When obesity is treated effectively, patients can expect significant improvement in common conditions such as hypertension, type 2 diabetes, and cardio and pulmonary disorders. Unfortunately, for many patients, interventions that rely on medically supervised diet, exercise, and behavior modification produce only modest and often transient results. For patients who meet the criteria, however, and who receive appropriate long-term, multidisciplinary support, bariatric surgery can be an effective therapeutic alternative for weight loss, long-term risk reduction, and improved quality of life.

**Efficacy of Bariatric Surgery**

Two common bariatric procedures in the U.S. are laparoscopic adjustable gastric banding (LAGB) and laparoscopic Roux-en-Y gastric bypass (LRYGB). LAGB restricts stomach capacity by placing an adjustable band around the most proximal region of the stomach. LRYGB is restrictive, too, and divides the stomach into a small proximal pouch and a separate defunctionalized remnant. After both procedures, patients experience feelings of early satiety as stomach capacity is approached. They may also experience nausea, discomfort, and vomiting when capacity is exceeded. Gastric bypass is also malabsorptive. It facilitates weight loss by diverting food from much of the small intestine so that fewer nutrients are absorbed. While studies demonstrate the effectiveness of both procedures, the combination of restriction and malabsorption generally results in greater weight loss than restriction alone.

The Swedish Obese Subjects trial, a large, well-controlled prospective study, demonstrated the long-term efficacy of bariatric surgery. Among patients followed for two years, the surgical group had a 23.4 percent weight loss compared to a 0.1 percent gain in the control group. At 10 years, the surgical group had a 16.1 percent loss compared to 1.6 percent gain for the control group.

**Selecting for Success**

Successful bariatric surgery depends on proper patient selection. Current guidelines identify candidates for surgery as patients with a BMI of at least 40 kg/m² (or 35 kg/m² with manifest comorbidity), a history of ineffective dietary weight control, no medical or psychological contraindications, a proper understanding of the procedure and its risks, and strong motivation to comply with postsurgical regimen.
In 2005 a statement from the American Diabetes Association (ADA) and European Association for the Study of Diabetes questioned the clinical value of metabolic syndrome (MetS). At issue was whether MetS, defined as a clustering of individual risk factors for cardiovascular disease (CVD) and type 2 diabetes, was an actual syndrome that had any more predictive value than the sum of the individual risk factors. Two weeks later, the American Heart Association (AHA) and the National Heart, Lung, and Blood Institute (NHLBI) jointly affirmed the predictive value of MetS as defined by the National Cholesterol Education Program Adult Treatment Panel III (ATP-III) and offered minor revisions to the ATP-III definition. While the issues raised by the ADA statement still have not been resolved, there is a growing body of evidence that indicates the ATP-III definition of MetS is a useful tool for identifying long-term risk and guiding treatment and management decisions.

**USEFULNESS OF THE DIAGNOSIS**

ATP III defines MetS as the presence of three or more of the following five conditions:

- Central obesity as measured by waist circumference (40 inches or more for men and 35 inches or more for women)
- Hypertriglyceridemia
- Low HDL cholesterol
- Hypertension (130/85 mm Hg or higher and/or treatment for hypertension)
- Fasting glucose 110 mg/dl or higher and/or treatment for high glucose

One of the major benefits of diagnosing MetS is identifying individuals with an elevated lifetime risk for CVD. Two recent meta-analyses (one published in 2006 and the other in 2007) found that individuals who meet the criteria for MetS have increased mortality from all causes and CVD and a higher incidence of CVD and stroke. However, the lifetime risk may not be reflected in a patient’s short-term risk as defined by such tools as the Framingham Risk Score. Consequently, without a diagnosis of MetS, a health care provider may miss the opportunity to address important risk factors that may not manifest themselves clinically for a number of years. In addition, a diagnosis of MetS does indicate the need for a thorough global risk assessment for patients who may also have an elevated short-term risk.

**A TEACHABLE MOMENT**

Diagnosing MetS in a patient creates an opportunity to help a patient understand the importance of lifestyle changes and risk management. Each patient/health care provider interaction can be an occasion to discuss healthy lifestyle choices and focus on primary prevention.
Polycystic Ovarian Syndrome: Underdiagnosed, Yet Treatable

More than half the cases of polycystic ovarian syndrome (PCOS), the most common metabolic abnormality among women of childbearing age, go undiagnosed. Proper diagnosis and treatment, however, can significantly reduce metabolic and cardiovascular risk factors and potentially save a patient’s life.

**IMPACT AND DIAGNOSIS**

Primary characteristics of PCOS include hyperandrogenism, hyperinsulinemia, and anovulation. Closely associated with infertility and obesity as well as cosmetic abnormalities, PCOS can exact an emotional toll. PCOS is associated with major metabolic and CVD risk factors and early CVD as a result. Early diagnosis and treatment are important. Studies have shown that the prevalence of metabolic syndrome, with the associated risk of type 2 diabetes and CVD, among women with PCOS ranges from 34 to 75 percent.

PCOS appears to be a multigenic disorder with an increased frequency among first-degree relatives of affected women, although other causes such as hypothalamic-pituitary abnormalities and a metabolic disorder involving insulin resistance have been hypothesized. Diagnosis is based on the presence of hyperandrogenism, polycystic ovaries, and menstrual dysfunction after other potential diseases have been ruled out.

While ethnicity and environmental factors affect the manifestation of PCOS, common signs include menstrual dysfunction, infertility, hirsutism, acne, hair loss, central fat distribution, and obesity. Weight gain, often associated with increased appetite and compulsive eating, is persistent and may amount to 10 to 15 pounds per year.

**TREATMENT OF PCOS**

Because of the strong association with metabolic syndrome, there is a growing consensus that all patients with PCOS should be tested for the components of metabolic syndrome. Specific treatment options for PCOS vary with the particular manifestations and the patient’s individualized treatment goals.

For obese patients and patients with a waist size more than 35 inches, an important first step is weight reduction and exercise. A weight loss of only 7 percent accompanied by regular exercise can restore fertility and lead to improvements in insulin resistance, lipid profiles, and diabetes. The addition of insulin-sensitizing agents such as metformin (for what would be off-label use) can increase insulin sensitivity and help address many of the issues associated with insulin resistance.

Because improvements in insulin resistance and weight loss can lead to increased fertility, the use of an oral contraceptive is important for women who do not want to become pregnant. A combination oral contraceptive pill, chosen carefully to avoid the potential adverse effects of synthetic progestin, can also be beneficial in reducing the symptoms of PCOS.
Proper evaluation and preparation for surgery requires a multidisciplinary approach, including thorough medical and psychological evaluations. The initial evaluation needs to include a comprehensive nutritional and weight history, assessment of the patient’s support needs, and identification of perceived obstacles to successful weight management. Poor patient knowledge and certain psychological issues are predictors of poor outcomes, so it is essential to educate patients about the procedure and help them develop realistic expectations. Patients also need psychological counseling since certain psychiatric disorders, as well as disturbed eating habits, substance abuse, and limited social support, can lead to suboptimal outcomes. Nutritional counseling and developing an exercise program will help patients understand the importance of behavioral changes.

**RISKS AND COMPLICATIONS**
The mortality rate associated with bariatric surgery is between 0.1 and 2.0 percent, and the most common cause of death is pulmonary embolism. While approximately 93 percent of patients experience no perioperative complications, there is a risk of such complications as bleeding, wound infection, venous thromboembolism, anastomatic leaks, and small bowel obstruction. Post-operative gastrointestinal complications are common: More than 50 percent of patients experience nausea and vomiting, often from eating too much or too rapidly, but sometimes from a mechanical consequence of the surgery.

**A COMMITMENT TO POST-OPERATIVE MANAGEMENT**
Successful weight management after surgery requires a long-term commitment from both patients and health care professionals. Patients need continuing access to a multidisciplinary support system that monitors their physical and mental health and helps them follow through on exercise, adjust to necessary changes in eating patterns, and address barriers to weight management. With this support, bariatric surgery can help reduce morbidity and mortality and improve health-related quality-of-life for morbidly obese patients.