Volume 67, Number 6
OBSTETRICAL AND GYNECOLOGICAL SURVEY

CME REVIEW ARTICLE 17

CHIEF EDITOR'S NOTE: This article is part of a series of continuing education activities in this Journal through which a total of 36 *AMA PRA Category 1 Credits*™ can be earned in 2012. Instructions for how CME credits can be earned appear on the last page of the Table of Contents.

Obesity Epidemic: How to Make a Difference in a Busy OB/GYN Practice

Kate A. Shaw, MD,* Aaron B. Caughey, MD, PhD,† and Alison B. Edelman, MD, MPH‡

*Clinical Instructor, Department of Obstetrics and Gynecology, Stanford University School of Medicine, Stanford, CA; and †Professor and Chair, ‡Associate Professor, Department of Obstetrics and Gynecology, Oregon Health & Science University, Portland, OR

At just one-third of the American population, those with a normal body mass index are now in the minority in the United States, whereas 68% are overweight or obese. The key to reducing the prevalence of obesity and improving the health of our population is, of course, screening and prevention. Screening (as simple as a weight and height) is effective, inexpensive, and already part of the routine vital signs taken at every visit. However, providers often avoid tackling the issue of weight due to a misperception that treatment is not effective, or from fear of causing offense or compromising rapport. However, clearly more harm is done by not discussing this important health issue. Cardiovascular disease remains the number 1 killer of women, and obesity is the leading modifiable risk factor. Beyond heart disease, obesity has implications for every visit type seen in the OB/GYN office, from contraception to pregnancy to abnormal bleeding to cancer. In addition, maternal obesity adversely affects future generations, making the impact of obesity a never-ending cycle. OB/GYNs are often the only physicians that reproductive-aged women see, and, thus, OB/GYNs have the opportunity to provide a potentially life-altering intervention. Effective treatment is available and includes lifestyle changes, behavioral counseling, medication, and bariatric surgery. Time is always a limitation in a busy practice but becoming more comfortable with how to approach patients, the language to use and tailoring counseling can save time increase impact.

Target Audience: Obstetricians And Gynecologists

Learning Objectives: After participating in this activity, physicians should be better able to analyze the obesity epidemic and its implications for our patients and the health care system. Evaluate and use the tools for measuring obesity and incorporate obesity screening and education in a busy practice. Formulate effective therapies and determine when to refer patients for psychological or nutrition counseling, addition of weight loss medication or bariatric surgery.

After completing this CME activity, physicians should appreciate the obesity epidemic's impact on individuals and the health care system, and be better able to incorporate tools to diagnose obesity, stratify overall health risk by measuring waist circumference, provide basic obesity education, communicate treatment options, and appropriately refer patients for psychological and nutrition counseling, medication management or bariatric surgery for obesity treatment.

The authors, faculty and staff in a position to control the content of this CME activity and their spouses/life partners (if any) have disclosed that they have no financial relationships with, or financial interest in, any commercial organizations pertaining to this educational activity.

Correspondence requests to: Kate A. Shaw, MD, 300 Pasteur Dr HH333, Stanford, CA 94305. E-mail: kateshaw@stanford.edu.

Obesity Epidemic

Obesity is an ever-increasing epidemic. According to the Centers for Disease Control and Prevention, in

1991, the prevalence of obesity (defined as body mass index [BMI] >30 kg/m^2) in the United States was 12%. By 2010, >33% of adults were obese with an additional 35% in the overweight category (BMI >25 kg/m^2).[1] This epidemic affects not only adults - 1 in 6 children and adolescents are obese, as well.[1]

There are many known health risks associated with obesity and increased adiposity. These include hypertension, diabetes, coronary artery disease, arthritis, cancer (breast, colon), sleep apnea, stroke, and dyslipidemia.[2] Providers in women's health also see an increased risk of menstrual irregularities, infertility, endometrial and breast cancer and an increase in surgical and perinatal risks.[3] Adipose tissue is well recognized not only as a storage system but also increasingly as an endocrine organ that produces cytokines and other inflammatory mediators and metabolic markers.[4] These adipokines affect the risk for certain diseases and contribute to the pathophysiology of the overall health risks associated with obesity.[4]

The obesity epidemic has huge economic implications for the health care system because of the increased costs associated with obesity, its associated diseases, and their ensuing complications. In 1995, the direct medical expenditures attributable to adult obesity were $51 billion, whereas the total costs including missed days of work, increased physician visits, restricted days, etc. were estimated at >$99 billion.[5] By 2008, annual obesity-related health spending had tripled to $147 billion,[6] and spending is projected to further rise to $344 billion per year by 2018.[7]

Although obesity is often blamed on individual lifestyle choices, such "choices" are made in response to the environment with which individuals interact. Furthermore, as we are learning, the metabolic derangements that accompany obesity often start in utero with fetal programming.[8] Soon after birth, we are flooded with images, commercials, and products targeted at children to influence their dietary habits. It was reported in the best-selling book "Fast Food Nation" that Ronald MacDonald is more recognizable to children than the President.[9] We develop eating habits and brand loyalty very early in life. As adults, we often turn to fast and cheap food to feed our families and ourselves. Poverty also entails a risk for obesity.[10] In many low-income neighborhoods, there are no full service grocery stores, but often multiple fast food restaurants where one can get half the daily caloric requirement, composed of processed high fat food, for less than $5.

As obesity increases, the societal perception of what is a "normal" weight also changes. In a survey on self-perceived weight performed in 1999 and again in 2007, a decrease in the number of respondents that self-identified as overweight or obese was seen over time. Despite the societal pressures and anti-obesity health campaigns, overweight individuals surveyed only identified their weight as being a problem 75% of the time.[11] Furthermore, such self-perception may vary by race/ethnicity. In a study of overweight or obese children, African Americans were less likely to perceive overweight or obesity as such.[12] Clearly, obesity is not as simple as eating too much or choosing the wrong food. It is a complex disease that includes mental health issues such as depression and addiction. Because of these complexities, obesity should be treated not as a personal failing of will power, but as a chronic disease that is prone to relapse and requires multiple visits for treatment.

The severity of the epidemic is clear. But what can the individual provider do? Simple screening is already performed at most visits, and little or no additional evaluation is needed at what are already often too short visits. Body weight is measured at nearly every visit, and height may be similarly documented or one can easily ask the patient; together these are used to calculate the BMI (mentioned later in the text). Unfortunately, although this information is typically reviewed in conjunction with other vital signs, providers frequently avoid addressing an abnormal value for fear of causing emotional harm, making the patient angry, or stigmatizing the patient with a diagnosis of obesity.[13] Obese individuals, particularly women, face prejudice and discrimination in the form of health care, employment, and educational inequities in addition to general negative stereotypes that lead to unfair treatment.[14] It is important as health care providers that we distinguish achieving a healthy weight to decrease morbidity and mortality from the societal pressures of Hollywood or advertising that suggest beauty is defined by being a size 0.

Understanding BMI and Defining Obesity as It Relates to Health Risks

Among the various definitions of obesity, the most common and easiest to calculate clinically is the BMI (weight in kg/height in m^2). The National Institute of Health uses a BMI cut off of greater than 30 kg/m^2 to define obesity and a BMI greater than 25 kg/m^2 and <30 kg/m^2 as being overweight Figure 1.[15] Alternatively, the World Health Organization (WHO) uses

Obesity Defined		
Classification	BMI (kg/m²)	For 5'4" woman
Underweight	<18.5	<108 lbs
Normal Weight	18.5-24.9	108-144 lbs
Overweight	25.0-29.9	145-173 lbs
Class I Obesity	30-34.9	174-203 lbs
Class II Obesity	35-39.9	204-232 lbs
Class III Obesity (Morbid)	40-49.9	233-290 lbs
Class IV Obesity (Super)	>50	> 291 lbs
http://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/english_bmi_calculator/bmi_calculator.html WHO 1999, CDC 2010		

Fig. 1. Obesity definitions.

percent body fat and defines obesity as greater than 35% in women.[16] To help identify obese patients and assess their overall health risk, the American College of Obstetrics and Gynecology (ACOG) recommends calculating the BMI at every visit.[10]

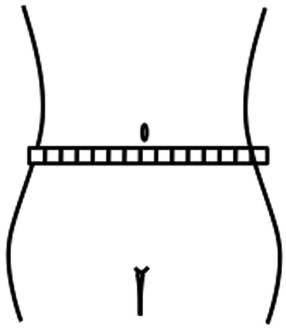
Use of the BMI has been criticized for overdiagnosing obesity, as it does not distinguish obese individuals from those with increased muscle mass.[1] In a study by Rahman and Berenson, 555 healthy reproductive-aged women had their body fat measured by dual-energy x-ray absorptiometry and compared with BMI cut offs for obesity.[17] The sensitivity of a BMI >30 kg/m^2 for identifying individuals with body fat greater than 35% was calculated to be only 57.7%, with a specificity of 98.5%. Based on this information, a BMI cut off of >30 kg/m^2 underestimates obesity as defined by the WHO criteria of body fat greater than 35%, thus we can be confident that if someone has a BMI >30 kg/m^2, her body fat is almost certainly >35%. It is important to note that the sensitivity of a BMI cut off >30 kg/m^2 varies by race/ethnicity, and there may be a role for varying cut offs. For example, a WHO expert consultation reviewed the BMI cut offs for Asians and recommended BMI values of 23 and 25 as the cutoff points for overweight and obesity, respectively, as there is an increased risk of obesity-related complications at a lower BMI.[18] Asians have also demonstrated higher rates of gestational diabetes at lower BMI values than other racial/ethnic groups.[19]

In addition to BMI, central or abdominal obesity is a well-established marker for cardiovascular disease (CVD) and death.[2] This is thought to be due to the difference in metabolic activity of visceral adipose as compared with peripheral or subcutaneous adipose.[2] Waist circumference (WC), measured at the top of the iliac crest after a normal expiration (Figure 2) and, is helpful in stratifying overall health risk by considering the amount of abdominal obesity.[20] Waist-to-Hip ratio (WHR) measures the smallest part of the waist and largest of the hip, and it has been suggested to be a superior predictor of CVD risk because it includes a measurement of hip circumference.[21] WHR is inversely associated with dyslipidemia, glucose intolerance, diabetes, hypertension, CVD, and death. For every 0.1 increase in WHR, there is a 5% increase in the risk of a cardiovascular event.[21]

WHR has been shown to be more specific,[21] but WC alone is associated with increased cardiovascular risk as well. In women, cardiovascular risk increases at a WC >35 inches and for every half-inch above that there is a 2% increase in risk of a CVD event overall[21]; with a WC >43 cm, the risk is 2 fold higher for all-cause mortality.[2] Adding a WC measurement alone in the overweight patient (BMI >25) increases sensitivity of BMI and provides more information on cardiovascular risk, which is important for counseling and preventative health care.[20] This can be easily done with the measuring tapes stocked in most OB/GYN offices for measuring fundal height in pregnancy.

Once the Diagnosis Is Made

When obesity is diagnosed, patients should be screened for diabetes and dyslipidemia. Although ACOG does not recommend any single laboratory



• Waist circumference is measured at the end of a normal expiration of breath by placing a measuring tape around the abdomen at the level of the iliac crest.
• Should be measured if BMI >25 kg/m^2.
• >35 inches associated with increased cardiovascular risk.

ACOG Committee Opinion 319

Fig. 2. Waist circumference measurement.

test for obese patients, they do state that screening for dyslipidemia and diabetes should be based on overall health risk.[20] The US Preventive Health Task Force guidelines recommend lipid screening every 5 years after age 45 years in women (but as early as age 20 if at increased risk for CVD) and screening for Type 2 Diabetes in all patients with hypertension but does not specifically make a recommendation for screening based on obesity.[22] The American Diabetes Association recommends screening for diabetes at least every 3 years in patients with a BMI >25, which would mean screening a much larger number of women.[23]

BMI is a quick and easy screen for obesity, and adding a WC for women who fall in the overweight range to further delineate additional CVD risk should also be considered. Once the diagnosis is present, a lipid panel and diabetes screen should be recommended and performed, if not done recently. The lipid panel should include a fasting total cholesterol and high-density lipoprotein cholesterol.[22] The diabetes screen should be a hemoglobin A1c or an oral glucose tolerance test with a fasting blood glucose followed by a 75 g load and a 2-hour glucose.[23] Before medications are considered for treatment of dyslipidemia and diabetes in a woman of reproductive age, her plans for pregnancy should be considered as many of the medications used have potential teratogenicity.

Although such screening is relatively simple, it is rarely performed. In a survey of 1806 OB/GYNs, with a 50% response rate, the 3 top reasons cited for not addressing obesity were time constraints, lack of reimbursement, and perception that treatment is not effective.[3] Another barrier identified is a lack of referral resources for overweight and obese patients. State Medicaid often does not cover nutrition counseling outside pregnancy even in morbidly obese patients.

Talking to patients about their weight can be difficult and uncomfortable for providers.[24] Although many clinicians are hesitant to offend patients by introducing the topic of weight, not diagnosing and discussing the impact of obesity is a disservice and may give patients the perception that it is not important because it was not addressed. Physician interventions for smoking cessation have strong parallels to obesity interventions, as both require lifestyle changes that can be difficult. As with smoking, the patient's state of mind and motivation must be considered when discussing treatment. The ACOG committee opinion on obesity offers recommendations regarding counseling based on the patient's contemplative stage, which can be a useful approach to provide tailored counseling.[20]

A cross-sectional study by Dutton et al surveyed patients seeking weight loss on how acceptable certain phrases were and surveyed physicians on the terminology they were most likely to use (Figure 3) and.[25] The least popular was "excess fat" while "weight" was ranked most preferred. Other terms that were not popular among patients were "obesity," "overweight," "large size," "heaviness," and "fatness," many of which fortunately were not used by providers. Other terms deemed acceptable were "BMI," "unhealthy weight," "weight problem," and "excess weight." When considering which terms to use with patients, it is important to not only consider which terms are acceptable but which terms will motivate patients to make the difficult lifestyle changes necessary to lose weight. There is emerging evidence that those terms that people find least acceptable may be the most motivational in making change.[26] We must consider the individual and her level of motivation to lose weight when considering the terms that we use to relay this important diagnosis. A survey of both men and women in the United Kingdom by Gray et al revealed that "overweight" was both least offensive and least motivating toward change for patients, whereas "obese" was felt to be the most offensive and at risk of being counterproductive. The survey also found that when terms labeled offensive—"fat" or "large"—came from a health professional, they were viewed as less offensive and more motivational than when used in a nonmedical setting. The terms and discussions that were most motivating for patients to lose weight were those that related to health, "unhealthy weight" or "unhealthy BMI."[26] Overall, the majority of time

Popular Terms for Discussing Obesity	Unpopular Terms for Discussing Obesity
Weight *	Excess Fat^
BMI	Large Size
Unhealthy Weight	Fatness
Weight Problem	Heaviness
Excess Weight	Overweight
* Most preferred by patients	^ least preferred by patients
Dutton GR, et al. J of Am Board Family Medicine. 2010 Gray CM, et al. BMC Public Health 2011	

Fig. 3. Terms for discussion of obesity diagnosis with patients.

should not be spent on deliberating over which term to use but rather having a discussion that emphasizes the relationship between weight status and overall health risk.

Counseling and Educating the Patient

It is important to help patients be successful in achieving weight loss. The first step is to set a reasonable goal. With popular television programs and fad diet advertisements boasting rapid effortless weight loss, it is important to reset the expectation to a more realistic and achievable goal to help patients be successful. Gradual weight loss is healthier—no more than 1 lb/wk or a 5% weight loss over 6 months—and more likely to be sustainable.[27] A 500 kcal/d caloric deficit, an average of approximately 30% reduction in calories, results in a 1 lb/wk weight loss. In some patients, a reasonable goal may be to just stabilize and not gain weight. Whatever the goal, the patient will not be successful unless she believes that her weight can be controlled.

The mind is a powerful contributor to the dynamics of eating and weight loss. Realistic goals help to avoid a feeling of failure or loss of hope. Emotional eating and depression can also affect weight and, in addition to eating habits, should be addressed and treated. The US Preventive Services Task Force recommends intense counseling of >1 session per month for at least 3 months for all patients undergoing weight loss programs.[28] Referral to weight loss specific therapy has been shown to be an effective addition to diet.[29] These counseling programs, whether individual or group, focus on strategies to identify negative eating habits and reinforce positive ones. One randomized controlled trial by Appel et al compared 2 behavioral interventions—in person contact (face-to-face group or individual counseling and internet) to remote support (telephone, internet, and e-mail) to no intervention. Both interventions resulted in a significantly increased weight loss during a 2-year period as compared with the control group (~5 kg compared with 0.8 kg).[30] In addition, a tailored internet-based program has been shown to be more effective than informational internet programs in increasing weight loss.[31] In patients for whom time or money limit the ability to pursue face-to-face counseling, remote resources should be considered.

Diet, specifically reduction in overall caloric intake, is a major component of all weight loss programs. Focusing solely on the goal of weight loss, the best diet is the one that someone can consistently adopt as an ongoing interaction with food. The healthiest and most sustainable option is a well-balanced low fat diet. Despite numerous fad diets, there is no clear winner when it comes to optimizing long-term weight loss. A randomized control trial that compared 4 diets—carbohydrate restricted (Atkins), macronutrient balanced (Zone), fat restricted (Ornish), and overall calorie and portion restricted (Weight Watchers)—over 2 months showed similar weight loss in all groups with more weight loss associated with higher compliance.[32] Thus, fundamentally, it seems that the diet that can be adhered to is the most likely to be successful for each individual.

Portion control may be the first change that a patient can make. Halving the portion size or using tools such as portion control plates can help patients decrease their caloric intake.[33] Although portion control is an important part of any diet, portion control via prepackaged meals does not provide the variety or the flexibility needed for long-term success. Good health depends on both macro- and micronutrients and the key is getting people to invest and take an active role in their health and controlling their weight.

In addition to counseling, support of family and friends may be helpful for success, although the evidence for this is not well established.[34] The patient attempting weight loss must relearn ingrained habits and make major lifestyle changes. In addition, learning to problem solve and make healthier choices at restaurants, learning what good choices are, and planning ahead to have healthy meals and healthy snacking all will aid in successful weight loss. Spousal and family involvement has been shown to increase the effectiveness of weight loss programs.[29,34] In 1 meta-analysis, dietary counseling was shown to produce a modest weight loss during 12 months when compared with usual care.[35] Identifying a nutritionist in your area to refer patients for dietary counseling will help patients get the dietary education and personal dietary counseling they need to help with weight loss and healthy eating. Some practices that see a large number of obese or diabetic patients, including those with gestational diabetes, may chose to incorporate a nutritionist into their practice.

Exercise is also important for weight loss and overall health. Cardiovascular training decreases cardiovascular risk in obese and diabetic women, and the decrease in risk is inversely correlated to the amount and intensity of activity.[36] Even in the absence of weight loss, there are health benefits to exercise. Exercise can include any enjoyable activity that raises the heart rate, performed in increments of at least 10 minutes, spread

Referral Criteria for Bariatric Surgery
Well Informed, motivated patient
Failed non-surgical weight loss
Acceptable surgical risk
BMI >40 kg/m^2
BMI >35 kg/m^2 plus co-morbid condition below:
Diabetes Mellitus
Obstructive Sleep Apnea
Obesity-related Cardiomyopathy
Severe Joint Disease
First described by NIH Consensus 1991

Fig. 4. Referral criteria for bariatric surgery.

throughout the week with a minimum total goal of 150 minutes per week of moderate-intensity or 75 minutes per week of vigorous-intensity exercise.[37] Patients should be encouraged to start slowly and increase over time. Walking is a great initial form of exercise and has been shown to increase weight loss when compared with no exercise. In a meta-analysis, use of a pedometer resulted in weight loss without dietary changes[38] and can be a tool to recommend to patients.

If diet, exercise, and counseling are not sufficient, there are other options. Some medications have been shown to be more effective than placebo.[29] Some, such as Orlistat, may have unacceptable side effects including diarrhea and anal leakage,[20] and patients should be counseled appropriately. OB/GYN providers should consider referral for medical therapy for patients with a BMI >30 kg/m^2 if the patient has failed diet, exercise, and behavior modifications.[39]

Surgery is an option for morbidly obese patients who have failed to respond to other management strategies and have acceptable surgical risk. Usual criteria for surgical intervention is a BMI >40 kg/m^2, but a BMI >35 kg/m^2 with certain comorbidities related to obesity (e.g., diabetes, obstructive sleep apnea) may also justify surgical therapy Figure 4 and.[40,41] To increase success with weight loss after surgery, many bariatric surgery programs require both nutrition and psychological counseling before surgery to address any underlying issues (substance abuse, depression, and binge eating). The Swedish Obese Study is an ongoing study comparing surgical and medical management of morbid obesity. This study has demonstrated bariatric surgery to be more successful than medication after 10 years. Insulin resistance improved immediately after surgery, and many patients were able to discontinue hypoglycemic medications immediately after surgery. Overall, there was weight loss of 50% to 75% in the first 1 to 2 years and a decrease in obesity-associated comorbidities. Diabetes mellitus resolved in >80% of patients, and hyperlipidemia, hypertension, and sleep apnea improved in >60%.[42] During a 15-year follow-up, they observed a significant reduction in cardiovascular events and deaths in the bariatric surgery group compared with matched controls.[43]

UNIQUE ROLE OF THE OB/GYN

From the annual exam to contraception, menstrual irregularities to cancer and prenatal care to evaluation for surgery, obesity can influence every type of patient visit and chief complaint in the OB/GYN office. In a recent survey of patients by Soliman et al, 58% of patients were not aware of obesity as a risk factor for endometrial cancer; 45% of the survey population was obese; and another 24% were overweight. Personal weight was not associated with obesity risk knowledge[44]; this highlights a deficiency in our role as patient educators.

PRENATAL PATIENT

One opportunity we have to make the greatest impact on our patient's health is during pregnancy. In a recent review article, Phelan eloquently described pregnancy as a "teachable moment"—an example of a naturally occurring life transition that can promote and motivate change.[24] It is an emotional state that prompts maternal concern for the well being of the fetus, and self-recognition as a role model for the future child. Yet, we historically have done a poor job capturing this moment, with as many as one-third of pregnant women in 1 study from 2005 reporting that they received NO weight gain advice.[45] This is surprising because, with respect to smoking, a commonly identified issue for which patients are counseled on cessation, 18% to 25% of women will cease smoking during pregnancy.[46] Furthermore, when women receive a diagnosis of gestational diabetes, many will decrease or cease overall gestational weight gain.[47] Although we may be doing a better job since publication of the IOM 2006 guidelines Figure 5 and increased awareness of obesity-associated complications with pregnancy, as clinicians, we do not consistently use this "teachable moment" to encourage healthier behaviors with respect to diet or exercise.

Recommended weight gain in pregnancy		
Starting Weight	BMI (kg/m^2)	Recommended Gain (lbs)
Underweight	<18.5	28-40
Normal Weight	18.5-24.9	25-35
Overweight	25.0-29.9	15-25
Obese	> 30	11-20
	Rasmussen KM, et al. Obstet Gynecol 2010	

Fig. 5. Recommended weight gain in pregnancy.

This dearth of weight gain and obesity counseling during pregnancy is particularly problematic. Weight gain in pregnancy and weight changes in the first-year postpartum are independently related to development of obesity at 10 to 15 years of follow-up.[24] In 1 study, 45% of normal weight women who gained excess gestational weight (>41 lbs) were overweight at 15-year follow-up. Women who had retained >10 lbs at 1 year after delivery gained 20 lbs over 10 years, whereas those who were back to prepregnancy weight by 6 months gained only 5 lbs over 10 years. Women who are overweight prepregnancy are also more likely to gain more than the recommended weight.[24]

Some easy things for us to do as primary providers in pregnancy is to educate our patients on what is appropriate weight gain during pregnancy, encourage staying active, and avoiding high glycemic index, sugary food and drinks, as well as fast food. The saying, "eating for two" should be abandoned, as a 10% to 15% increase in caloric intake, or 340 kcal/d in the second trimester and 452 kcal/day in the third trimester, during pregnancy is adequate for most[48]; this translates to eating for only 1.1. Providing feedback at every visit helps keep women on track. This can be facilitated with electronic medical records. For example, we developed a patient handout within our electronic medical record for initial OB visits, which facilitates provider-patient discussion of weight gain throughout pregnancy and includes their current weight and total gestational weight gain on the after visit summary.

During pregnancy, the options for intervention for existing obesity and to reduce gestational weight gain are limited to diet, exercise, and behavioral interventions, due to the teratogenicity of many medications used to treat obesity. The limited studies available have compared behavioral interventions, such as dietary counseling, with usual care. In 1 study of weekly counseling that included weight monitoring, the authors found that low-income women were less likely to gain more than the recommended weight; the same did not hold true for high-income women.[49] Dietary counseling sessions have been shown to significantly reduce gestational weight gain,[50] and all overweight and obese women should be referred for dietary counseling.

ADDITIONAL TOOLS FOR THE CLINICIAN

In addition to patient handouts, other tools can be helpful. ACOG produces a BMI wheel, similar to a pregnancy wheel, which calculates the patient's BMI using their height and weight (available at: http://www.acog.org). This can be a good visual tool to show the patient how their BMI is calculated and where they fall. Such visual aids can help patients understand how much weight they have to lose. Another option to provide this visual aid is to use online BMI calculators together with the patient in the examination room. In addition to the patient handout for weight gain in pregnancy, a patient handout with tips and goals for weight loss was also developed and made available within our clinic's electronic medical records.

SUMMARY

Obesity is a rapidly increasing epidemic, with two-thirds of adults now classified as overweight or obese. Obesity impacts every aspect of OB/GYN care and poses a large financial burden on our medical system. We, as OB/GYN and primary care providers, should feel obligated to identify patients, diagnose the disease, and refer the patient for treatment—just as we would for any other life-threatening illness. With the majority of the adult population being overweight or obese, this presents a large burden on clinics and providers. Implementing protocols, systems, and educational resources that do not demand large amounts of providers' time are essential to tackling this public health problem.

Clinical Summary Points

- Obesity is a rapidly increasing problem that costs $147 billion in current health care costs and is predicted to increase to >$300 billion by 2018.

- Obesity is one of the only modifiable risk factors for CVD—the number 1 killer of women.
- Screening is effective and easy and already performed in most health care settings.
- BMI is an effective screening tool that underestimates rather than overestimates obesity (unless your patient is an Olympic weight lifter!).
- In overweight patients (BMI >25 kg/m^2), consider adding a WC to evaluate cardiovascular risk (35 inches or greater).
- Screen for diabetes and lipid abnormalities in obese patients.
- Talk to patients using preferred terms such as "weight," "unhealthy weight," "weight problems," and "excess weight."
- Educate about lifestyle changes that you can easily discuss including portion control, exercise, and a reasonable weight goal. Refer for nutrition and psychosocial counseling for weight loss or consider referral to bariatric surgery if BMI >40 kg/m^2 or >35 kg/m^2 with comorbidities.
- Utilize patient handouts and implement quick references in electronic medical record systems.

Resources

For recommendations on counseling by contemplative stage: ACOG Committee Opinion 319. The Role of the Obstetrician–Gynecologist in the Assessment and Management of Obesity. October 2005.

Mayo Clinic Internet Weight Management: http://mayoclinic.com/health/weightloss/MY00432.

REFERENCES

1. CDC, 2010. Cited November 2011. Available at: http://www.cdc.gov/obesity/data/trends.html.
2. Jacobs EJ, Newton CC, Wang Y, et al. Waist circumference and all-cause mortality in a large US cohort. *Arch Intern Med*. 2010;170:1293–1301.
3. Power ML, Cogswell ME, Schulkin J. Obesity prevention and treatment practices of U.S. obstetrician-gynecologists. *Obstet Gynecol.* 2006;108:961–968.
4. Rasouli N, Kern PA. Adipocytokines and the metabolic complications of obesity. *J Clin Endocrinol Metab*. 2008; 93(suppl 1):S64–S73.
5. Wolf AM, Colditz GA. Current estimates of the economic cost of obesity in the United States. *Obes Res.* 1998;6:97–106.
6. Finkelstein EA, Trogdon JG, Cohen JW, Dietz W. Annual medical spending attributable to obesity: payer-and service-specific estimates. *Health Aff (Millwood)*. 2009;28:w822–w831.
7. Thorpe KE, et al. *The impact of obesity on rising medical spending*. Health Aff (Millwood), 2004. Suppl Web Exclusives: p. W4-480–W4-486.
8. Lau C, Rogers JM, Desai M, Ross MG. Fetal programming of adult disease: implications for prenatal care. *Obstet Gynecol*. 2011;117:978–985.
9. Schlosser E. *Fast Food Nation: The Dark Side of the All-American Meal*. New York: Houghton Miffin; 2001.
10. ACOG Committee Opinion No.470. Challenges for overweight and obese urban women. 2010.
11. Johnson F, Cooke L, Croker H, Wardle J. Changing perceptions of weight in Great Britain: comparison of two population surveys. *BMJ*. 2008;337:a494.
12. Vivian EM, Becker TL, Carrel AL. Weight perceptions of parents with children at risk for diabetes. *BMC Res Notes*. 2012;5:47.
13. Phelan S. Obesity in the American population: calories, cost, and culture. *Am J Obstet Gynecol.* 2010;203:522–524.
14. Puhl RM, Heuer CA. The stigma of obesity: a review and update. *Obesity (Silver Spring)*. 2009;17:941–964.
15. Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults—The Evidence Report. National Institutes of Health. *Obes Res*. 1998;(suppl 2):51S–209S.
16. Physical status: the use and interpretation of anthropometry. Report of a WHO Expert Committee. *World Health Organ Tech Rep Ser*. 1995;854:1–452.
17. Rahman M, Berenson AB. Accuracy of current body mass index obesity classification for white, black, and Hispanic reproductive-age women. *Obstet Gynecol.* 2010;115:982–988.
18. WHO Expert Consultation. Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies. *Lancet*. 2004;363:157–163.
19. Shah A, Stotland NE, Cheng YW, et al. The association between body mass index and gestational diabetes mellitus varies by race/ethnicity. *Am J Perinatol*. 2011;28:515–520.
20. ACOG Committee Opinion No. 319. The Role of the Obstetrician–Gynecologist in the Assessment and Management of Obesity. 2005.
21. Koning L, Merchant AT, Pogue J, Anand SS. Waist circumference and waist-to-hip ratio as predictors of cardiovascular events: meta-regression analysis of prospective studies. *Eur Heart J*. 2007;28:850–856.
22. Force, U.S.P.S.T. *Screening for Lipid Disorders in Adults, Topic Page, 2008.* Cited January 2012. Available at: http://www.uspreventiveservicestaskforce.org/uspstf/uspschol.htm.
23. Basevi V, Di Mario S, Morciano C, et al. American Diabetes Association. Standards of medical care in diabetes—2011. *Diabetes Care*. 2011;34(suppl 1):S11.
24. Phelan S. Pregnancy: a "teachable moment" for weight control and obesity prevention. *Am J Obstet Gynecol*. 2010;202: 135.e1–135.e8.
25. Dutton GR, Tan F, Perri MG, et al. What words should we use when discussing excess weight? *J Am Board Fam Med*. 2010; 23:606–613.
26. Gray CM, Hunt K, Lorimer K, et al. Words matter: a qualitative investigation of which weight status terms are acceptable and motivate weight loss when used by health professionals. *BMC Public Health*. 2011;11:513.
27. Bandura A, Simon KM. The role of proximal intentions in self-regulation of refractory behaviors. *Cognitive Ther Res*. 1977:177–193.
28. Screening for Obesity in Adults, 2003. Cited December 2003. Available at: http://www.uspreventiveservicestaskforce.org/uspstf/uspsobes.htm.
29. Avenell A, Broom J, Brown TJ, et al. Systematic review of the long-term effects and economic consequences of treatments for obesity and implications for health improvement. *Health Technol Assess*. 2004;8:iii–iv, 1–182.
30. Appel LJ, Clark JM, Yeh HC, et al. Comparative Effectiveness of Weight-Loss Interventions in Clinical Practice. *N Engl J Med.* 2011;365:1959–1968.
31. Rothert K, Strecher VJ, Doyle LA, et al. Web-based weight management programs in an integrated health care setting: a

randomized, controlled trial. *Obesity (Silver Spring)*. 2006;14: 266–272.
32. Dansinger ML, Gleason JA, Griffith JL, et al. Comparison of the Atkins, Ornish, Weight Watchers, and Zone diets for weight loss and heart disease risk reduction: a randomized trial. *JAMA*. 2005;293:43–53.
33. Flechtner-Mors M, Ditschuneit HH, Johnson TD, et al. Metabolic and weight loss effects of long-term dietary intervention in obese patients: four-year results. *Obes Res*. 2000;8:399–402.
34. McLean N, Griffin S, Toney K, Hardeman W. Family involvement in weight control, weight maintenance and weight-loss interventions: a systematic review of randomised trials. *Int J Obes Relat Metab Disord*. 2003;27:987–1005.
35. Dansinger ML, Tatsioni A, Wong JB, et al. Meta-analysis: the effect of dietary counseling for weight loss. *Ann Intern Med*. 2007;147:41–50.
36. Hu FB, Stampfer MJ, Solomon C, et al. Physical activity and risk for cardiovascular events in diabetic women. *Ann Intern Med*. 2001;134:96–105.
37. Services, U.S.D.o.H.a.H. *Physical Activity Guidelines for Americans, 2008.* Cited January 2012. Available at: http://www.health.gov/publications.
38. Richardson CR, Newton TL, Abraham JJ, et al. A meta-analysis of pedometer-based walking interventions and weight loss. *Ann Fam Med*. 2008;6:69–77.
39. Snow V, Barry P, Fitterman N, et al. Pharmacologic and surgical management of obesity in primary care: a clinical practice guideline from the American College of Physicians. *Ann Intern Med*. 2005;142:525–531.
40. Jones DB, Provost DA, DeMaria EJ, et al. Optimal management of the morbidly obese patient. SAGES appropriateness conference statement. *Surg Endosc*. 2004;18:1029–1037.
41. Gastrointestinal surgery for severe obesity: National Institutes of Health Consensus Development Conference Statement. *Am J Clin Nutr*. 1992;55(2 suppl):615S–619S.
42. Sjöström L, Lindroos AK, Peltonen M, et al. Lifestyle, diabetes, and cardiovascular risk factors 10 years after bariatric surgery. *N Engl J Med*. 2004;351:2683–2693.
43. Sjöström L, Peltonen M, Jacobson P, et al. Bariatric surgery and long-term cardiovascular events. *JAMA.* 2012;307:56–65.
44. Soliman PT, Bassett RL Jr, Wilson EB, et al. Limited public knowledge of obesity and endometrial cancer risk: what women know. *Obstet Gynecol*. 2008;112:835–842.
45. Stotland NE, Haas JS, Brawarsky P, et al. Body mass index, provider advice, and target gestational weight gain. *Obstet Gynecol*. 2005;105:633–638.
46. Services, U.D.o.H.a.H. *The Health Consequences of Smoking: A Report of the Surgeon General*. U.S. Department of Health and Human Services: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2004.
47. Catalano PM, Roman NM, Tyzbir ED, et al. Weight gain in women with gestational diabetes. *Obstet Gynecol.* 1993;81: 523–528.
48. Institute of Medicine. *Dietary Reference Intakes: The Essential Guide to Nutrient Requirements*. Washington, DC: National Academies Press; 2006.
49. Olson CM, Strawderman MS, Reed RG. Efficacy of an intervention to prevent excessive gestational weight gain. *Am J Obstet Gynecol.* 2004;191:530–536.
50. Wolff S, Legarth J, Vangsgaard K, et al. A randomized trial of the effects of dietary counseling on gestational weight gain and glucose metabolism in obese pregnant women. *Int J Obes (Lond)*. 2008;32:495–501.