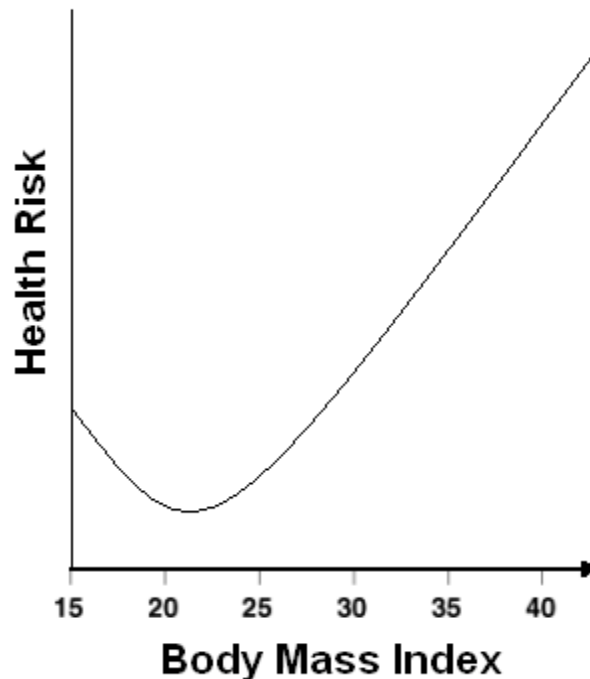


Figure 1

Morbidity

Heart and Vascular Disease

Risks for specific morbidities related to obesity vary with age, gender, and race/ethnicity. Many of the health-related risks of obesity are due to its association with coronary heart disease (CHD) and conditions which are risks for CHD (e.g., hypertension, dyslipidemia, diabetes, metabolic syndrome, hyperinsulinemia, impaired fibrinolytic activity). Abdominal obesity in particular is a risk factor for Type 2 diabetes.

Overweight and obesity have also been identified as independent risk factors for congestive heart failure (CHF), which is a frequent complication of severe obesity. This may occur for a variety of reasons: coexisting conditions which lead to CHF (hypertension, coronary heart disease (CHD), obstructive sleep apnea), excess weight leading to left ventricular hypertrophy, and alterations in cardiac structure and function. A recent study,⁷ considered somewhat controversial, suggests an “obesity paradox” with respect to mortality from CHF. The study found that in patients with heart failure, somewhat higher BMI is associated with lower mortality, compared with normal BMI. As stated above, individuals most sensitive to adverse effects of obesity may have died before reaching older age, thus confounding the apparent observation that excess weight may have a protective influence on patients with CHF. Long-term prospective studies are required to clarify this issue. Overweight and obesity are associated with

ischemic stroke, but not hemorrhagic stroke. As with CHD, risk of ischemic stroke increases as BMI increases.

Sleep Apnea

Obesity, especially abdominal obesity, is a risk factor for sleep apnea, and risk of sleep apnea increases with severity of abdominal obesity.⁸ Large neck girth and snoring together are highly predictive of sleep apnea.⁹ The major consequences of sleep apnea include hypoxemia, increased sympathetic nervous system tone, pulmonary and systemic hypertension, cardiac arrhythmias, and daytime fatigue. Recent research also links obstructive sleep apnea with an increased risk of stroke and death.¹⁰

Cancer

Overweight and obesity have been associated with colon cancer, breast cancer (predominantly in post-menopausal women), endometrial cancer (which is rare in the general female population, but three times as likely to occur among overweight and obese women - relative risk is high [~ 3], but absolute risk is low¹), and gallbladder cancer.¹¹

Osteoarthritis

Knee osteoarthritis is the most studied type of arthritis with respect to association with obesity. The risk for knee osteoarthritis associated with obesity is higher for women than men. Increases in weight are significantly associated with increased pain in weight-bearing joints.

Gallstones

The risk of gallstones increases with increasing weight and is highest when BMI is greater than 40. The absolute prevalence of gallstone disease is about two to three times higher in women compared to men across all BMI ranges.

Women's Reproductive Health

Overweight and obesity are associated with menstrual irregularity, amenorrhea, and impaired fertility. Abdominal obesity in particular is associated with polycystic ovarian syndrome, which is strongly correlated with hyperinsulinemia and insulin resistance. In obese women, pregnancy often results in excessive weight gain and retention, and obesity presents a risk for pregnancy-related complications. Both maternal and infant mortality are higher for obese mothers.

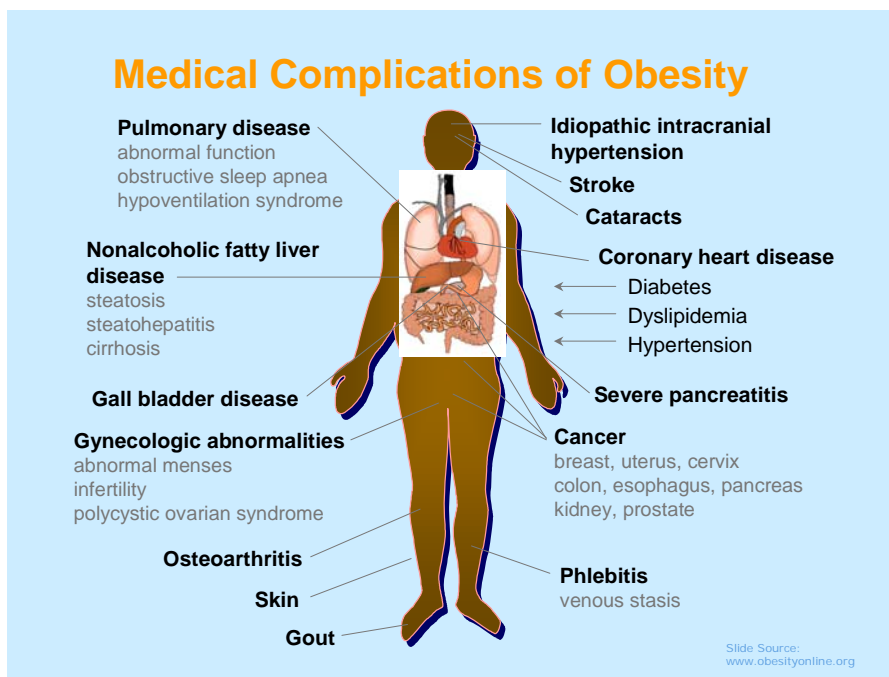
Other Health Risks

Overweight and obesity are weakly associated with several other conditions not mentioned above, but more importantly, they can contribute to the severity of almost

any medical problem. Many health problems that are independently associated with obesity are also correlated. As an example, a Veteran may gain weight slowly between ages 20 to 40. This excess weight causes the development of early diabetes and early hypertension. As weight increases further, sleep apnea emerges. Ultimately, as this person reaches true obesity, the co-morbidities independently and summarily lead to microvascular disease (e.g., diabetes is an independent risk factor for coronary artery disease and stroke, sleep apnea is also an independent risk factor for stroke, and hypertension is an independent risk for coronary disease and stroke). Obesity is the uniting factor leading to multiple co-morbidities which in and of themselves compound risks exponentially. Likewise, obesity often aggravates asthma and breathing problems and stress incontinence. Furthermore, obesity increases the risk associated with some surgical procedures.

Figure 1-2 depicts numerous medical complications associated with obesity.

Figure 1-2. Medical Complications of Obesity



Non-Health Risks of Overweight and Obesity

In addition to health effects, obesity is associated with stigmatization and discrimination, potentially in multiple settings (e.g., employment opportunities, housing, social desirability, marriage opportunities). Negative attitudes about the obese have been reported in both children and adults and are pervasive in our society. Obese individuals are more likely to report low self-esteem and poor body image, and have lower levels of health-related quality of life, compared to individuals of normal weight. Research has

found that obese individuals report higher levels of depression, emotional disturbance, psychopathology, and eating disorders, particularly in those who seek weight-loss treatment. It is important to note that psychological distress associated with obesity varies highly within different cultures. Studies have found that within African American and Hispanic communities, there is less cultural pressure to be thin so levels of satisfaction with body image among overweight and obese people are higher.

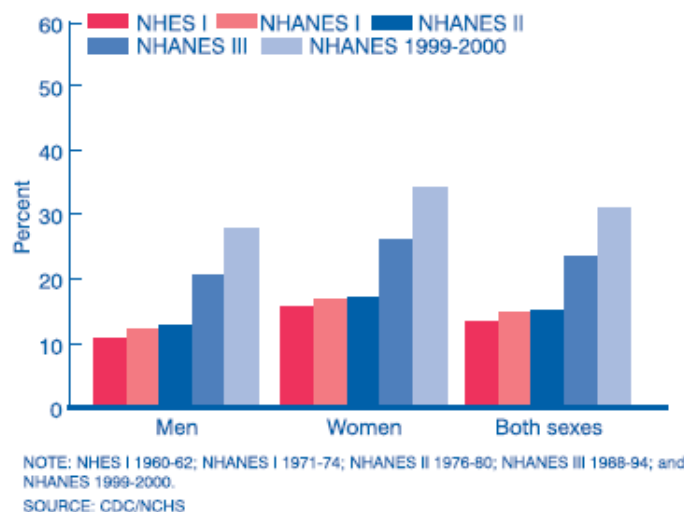
Burden of Disease in the US and in the Veterans Health Administration

Overweight/Obesity Prevalence in the US

Overweight and obesity carry a large burden of disease. In 2000, an estimated 365,000 deaths in the US were attributable to poor diet and physical inactivity,¹² accounting for 15.2 percent of all deaths during that year. Overweight and obesity represent the second leading cause of preventable death (after tobacco use), and account for the major impact of poor diet and physical inactivity on mortality. Because the effects of overweight and obesity may not be fully realized for some years, increases in overweight/obesity prevalence in the past decade may have an even greater impact on mortality and morbidity in the near future.

The prevalence of obesity in the US has steadily increased since the first national surveys tracking height and weight were performed in the 1960s (see Figure 1-3). Obesity prevalence varies by race/ethnicity and by gender. The prevalence is higher among women compared to men and is highest in non-Hispanic black women, Mexican-American women, and Native Americans.

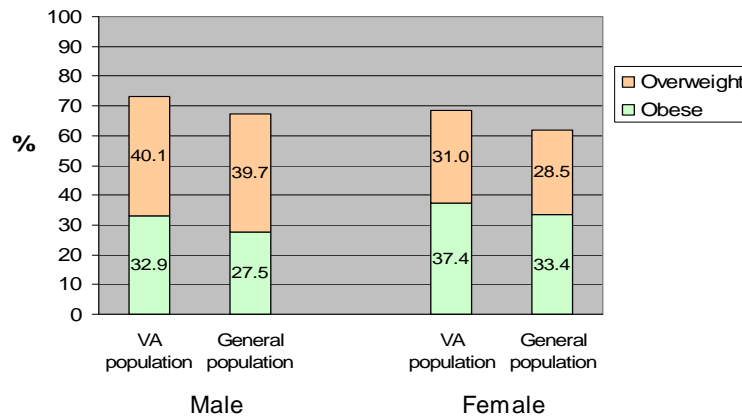
Figure 1-3. Trends in Obesity (BMI >30) Among Men and Women Ages 20-74 Years, United States, 1960–2000



Overweight/Obesity Prevalence in the Veterans Health Administration

Overweight and obesity are even more prevalent among Veterans who receive VHA health care than the general population (see Figure 1-4). In 2000, approximately 72.7 percent of Veterans using outpatient VHA facilities were overweight or obese.¹³ Overweight/obesity may soon rival tobacco use as the leading preventable cause of Veteran health problems.

**Figure 1-4. Prevalence of Overweight and Obesity
Prevalence in the VA and General US^{12,13}**



Economic Impact of Overweight and Obesity

Overweight and obesity have a substantial economic impact on the US health care system. Costs associated with obesity can be categorized as direct (diagnostic and treatment-related expenses for obesity and obesity-related conditions) or indirect (wages lost by people unable to work due to obesity-related illness or disability and life-years lost by premature obesity-related death). The most recent figures available are for 2000 and estimate direct costs to be approximately \$61 billion and indirect costs to be about \$56 billion for a total of \$117 billion.¹⁴ In 1998, the fraction of US health costs attributed to overweight and obesity was 9.1% percent of US medical expenditures.¹⁵

Most of the cost associated with obesity is due to Type 2 diabetes, coronary heart disease, and hypertension. Currently, no estimates of the cost of obesity specifically within the VHA are available. Because the prevalence of obesity is similar to that of the general population, the fraction of health costs attributed to obesity in the VHA is likely to be similar. In other words, the costs related to caring for Veterans with overweight and obesity are likely to be substantial for the VHA.

Efficacy of Weight Management Programs

Weight management programs are highly variable; they can be categorized as commercial, clinical, community-based, or self-designed. Programs can be behavior-based, medical, surgical, or some combination of these three.

Efficacy of Behavior-Based Programs

Several recent high-quality systematic reviews have examined the evidence on behavior-based weight management programs. The reader is referred to these documents for an in-depth discussion of efficacy.^{1,2} The reviews found that, in general, behavior-based programs produced modest weight loss (3-5 kg) that was sustained over 1-2 years. Efficacy varied by intensity, which the USPSTF defined as frequency of person-to-person contact; moderate intensity was defined as one contact per month and high intensity was defined as more than one contact per month. Greater weight loss was seen with higher intensity interventions using multiple strategies (nutrition education, diet and exercise counseling, and behavioral strategies). At the time of the development of the NIH and USPSTF guidelines, there was no clear evidence whether individual or group treatment had more impact. More recently, a small number of studies have shown that group treatment may produce more favorable outcomes.¹⁶ Another study assessed the efficacy of individual versus group treatment and whether the modality was one that the patient preferred, within a 2 by 2 factorial design (individual vs. group by preferred vs. non-preferred modality). The findings were clear that weight and BMI reductions were greater with group care, regardless of whether this modality was preferred by the patient.¹⁷ The NIH review did not find clear evidence that one behavioral approach is superior to others. Examples of behavioral approaches that were effective include assessment of readiness to change and motivational counseling techniques, self-monitoring, goal-setting, and use of reinforcement. The additional use of monetary incentives¹⁸ and spousal participation^{1,2,19} had little effect on weight loss outcomes.

Efficacy of Medical and Surgical Weight Loss Programs

When used in addition to behavior-based weight loss programs, medical or surgical adjuncts result in greater amounts of weight loss (although the amount varies by intervention). However, medical and surgical treatment options generally involve greater patient risk and cost.

Medically based programs can be classified as those involving prescription medications and those involving such significant modifications in diet (such as very low-calorie diets [VLCDs] or fasts) that medical supervision is required. The NIH guidelines do not recommend VLCDs because of nutrient deficiencies that occur, higher rates of weight regain, and higher rates of gallstone development. Furthermore, the evidence indicates that low-calorie diets are just as effective as VLCDs for producing weight loss at 1 year.

Pharmacotherapy with weight loss medication has been most often studied in conjunction with lifestyle modification (diet and/or exercise advice, with or without the use of behavioral strategies). Weight loss from medications averages between 2 and 10 kg; most weight loss occurs in the first 6 months. Only two drugs (orlistat and sibutramine) have been studied for a usage period of greater than 2 years. Adverse effects due to weight loss drugs are common and in some cases are serious. Because weight loss medications have the potential for serious risks, their use is recommended only for patients at higher risk due to obesity. A detailed discussion of the use of orlistat and sibutramine can be found in the Weight Loss Medications Chapter.

Surgical interventions result in the greatest amount of weight loss, typically on an order of magnitude above any other available intervention. Bariatric surgery has been shown to produce clinically significant, sustained weight loss among the extremely obese (BMI >40), resulting in decreased mortality and morbidity (specifically diabetes, sleep apnea, and dyslipidemias). Bariatric surgery has also been shown to increase health-related quality of life. Data on bariatric surgery for less obese patients (BMI 35-39.9) support similar effectiveness, but experts consider this body of evidence inconclusive because of a lack of appropriately designed studies for this target population. Because bariatric surgery carries the highest risk of adverse effects and complications compared to any other weight loss intervention, its use is generally restricted to the extremely obese, for which behavior-based programs are not likely to result in enough weight loss to be considered clinically significant. Additional information can be found in the Bariatric Surgery Chapter.

Risk Reduction and Goals of Weight Loss

Goals for weight management may vary by individual. All of the following are reasonable goals:

- Weight loss
- Long-term maintenance of weight loss
- Prevention of further weight gain

Improvements in obesity-associated conditions such as diabetes, hypertension, and dyslipidemias occur with a weight loss of approximately 10 percent from baseline. Reduction of weight to “ideal body weight” levels is not required to achieve some health improvement, but the greater the weight loss, the greater the health benefits. On the other hand, evidence suggests that maintenance of a “moderate” weight loss is better than weight regain from a “marked” weight loss. Furthermore, achieving even a modest weight loss can set the stage for further successful weight loss. Initial weight loss goals should generally be set at no more than 10 percent of baseline weight (see Table 1-1).

Table 1-1. Target Initial Weight Loss Goals, Based on a 10% Weight Loss From Baseline

Baseline Weight	10% Weight Loss Goal	Target Weight (for 10% Loss)
150	15	135
160	16	144
170	17	153
180	18	162
190	19	171
200	20	180
210	21	189
220	22	198
230	23	207
240	24	216
250	25	225
260	26	234
270	27	243
280	28	252
290	29	261
300	30	270
310	31	279
320	32	288
330	33	297
340	34	306
350	35	315

Multidisciplinary Approaches to Weight Management

There are many multidisciplinary weight management programs available, both within and outside VHA. This approach combines the expertise of multiple health care team members under the roof of one intervention. Multidisciplinary clinics can provide individual or group treatment to patients with obesity. Given that the etiology of obesity is multifactorial (genetics, decreased activity, increased caloric intake), many believe that effective treatment requires a multifaceted approach, combining several interventions at once.

MOVE! is a multifaceted approach that incorporates expertise from a range of disciplines (e.g., dietitians, nurses, physical activity specialists, physicians, and behavioral health specialists). Multidisciplinary clinics allow for collaboration among disciplines. On the basis of evidence reviews, the NIH Guidelines recommend that weight loss and weight management therapy employ the combination of low calorie

diets, increased physical activity, and behavior therapy.¹ The self-management support component in MOVE! reflects this multifactorial approach.

The multidisciplinary approach can also be advantageous for supporting pre- and post-operative care for bariatric surgery patients. The NIH guidelines recommend that bariatric surgery patients be supported by a multidisciplinary team. VISN 23 began their bariatric surgery program before MOVE! was widely available in the VISN. This team found that post-surgical weight loss was greater when Veterans participated in three months of MOVE! care before going on to surgery.

For Veterans with refractory problems (those resistant to less intensive treatment), refer to the MOVE! Intensive Chapter, which includes brief intensive interventions requiring medical supervision. The guidance on MOVE! Intensive does not prescribe a specific program of care, but identifies treatment components that should be considered. This guidance is designed to assist facilities and VISNs in developing a program of care (to meet local needs and available resources) for Veterans with refractory problems.

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1 Links

The links mentioned in this chapter are listed below:

VA National Center for Health Promotion and Disease Prevention (NCP)
<http://www.prevention.va.gov/>

Veterans Health Administration (VHA) Office of Patient Care Services
<http://www.patientcare.va.gov/index.asp>

Weight Management Program for Veterans (MOVE!®)
<http://www.move.va.gov/>

NIH Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report (1998)
http://www.nhlbi.nih.gov/guidelines/obesity/ob_gdlns.htm

Joint Veterans Affairs/Department of Defense Clinical Practice Guideline for Screening and Management of Overweight and Obesity (2006)
http://www.healthquality.va.gov/obesity/obe06_final1.pdf

Screening and Interventions for Obesity in Adults: Summary of the Evidence for the US Preventive Services Task Force (2003)
<http://www.annals.org/content/139/11/933.full.pdf+html>

Screening for Obesity in Adults: US Preventive Services Task Force Recommendations and Rationale (2003)
<http://www.annals.org/content/139/11/930.full>

Handbook 1101: Managing Overweight and/or Obesity for Veterans Everywhere (MOVE!) Program⁴
http://www.move.va.gov/download/Resources/1101.1HK3_27_06.pdf

Joint Veterans Affairs (VA)/Department of Defense (DoD) Clinical Practice Guideline for Screening and Management of Overweight and Obesity (CPG) (2006)
http://www.healthquality.va.gov/obesity/obe06_final1.pdf

Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity
<http://www.surgeongeneral.gov/topics/obesity/>

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