



# **Nurse Practitioners and the Prevention and Treatment of Adult Obesity**

**A White Paper of the American Nurse Practitioner Foundation**

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## Background

According to the latest data available from the United States Centers for Disease Control and Prevention, the proportion of American adults in the United States classified as obese (defined by a body mass index [BMI]  $\geq 30$  kg/m<sup>2</sup>) in the year 2009 – 2010 had risen to an alarming high of 35.7% (Ogden, Carroll, Kit, & Flegal, 2012). Due to this high prevalence, obesity has become a significant national health concern because of its contribution to the leading causes of preventable death and its associated health care costs. Obesity is now recognized as a chronic disease which represents a dysmetabolic, proinflammatory state associated with external and internal physiological and psychological stressors. Patients with severe obesity (BMI  $\geq 35$  kg/m<sup>2</sup>) are at high risk for significant obesity-related comorbidities as well as physical and psychological disabilities and stressors that affect length and quality of life (Dickerson, 2001). Serious obesity-related comorbidities include those contributing to atherogenic cardiovascular disease such as the metabolic

syndrome, diabetes, hypertension, dyslipidemia, depression, and sleep apnea, and those contributing to certain cancers including breast, endometrial and colon cancers (Ogden, Carroll, Kit, & Flegal, 2012).

Obesity also contributes to a significant proportion of the U.S. domestic medical costs. The medical costs associated with obesity in the United States in 1995 were estimated at \$79 billion; by 2008, obesity-associated medical costs had risen to an estimated \$147 billion, of which nearly 50% was paid by Medicaid and Medicare. During this same year, the medical costs for obese individuals were estimated to be \$1,429 higher than for individuals of normal weight (Finkelstein, Trogon, Cohen, & Dietz, 2009).

While there are no significant differences between men and women in overall prevalence of obesity at any age, women have the highest prevalence of class 2 (BMI  $\geq 35$  kg/m<sup>2</sup>) and class 3 (BMI  $\geq 40$  kg/m<sup>2</sup>) obesity (See Table 1). The age-adjusted prevalence of class 2 obesity in women is 18.3% compared with 12.5% of men. The age-adjusted

## Table 1: BMI Formula

BMI is calculated with the following formulas. BMI =  $703 \times \text{weight (lb)} / \text{height}^2 (\text{in}^2)$  or BMI =  $\text{Weight (kg)} / \text{height}^2 (\text{m}^2)$

For example, a man of 5'11", weighing 172 pounds would be calculated as follows:

$$703 \times 172 / 712 = 703 \times 172 / 5041 = 23.98 \text{ BMI}$$

### Definitions of BMI: Adults Aged $\geq 20$

BMI	Classification
18.5 to 24.9	Normal weight
25 to 29.9	Overweight
30 – 34.9	Class 1 Obesity
35 – 39.9	Class 2 Obesity
40+	Class 3 Extreme Obesity

### Definitions of BMI: Children and Adolescents

BMI	Classification
At or above the 85th percentile	Overweight
At or above the 95th percentile	Obese



prevalence of class 3 obesity (BMI  $\geq 40$  kg/m<sup>2</sup>) is 6.2% in men compared with 8.2% of women (Flegal, Carroll, Kit, Ogden, 2012). In women, research has demonstrated a 93.2-fold increased relative risk for type 2 diabetes as BMI exceeds 34 kg/m<sup>2</sup> (Chan, et al. 1994). Obesity tends to increase with age such that adults aged 60 and older are more likely than younger adults to be classified as obese. This is especially true among women, as 42.3% of women aged 60 and older are obese compared to 31.9% of women aged 20-39 (Ogden, Carroll, Kit, & Flegal, 2012).

## Socioeconomic Impact

Obesity affects individuals across the entire spectrum of socioeconomic levels. Of the estimated 72.5 million adults who are obese, 41% (30 million) have incomes at, or above, 350% of the poverty level; 39% (28 million) report incomes between 130% and 350% of the poverty level, and 20% (15 million) have incomes below 130% of the poverty level. The majority of obese adults are non-Hispanic Whites with incomes at or above 130% of the poverty level. The prevalence of obesity is evenly distributed between men and women with an estimated 21 million non-Hispanic White men and 21 million non-Hispanic White women with BMIs  $\geq 30$  (Ogden, Lamb, Carroll, & Flegal, 2010).

African Americans are disproportionately affected by obesity: Prevalence of obesity for African Americans is nearly twice that found in Hispanic and White adult populations (approximately 50% for African American adults compared with 30% in Hispanic adults and 30% in White adults). Extreme obesity (BMI  $\geq 40$ ) affects more

than 1 in 10 African Americans (13.1%) compared with an estimated 1 in 20 White (5.7%) and Hispanic (5%) Americans (Ogden, Lamb, Carroll, & Flegal, 2010).

Significant gender differences in the associations between income and obesity have been identified. Among men, obesity prevalence is generally similar at all income levels, with a tendency for BMI to be slightly higher at higher income levels. Among women, the opposite is true in that obesity prevalence increases as income level decreases. Similarly, level of education is correlated with obesity such that among both men and women, those with a college degree have a lower prevalence of obesity compared to men and women who report earning less than a college degree. Moreover, college educated women are less likely to be obese compared with women with less than a high school diploma. However, between the years 1988-1994 and the years 2005-2008, the prevalence of obesity increased in adults at all income and educational levels (Ogden, Lamb, Carroll, & Flegal, 2010).

Given the negative health outcomes and associated healthcare costs of obesity, it is important for nurse practitioners (NPs) and other healthcare professionals to initiate evidence-based strategies to prevent and treat obesity in adult and pediatric patients. To facilitate the role of the NP in obesity management and to serve as a resource for NPs, the American Nurse Practitioner Foundation convened a panel of nurse practitioners in San Francisco on January 12, 2013, to discuss prevention and treatment strategies which NPs can easily implement in their practice settings. Specific recommendations and strategies identified from this panel



## Table 2: Ten Steps to Assessing & Treating Obesity

1. Measure height and weight.
2. Measure waist circumference.
3. Assess comorbidities.
4. Based on information obtained in Steps 1-3, determine if patient should be treated.
5. Is the patient ready and motivated?
6. Which diet should be recommended?
7. Discuss a physical activity goal.
8. Review the weekly food and activity diary.
9. Give the patient copies of dietary information.
10. Record patient's measurements and goals and schedule follow up in 2 to 4 weeks.

From: *National Institutes Of Health*. Clinical guidelines for the identification, evaluation, and treatment of overweight and obesity in adult patients.

discussion, as well as best practice recommendations, are presented in this white paper.

### Initiating Treatment of Adult Obesity

Given the high prevalence of obesity in the United States, health care providers play a critical role in the management of obesity. While research has shown that patients are more likely to try to lose weight and to have greater weight loss success if they have been advised by their health care provider to lose weight, research has also shown that only 27% to 42% of obese patients seeking medical help are advised to lose weight (Galuska, Will, Serdula, & Ford, 1999). Further, when discussions related to weight management occur between patients and providers, the perspectives and expectations about weight management differs between patients and health care providers. Discussions about weight management initiated by patients are more likely to focus on obtaining advice and assistance from providers

(Flocke, Clark, Schlessman, & Pomiecko, 2005), whereas health care providers are more likely to “medicalize” obesity and discuss weight as a medical problem or as an exacerbating factor for their medical problems. These differences in perspectives and in expectations may result in lower quality, time, and content of weight management discussions. Some clinicians offer overly simplistic advice and do not provide the information and support that patients need to lose weight. In the panelists' experiences, however, few patients schedule appointments specifically to discuss weight management; multiple factors and barriers affect the quality of and length of time spent on patient-provider weight loss discussions.

Reported barriers to discussing weight management with patients among health care providers include issues associated with time constraints, insufficient knowledge of appropriate diet, nutrition and physical activity recommendations as well as the weight of the provider. Prior to initiating a discussion about weight management with



patients, the panelists recommend that NPs take stock of their personal feelings about obesity. There is research that suggests that many health care providers attribute negative stereotypes and negative attributes to obese patients. For example, many health care providers feel that obesity is the patients' fault, that obese patients lack willpower, are lazy, or are unintelligent (Ruelaz et al., 2007). Complicating this issue is the fact that many NPs themselves struggle with issues of weight or obesity, and thus may themselves be on the receiving end of negative stereotypes or may find that they project their own biases and self-image on to patients. Recent research has shown that a health care provider's excess weight affects the provider's willingness to broach the topic of weight management with patients (Bleich, Bennett, Gudzone, & Cooper, 2012).

In this study, Bleich and colleagues found that physicians who were overweight or obese were significantly less likely to discuss weight loss with obese patients than physicians with a normal BMI. In another recent study, a physician's gender was a determinant of whether patients received weight loss counseling: Female physicians were more likely to recommend weight loss to overweight/obese patients, more frequently provide weight loss counseling, and were more likely to refer patients to a weight loss program than male physicians (Dutton et al., in press). NPs who are overweight themselves might talk about their own experiences with being overweight or obese if they are comfortable. In the panelists' experiences, a few words of empathy such as "I struggle with my own weight" can be comforting and motivating to patients. Some providers weigh as much as,

or more than, the patient. In these cases, the conversation is potentially more sensitive and is less likely to occur because of the provider's discomfort about weight and a sense that he or she cannot be an adequate role model.

Either the patient or the NP may initiate a conversation about losing weight or obesity. Weight management in the primary care setting is one of the most difficult settings in which to initiate and facilitate behavioral change for a host of reasons, including the fact that the clinician and patient must be knowledgeable about nutrition and dietary options; obesity is affected by emotional, psychological, societal, and environmental factors; and obesity is a life-long, chronic condition that requires multiple support interventions and resources. (Wing et al., 2001)

Once a decision has been made to manage weight, any assessment of overweight or obesity treatment begins with three components: 1) an assessment of risk, 2) a discussion with the patient about his or her weight, and 3) recommendations for treatment goals.

To facilitate a discussion with the patient about obesity and weight management, the NP may find it helpful to obtain clinical data to assess risk, including weight and height to calculate BMI (see Table 2), waist circumference, current prescribed and over-the-counter medications, and possible comorbidities in order to begin determining optimal treatment strategies (National Institutes of Health, 1998). Medications used to treat chronic disease, including antipsychotics and antidepressants, treatments for type 2 diabetes, medications used for pain management and selected chemotherapeutic medications such as tamoxifen



and aromatase inhibitors may cause obesity (Hutfless S, et al., 2013).

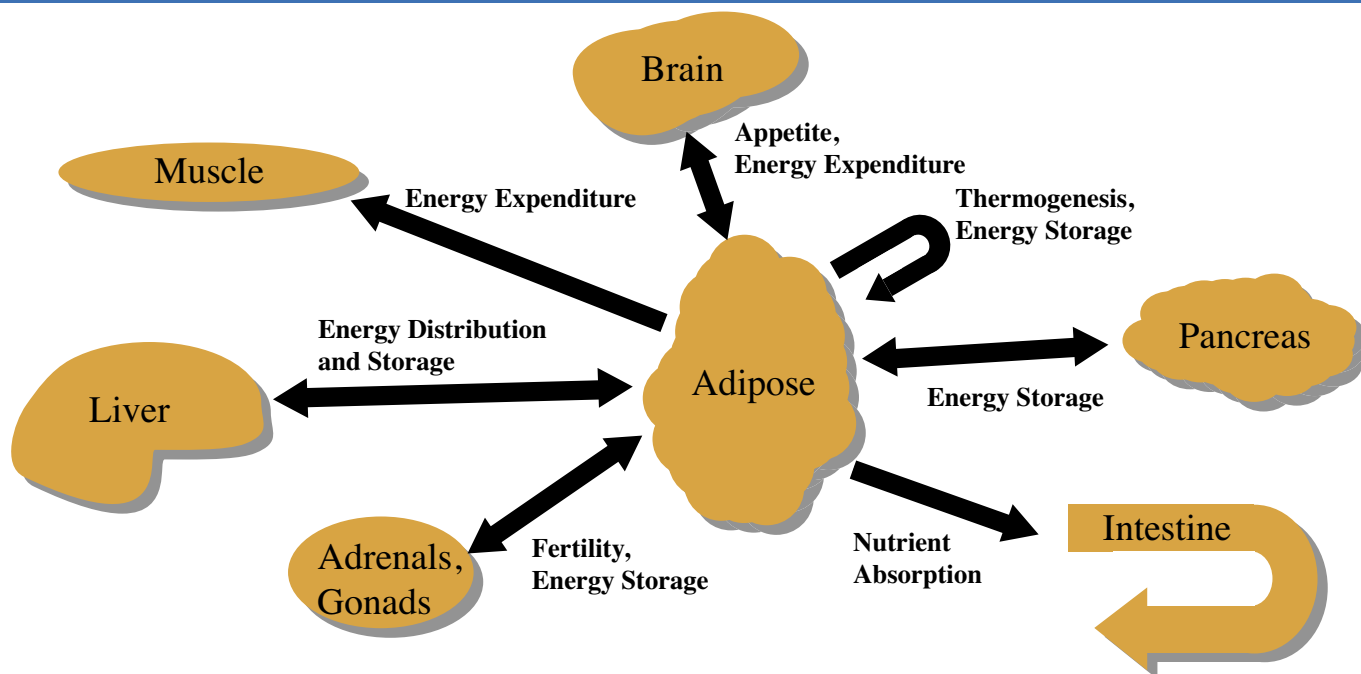
As BMI is not a direct measure of adiposity, additional diagnostic tools that may be useful in refining risk assessment and treatment options may include the use of bioelectronic impedance analysis (BIA), which assesses the amount of body fat and lean body mass which provides a more accurate assessment of obesity than the BMI alone (Lee & Gallagher, 2008). A dual-energy X-ray absorptiometry (DEXA) scan, which estimates lean body mass, fat mass, and bone mass, has the advantage of determining body composition for specific anatomic regions (e.g., the legs or arms) and distinguishes visceral fat from subcutaneous fat depositions (Lee & Gallagher, 2008). Visceral adipose tissue

is a highly metabolically active endocrine organ whose main products of secretion, adipokines, have essential roles in energy metabolism; cell viability; control of feeding; thermogenesis; neuroendocrine function; reproduction; immunity, and cardiovascular function. (See Figure 1.)

## Starting the Conversation About Weight Management

Initiating the conversation with an overweight or obese patient may be difficult and potentially fraught with emotion and the stigma associated with obesity. The panelists recommend a number of strategies to minimize the patient's potential discomfort or perceived stigma associated with conversations related to obesity and weight management.

### Figure 1: Role of Adipose Tissue in Maintenance of Body Composition





The first recommendation is to use objective data which may include a review the patient’s weight, height, and BMI in comparison to that of the normal weight ranges for the patient’s weight and height. Indicating where the patient ranks on a BMI chart may also help to depersonalize the conversation. Clinicians can approach weight much like they approach other objective data such as blood glucose or cholesterol and the patient’s targeted goals. Another recommended strategy is to avoid using language associated with negative emotions, insensitivity, or negative judgment. Research has shown that patients may perceive specific language, including using words such as “overweight”, “healthy weight” and “BMI” as non-judgmental and/or motivational while other terms such as “fat” and “obese” may be perceived as negative (Gray et al., 2011).

Additionally, clinicians might use “physical activity” instead of “exercise” and “better nutrition” instead of

“diet.” It is important, however, to be clear with the patient about the their clinical numbers, weight classification, and associated health risks. In many cases, patients may not be aware that they are overweight or obese and, thus, the NPs may be the first health care provider to inform them. Table 3 provides guidance on assessing eating disorders in overweight patients.

Next, emphasize why obesity is a health problem — including the signs and symptoms as well as health outcomes such as the minor complaints of shortness of breath when walking or difficulty bending over to the more serious comorbidities such as heart disease or diabetes. Inform patients that it is your concern that they may develop these obesity-related diseases as the rationale for discussing their weight and weight management strategies.

The second recommendation includes an assessment of the patient’s motivation and readiness for weight loss.

## Table 3: Screening for an Eating Disorder

Eating disorders, particularly binge eating disorder, may complicate the treatment of obesity. Screening for eating disorders can include asking the following questions:

- Do you eat a large amount of food in a short period of time — like eating more food than another person may eat in, say, a two-hour period of time?
- Do you ever feel like you can't stop eating even after you feel full?
- When you overeat, what do you do? (e.g., Have you ever tried to "get rid of" the extra calories that you've eaten by doing something like: Take laxatives? Take diuretics [or water pills]? Smoke cigarettes? Take street drugs like cocaine or methamphetamine? Make yourself sick [induce vomiting])?

If the patient answers "yes" to any of the above questions, consider further evaluation or a referral to a dietitian or a behavioral health specialist who specializes in eating disorders or in health psychology and working with bariatric patients.

More comprehensive screening tools include the SCOFF Questionnaire, or Eating Attitudes Test (EAT-24).

Source: *Institute for Clinical Systems Improvement (ICSI). Prevention and management of obesity (mature adolescents and adults). Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2011 Apr. 98*



Questions that may be helpful in assessing motivation and barriers may include questions related to the patient's 1) previous experiences with weight loss; 2) past reasons and goals for previous weight loss efforts; 3) perceived, or actual, social and economic support; 4) expectations from family and friends; and 5) realistic estimates of the time available for weight loss, particularly for attention to a healthier diet and increased physical activity.

## Motivating the Patient

Initially, patients might not be ready to lose weight and may require that ongoing assessment and support. The NP might need to have discussions about the importance of weight loss at more than one visit, while being sensitive to the patient's readiness and/or ability to change. A number of strategies, however, can facilitate patient motivation.

One recommended strategy is to facilitate the patient in identifying at least one compelling and personal reason to lose weight. Common examples of patient-centered reasons include: 1) decreasing the risk of a complicated pregnancy; 2) being able to keep up with or play with children or grandchildren; 3) walking without losing one's breath; or 4) preventing further chronic diseases. Some patients may have stronger motivators, including not wanting to become diabetic, or not becoming a burden to their spouses or children by becoming ill. In the panelists' experiences, many patients simply want to know about the health consequences of obesity. If the NP can provide this information in a non-sensationalized manner, it is often enough to motivate weight loss.

An assessment of the community-based or professional resources available to patients may be helpful in assisting the patient and improving weight management outcomes. Patients may benefit from recommendations of specific resources, diets, and physical goals. Evidence supports the use of daily food and activity diaries to improve weight loss outcomes which can be then be reviewed with the patient at subsequent office visits. Patients and health care providers may sometimes have different perceptions about whether weight and related behaviors such physical activity and diet were discussed at routine office visits. One study of 456 patients and 30 physicians who were surveyed after office visits found that patients and physicians were in agreement about whether or not the topics of weight, physical activity, and diet were discussed for only 61% of office visits (Greiner et al., 2008). Agreement between the provider and the patients was slightly greater for discussions about weight than for discussions about diet or physical activity. The researchers concluded that physicians [and other health care providers] could improve the care of obese patients by focusing on specific details for diet and physical activity and, finally, by clarifying that patients perceive that weight-related information has been shared during the office visit (Greiner et al., 2008).

## Adult Nonpharmacological Treatments

Nonpharmacological strategies for the treatment of adult obesity fall within three broad categories: individual-level behavior modification; community-level interventions





and resources; and local, state, and national policy-level interventions.

In the clinical setting, individual-level behavioral changes for the treatment of obesity generally focus on recommendations of reduced caloric intake and increased physical activity. Diet and physical activity goals must be customized for each patient, and the panelists are strong advocates of SMART goal setting: specific, measurable, achievable, relevant, and time-bound goals. (Locke & Latham, 1990). Specific goals that are not vague and that allow the patient to know when he or she has completed them. Advising the patient to “get in shape” is a vague behavioral goal whereas advising the patient to “walk three times a week” is more specific behavioral goal. Measurable goals facilitate specific goals by setting specific numbers to the goal so that the patient may then set a specific goal to walk briskly three times a week for 30 minutes. Achievable goals prevent patients from being discouraged by pursuing goals that are too ambitious. Depending on previous exercise experience, comorbidities and current physical fitness, a more appropriate starting goal might be a recommendation to walk at a moderate pace three times a week for 20 minutes as opposed to walking for 30 minutes at a brisk pace every day. Goals that are relevant may improve the patient’s commitment to the goal. Patients need to have a reason to set and participate in a physical activity goal three times a week other than the sole objective of weight loss. For example, improvements in psychological health, pain management, sleep quality or functional capacity may be more relevant to the patient. Finally, goals should be time

bound. In using the example of walking three times a week for 30 minutes, the goal should have a specific start and end date, perhaps with set sub-goals along the way. Sub-goals may include increasing the amount of time spent, or the intensity of the activity level, by small increments each week.

The use of SMART goals provides NPs a foundation from which to establish patient-centered strategies tailored to individual behavior modification. Examples of SMART goals for dietary-specific goals include recommendations of five servings of fruits and vegetables a day, avoiding high-calorie or sugar containing drinks, portion control, and limiting meals not prepared at home. See the resources appendix for sources of information about diet and physical activity. A patient should be evaluated by his or her primary care provider prior to starting an exercise regimen and seen by a cardiologist if comorbid conditions exist.

A similar evidence based approach to behavior change is the 5 A’s. The 5 A’s heuristic (Ask, Assess willingness to change, Advise, Assist, and Arrange follow-up) has been proposed as a general approach to brief health behavior advice. The five components include (1) Ask—the provider inquires about a patient’s current health behaviors, (2) Assess—evaluation of the patient’s readiness to change, (3) Advise—information giving, such as a risk/benefit or disease-related advice, (4) Assist—an offer to help with a health behavior change, including goal setting or a referral, and 5) Arrange follow up—discussion of a follow-up date or time frame to assess progress and reassess goals.



## Table 4: Evidence-based Nutritional Interventions: What Works

- |   |   |  |
|---|---|--|
| <ul style="list-style-type: none"><li>• Self-selected diet</li><li>• Dietitian involvement if possible</li><li>• Diet diary</li><li>• Set daily caloric restriction</li><li>• Portion control</li><li>• Breakfast</li></ul> | <ul style="list-style-type: none"><li>• Meal replacements</li><li>• Diet prescriptions</li><li>• Patient handouts</li><li>• Community and internet resources</li><li>• Sample meals</li></ul> | <ul style="list-style-type: none"><li>• Recommend self-help books</li><li>• List of allied professionals<ul style="list-style-type: none"><li>- Dietitians</li><li>- Psychologists</li><li>- Exercise trainers</li></ul></li></ul> |
|---|---|--|

Table 4 summarizes evidence-based interventions that are useful in individual-level behavioral modification.

Another evidence-based approach to behavior change is the Stages of Change (SOC) model, which is fundamental to the Transtheoretical Model (TTM) of behavior change. In the TTM SOC, an individual's readiness and reasons for change are assessed and incremental steps from unhealthy behavior to healthy ones are adopted (DiClemente, Prochaska, & Gibertini, 1985). Although TTM has been shown to be a successful approach in smoking reduction amongst adults, its effectiveness for producing behavioral change related to weight reduction in obesity has been mixed (Velicer, Prochaska, Fava, Norman, & Redding, 1998). A 2011 Cochrane review examined the effectiveness of dietary and physical activity interventions based on TTM to produce sustainable weight loss in overweight and obese adults (Tuah et al., 2011). This analysis showed that TTM SOC and a combination of physical activity, diet, and other interventions resulted in minimal weight loss, and there was no conclusive evidence for sustainable weight loss. The authors concluded that the impact of TTM SOC as theoretical framework in weight loss management may

depend on how it is used as a framework for intervention and in combination with other strategies, particularly diet and physical activities (Tuah et al., 2011).

Successful weight management requires an incremental lifestyle approach that integrates physical activity, nutrition, behavioral management, and attention to psychosocial needs. Regular physical activity — ideally 30 to 60 minutes of moderate physical activity on most days a week — is recommended. However, those higher amounts of activity (i.e., at least 275 minutes a week) might be required for weight maintenance among those who have lost a considerable amount of weight. Variety and enjoyment of physical activity are also key features of adherence. (Meriwether, Lee, Lafleur, & Wiseman, 2008)

Finally, obesity is a complex, multifactorial, chronic disease, with behavioral, biological, and environmental components. The panelists recommend treating patients as individuals and avoiding one-size-fits-all treatment strategies. NPs must balance patient centered care with the translation and implementation of best practice guidelines and research to improve obesity management outcomes for patients



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## Community-level Interventions

Community-level programs are important components of treating obesity. These types of programs transcend individual nutrition and exercise goals by supporting communities with an infrastructure in which to achieve individual and community level weight loss goals. Examples of infrastructure community-based support includes bicycle and running paths, open green spaces, recreation centers, and accessible farmers' markets.

The availability of farmers' markets, specifically, has been correlated with lower BMI as shown in a recent analysis from Practice Fusion (2012), a San Francisco-based electronic medical record company. Practice Fusion conducted a retrospective BMI analysis on 72,000 de-identified medical records from a national sample of adult patients over the age of 18 years and found that based on their analysis, Vermont was identified as the healthiest state, where high fruit consumption and abundant farmers' markets have kept the statewide BMI in the normal range. Data from states such as Oklahoma, Tennessee, and Georgia, where farmers' markets are scarce, revealed a significantly higher prevalence of obesity as measured by BMI (Practice Fusion, 2012). A study by Jilcott et al. (2011) of youth in eastern North Carolina found a similar association between lower BMI and the availability of farmers' markets (and, in this study, a positive correlation between proximity to fast food and BMI).

The NP familiar with just a few community resources such as farmers' markets, running/bicycle paths, etc. and whom

advocates their use with overweight or obese patients, may find that these resources serve excellent adjuvant support to assist patients with their weight loss efforts. Smart phone apps and online directories of parks, playgrounds, and open spaces are available, for instance through the Let's Move ([www.letsmove.gov](http://www.letsmove.gov)) website. Community-minded NPs, with the help of motivated patients, can work with local government officials and other community leaders to create safe, open green spaces and farmers' markets in communities where they are lacking.

## Public Policy

Local issues such as parks and farmers' markets can sometimes lead to larger public policy initiatives that may have far-reaching effects on overweight and obesity. For instance, New York City mayor Michael Bloomberg has gained both political friends and foes from enacting a number of public policy changes which have included a ban on smoking in restaurants and bars, a city-wide ban on hydrogenated (or trans) fats in commercially prepared food, and a proposed ban on so-called "super size" sodas. The trans fat ban, implemented in 2007-2008, is a particularly interesting case study.

New York's trans fat ban was implemented in two phases: the first required the elimination of trans fats in spreads and products used for frying unless the product contained less than 0.5 g of trans fat per serving; and the second phase required that food products contain any shortening, margarine, or partially hydrogenated vegetable oil with more



than 0.5 g of trans fat per serving were banned (Lichtenstein, 2012). A study by Angell et al. (2012), found that the ban was successful in decreasing consumption of hydrogenated fats. In their study, customers from 168 restaurant locations of 11 chains were studied by matching their purchase receipts with available nutritional information and brief surveys of adult lunch-time customers pre-ban (2007) and post-ban (2009) purchases. In total, 6969 purchases in 2007 and 7885 purchases in 2009 were evaluated. Overall, the mean proportion of trans fat per purchase decreased by 2.4 g (95% CI, -2.8 to -2.0 g;  $P < .001$ ), while saturated fat showed a slight increase of 0.55 g (CI, 0.1 to 1.0 g;  $P < .01$ ). Mean trans fat plus saturated fat content decreased by 1.9 g overall (CI, -2.5 to -1.2 g;  $P < .001$ ). Mean trans fat per 1000 kcal decreased by 2.7 g per 1000 kcal (CI, -3.1 to -2.3 g per 1000 kcal;  $P < .001$ ). Purchases with zero grams of trans fat increased from 32% to 59%.

Given the potential for positive impacts from public policy changes such as the trans fat ban in New York City, NPs as an organized group of members must decide where their professional associations stand on controversial policy proposals, such as bans on soda and changes to cafeteria food in America's public schools. With clear policy recommendations established, NPs, in collaboration with dietitians and other organizations representing health care professionals, can support and propel local and national policy changes with the potential to impact the prevalence, incidence and outcomes related to obesity. A useful resource toward this goal is the Strategies to Overcome and Prevent (STOP) Obesity Alliance Policy Recommendations, whose

work focuses on informing decision makers in the public and private sectors on possible pathways forward. The Alliance's work is grounded in a set of core principles that serve as the foundation for its research and recommendations. Additionally, the Advocacy Resource Guide *Be Our Voice: Mobilizing Healthcare Professionals in the Fight Against Childhood Obesity* (<http://www.nichq.org/advocacy/about/index.html>) is designed to assist healthcare professionals in taking a stand in their communities and workplaces to advocate for healthy eating and an active lifestyle for children and their families.

## Adult Pharmacological Treatments

Medications have been used to treat obesity since the end of the 19th century with the discovery of thyroid hormone (Putnam, 1893). Pharmacological approaches include prescription medications, as well as herbal and over-the-counter products (the latter of which do not require formal studies of safety or efficacy and do not require prescriptions in the United States). Anti-obesity medications are intended as adjunct to improved nutrition and physical activity when attempts to modify diet and physical activity have failed, have been insufficient, and/or when BMI meets the clinical criteria defined by the NIH guidelines (1998). The panel was consistent in recommending adherence to the NIH guidelines, which supports consideration of the initiation of anti-obesity medications for patients with a BMI  $\geq 30$  or for patients with a BMI  $\geq 27$  with at least one obesity-related comorbidity.



The panel members stress that the NIH guidelines for initiating anti-obesity medications for the management of obesity are general recommendations that should be tailored based on the clinician's expertise and the individual patient's experience with weight loss (National Institutes of Health, 1998). Clinicians may elect to prescribe anti-obesity medications for selected patients with slightly lower, or slightly higher, BMI criteria than the guidelines recommend depending on the clinician's expertise. Panel members unanimously agree that lifestyle modification, diet, and physical activity form the foundation of obesity management when any anti-obesity medication is initiated. Pharmacotherapy is an adjunct to lifestyle interventions and can augment a patient's ability to meet weight and related comorbidity goals. Panel members suggested that, for some patients, short-term pharmacotherapy using appetite suppressants may attenuate the effects of ghrelin and improve adherence to caloric restriction. Ghrelin is a potent orexigenic hormone secreted by the stomach in response to reduced caloric intake.

Pharmacotherapy options for the treatment of obesity have been somewhat limited both in terms of options available and clinical effectiveness. Drugs such as dexfenfluramine and sibutramine — once popular— have been withdrawn from the market over safety concerns, leaving very few, FDA approved agents indicated for the treatment of obesity.

The clinical effectiveness of anti-obesity medications has been modest for many patients. In efficacy thresholds set by the FDA for pivotal trials used to approve the drugs, efficacy has been defined as a minimum 5% weight loss

over a 1-year treatment period relative to placebo and by NIH as a target of 10% weight loss thresholds over the initial 6 months of intervention. Although a 5% to 10% loss of total body weight may not result in significant changes in appearance, a 5% to 10% weight loss has been associated with reductions in the onset of cardiovascular risk factors including hypertension and type 2 diabetes (Wing et al, 2011.). Research has shown significant reductions in clinically meaningful metabolic outcomes with as little as a 5% weight loss. While researchers have examined the long-term efficacy of anti-obesity medications over one to two years, most researchers have concluded that average weight loss historically with anti-obesity agents was modest (with average weight loss of 3 kg to 5 kg) and have reported subsequent weight gain following discontinuation of the medication (Padwal, Rucker, Li, Curioni, & Lau, 2009).

## Treatment Options

Today's most commonly prescribed FDA approved agents indicated for the treatment of obesity include phentermine (e.g., Adipex P), phendimetrazine (e.g., Bontril), and orlistat (Xenical). Phentermine and phendimetrazine are both approved for short-term (12-week) therapy. Two new agents were approved in 2012, both which have been studied over the course of a year: phentermine-topiramate ER (Qsymia) and lorcaserin (Belviq).

Lorcaserin is a selective 5HT<sub>2c</sub> agonist, which increases serotonin activity and modulates caloric balance through appetite suppression and, through release of POMC, stimulates catabolism. As a selective 5HT<sub>2c</sub> agonist,



lorcaserin should not induce cardiac valvular disease. The drug is taken twice daily and showed significant results in pivotal study of 469 men and women with a mean BMIs of approximately 36. At week 52 of this study, 47% of patients receiving the drug (versus 23% placebo) experienced a weight reduction of at least 5% of baseline, with 22% (versus 9% placebo) achieving a weight reduction of at least 10%. If by 12 weeks of therapy, the patients has not lost  $\geq 5\%$  of baseline weight, the drug should be discontinued. Reported adverse events included headaches, dizziness, fatigue, nausea, and dry mouth. Lorcaserin is classified as a pregnancy category X. Because lorcaserin increases serotonin levels it is important that prescribers use extreme caution in patients taking other serotonergic medications to avoid the potentially life threatening occurrence of serotonin syndrome. (Eisai, 2012).

Qsymia is a combination preparation which includes the appetite suppressant, phentermine and the anticonvulsant, topiramate. Although the mechanism of topiramate in weight loss is not well understood, topiramate serves to increase satiety (fullness) and to suppress appetite. In combination, the formulation was studied for long-term use (1 year) and was highly effective in reducing weight from baseline. While different dosages of Qsymia may be used, results reported at 56 weeks demonstrated 67% of patients receiving Qsymia (versus 17% placebo) experienced a weight reduction of 5% or more from baseline while 47% (versus 17% placebo) experienced a weight reduction of 10% or more from baseline. Product labeling advises that, if by 12 weeks the subject had not lost  $\geq 3\%$  of baseline

weight, the dosage should be adjusted or discontinued (Vivus, 2012). Reported adverse events included transient paraesthesia, dizziness, dysgeusia, insomnia, constipation, and dry mouth. Qsymia is classified as pregnancy category X. Qsymia is recommended as a once daily dose taken in the morning.

## Clinician-based Barriers

A number of barriers may exist for patients who are suitable candidates for pharmacotherapy. Many begin with the aforementioned issues related to the stigma surrounding overweight and obesity. For some prescribers, these negative associations may prevent them from prescribing drugs because they perceive overweight patients as nonadherent to lifestyle recommendations. Often prescribers will believe that behavioral changes targeting diet and exercise should sufficiently reduce weight without the intervention of drugs. Concerns related to the past medical legal complications arising from the use of PhenFen and more recently, Meridia, may also bias clinicians against prescribing anti-obesity medications. Clinicians may also associate the use of these drugs with clinics dedicated exclusively to weight loss; in these clinics, medications may be overprescribed without lifestyle recommendations. The costs of the medications may also be a concern, as these medications typically are not covered by insurance plans. Because of these potential barriers, clinicians may be less likely to prescribe anti-obesity medications to their patients.

Other barriers for prescribers include the fact that phendimetrazine, phentermine, lorcaserin, and Qsymia are



all controlled substances, which are more cumbersome to prescribe. Some states do not give NPs full prescribing authority and, in two states, Florida and Alabama, NPs do not have prescribing authority for any controlled substances. In these cases, a patient must see a physician to receive access to these medications which may limit patient access.

## Patient-based Barriers

Patient-based barriers include patients preference. In the panelists' experiences many patients would rather not take medications for weight management, particularly ones that they may perceive as lifestyle drugs. Other patients may be interested in pharmacotherapeutic options but do not have adequate insurance coverage to cover the costs or cannot afford the drugs or copayments. Some prescriptions go unfilled or are not refilled because of misunderstandings about how such controlled substances are filled.

## Conclusion and Next Steps

While obese patients represent 60% to 70% of the panel members' patient practices, only about 3% of these patients seek assistance. As discussed in this paper, weight loss often is perceived as a personal problem by patients, and their own biases and those of healthcare providers (as well as the stigma associated with overweight and obesity) interfere with patients seeking care. Because so few patients seek care on their own, clinicians must proactively address patients' obesity and related medical conditions. The nonpharmacological and pharmacological approaches described in this paper contribute to weight loss in many

patients. Still, for many others, they fail. The panel members identified three key areas in which changed paradigms and additional resources in the medical community could enhance healthcare providers' abilities to assist patients with weight loss.

First, obesity is a chronic disease and must be conceptualized in these terms. Currently, many healthcare professionals treat it as episodic: often waiting too long to initiate therapy (e.g., when BMI has reached  $\geq 40$ ) and ceasing therapy and general support around weight loss once a patient has lost weight and reaches certain benchmarks. Presently, many healthcare providers (much like their patients) become easily overwhelmed by weight management and delay or prematurely abandon treatment. As the research to understand and identify the etiology of obesity increase, NPs must continue to translate this research into the practice settings.

Implementing strategies that approach the patient as whole may also be important interventions to improving outcomes as an array of factors that contribute to weight gain, such as lack of sleep, have been implicated in the development of obesity. As prescribers, NPs must also consider the effects of other medications on the development of obesity including medications frequently prescribed for depression, diabetes, and other diseases that may significantly cause weight gain some patients.

Finally, more educational and clinical resources for NPs are needed. Tools that utilize technology (e.g., mobile apps) for ready review in the clinical settings are welcome, as are more teaching tools for classroom use in the training



of NPs. The panel members acknowledge that, while many resources already exist, they are often not centralized and can be time consuming to find and evaluate. The panelists hope that this white paper and its accompanying appendix streamlines the process of finding resources for busy NPs and provides them with valuable tools.

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## Appendix: Educational Resources

An important component to any NP's successful management of obesity is ANPF's **Simply Health in Practice (SHIP) Initiative**, which focuses on fitness, nutrition, wellness, and disease management/prevention from the unique perspective of American NPs. The initiative includes healthy lifestyle resources that were created and curated by ANPF. Through use of these resources, SHIP works to empower NPs to be role models for their patients and to facilitate the exchange of healthy living information. To access SHIP and its online resources, go to <http://anp-foundation.org/> and click on Simply Health in Practice on the home page. Selected additional resources are provided below. Readers are encouraged to begin with these resources and explore the Internet as well as iTunes and Google Play for smart phone apps.

### Treatment Guidelines and General Information

**National Institutes of Health. Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults.** Includes full report, practical guide, BMI calculator, resources for Palm OS;  
[http://www.nhlbi.nih.gov/guidelines/obesity/ob\\_home.htm](http://www.nhlbi.nih.gov/guidelines/obesity/ob_home.htm))

**National Institutes of Health. Evidence Tables.** Review of 236 randomized controlled trials to assess evidence of weight loss interventions.  
[http://www.nhlbi.nih.gov/guidelines/obesity/ob\\_evtbl.htm](http://www.nhlbi.nih.gov/guidelines/obesity/ob_evtbl.htm)

**Centers for Disease Control and Prevention. Adult Obesity Facts.** Factsheet.

<http://www.cdc.gov/obesity/data/adult.html>

**Mayo Clinic. Obesity: Treatments and Drugs.** Factsheet.

<http://www.mayoclinic.com/health/obesity/ds00314/dsection=treatments-and-drugs>

**Weight-control Information Network.** Provides the general public, health professionals, the media, and Congress with up-to-date, science-based information on weight control, obesity, physical activity, and related nutritional issues.

<http://win.niddk.nih.gov/>

**American Medical Association. Pediatric Obesity Guidelines.**

<http://jama.jamanetwork.com/article.aspx?articleid=182917>

### Nutrition and Fitness Planning/Tracking

**Fitday.** Online diet journal and calorie tracker. Set weight goals, log food, track activity, and review progress. The service also offers dietician services.

<http://www.fitday.com>

**Fooducate - Diet Tracker & Healthy Food Nutrition**

**Scanner.** Free iPhone, iPad, iPod app. Allows users to scan UPCs on food products and view and log nutritional information. Also tracks weight loss. Winner of U.S. Surgeon General Healthy App Challenge

<https://itunes.apple.com/us/app/fooducate-diet-tracker-healthy/id398436747?mt=8>



**Fruits & Veggies – More Matters.** Health initiative supported by the Centers for Disease Control and Prevention (CDC), the Produce for Better Health Foundation (PBH), and other health organizations. This website contains information about fruits and vegetables, with emphasis on educating the public about the value of produce.

<http://www.fruitsandveggiesmorematters.org>

**SparkPeople.** Provides nutrition, health, and fitness tools and support. The model is to stop dieting and transition to a permanent, healthy lifestyle.

<http://sparkpeople.com>

**U.S. Department of Agriculture. Supertracker.**

Personalized nutrition and fitness activity plan.

<https://www.supertracker.usda.gov/default.aspx>

**WebMd. Weight Loss & Diet Plans.**

<http://www.webmd.com/diet/default.htm>

## Public Policy

**Obesity Society.** Research, education and advocacy, to better understand, prevent, and treat obesity and improve the lives of those affected.

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

**Strategies to Overcome and Prevent (STOP) Obesity Alliance Policy Recommendations.**

[http://www.stopobesityalliance.org/wp-content/themes/stopobesityalliance/pdfs/NEW\\_STOP\\_Obesity\\_Alliance\\_Recommendations.pdf](http://www.stopobesityalliance.org/wp-content/themes/stopobesityalliance/pdfs/NEW_STOP_Obesity_Alliance_Recommendations.pdf)

## Provider Training

**Obesity Society.** ACCME-certified CME for medical providers to disseminate knowledge in the field of obesity.  
<http://www.obesity.org/education/accreditation.htm>

**Yale Rudd Center for Food Policy & Obesity. Weight Bias in Health Care.** Video and Training for Healthcare Providers.

[http://www.yaleruddcenter.org/what\\_we\\_do.aspx?id=196](http://www.yaleruddcenter.org/what_we_do.aspx?id=196)

## Childhood Obesity

*Although childhood obesity is not the focus on this paper and none of the medications for the treatment of obesity discussed in this paper have been approved for pediatric use, the following resources may be of use to clinicians working with obesity in children.*

**Action for Healthy Kids.** Nonprofit dedicated to fighting childhood obesity and undernourishment. Includes Resource clearinghouse.

<http://www.allianceforhealthykids.org>

**Alliance for Healthier Generation.** Educational material for families, healthcare professionals, and schools including the children's book *The Very Hungry Caterpillar*.

<http://www.healthiergeneration.org/default.aspx>

**Kidnetic.com** Includes sections designed by kids for kids. Includes fun, action-oriented games to get kids up and moving. Also includes information for parents.

<http://www.kidnetic.com>



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**Let's Move.** Initiative launched by First Lady Michelle Obama to help solve the challenge of childhood obesity. Includes information about healthy food choices and exercise. As well as community action.  
<http://www.letsmove.gov>

**Mayo Clinic. Childhood Obesity.** Factsheet. <http://www.mayoclinic.com/health/childhood-obesity/DS00698>

**National Association of Pediatric Nurse Practitioners (NAPNAP).** Factsheets for parents and families about healthy eating practices at different points of a child's life.  
<http://www.napnap.org/PNPResources/PatientInformation.aspx>

**Seattle Children's Hospital. Obesity Education and Resources for Healthcare Providers.**  
<http://www.seattlechildrens.org/classes-community/community-programs/obesity-program/education-for-healthcare-providers/>

**We Can!** NHLBI awareness campaign around childhood obesity.  
<http://www.nhlbi.nih.gov/health/public/heart/obesity/wecan/index.htm>



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