

Weight-Loss Surgery

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Abstract

As the prevalence of obesity sky rockets worldwide, the search for successful weight-management strategies follows. For select individuals, surgical intervention is the most appropriate weight-management intervention for sustained weight loss. Surgical procedures, such as the Roux-en-Y gastric bypass, sleeve gastrectomy, and laparoscopic adjustable gastric banding, bring about both dramatic weight loss and the ability to provide the patient with marked improvement in obesity-related conditions such as diabetes, arthritis, hypertension, and obstructive sleep apnea. In this article the authors will address the incidence of obesity and the criteria for weight-loss (bariatric) surgery; describe the preoperative evaluation and selection of the appropriate surgical procedure; discuss postoperative complications and required nursing care; and give readers a preview of future options for surgical weight loss.

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The increasing girth of people in the United States (US) is evident at every turn. Recall your last trip to the store, out to dinner, to the park, or at work, and ask yourself how many overweight people you observed on these occasions. While the statistics related to overweight and obese children and adults are no longer shocking, they do continue to be quite worrisome. It is unfortunate that what we truly know about obesity is sparse in comparison to the rate at which it is spreading. While energy balance is certainly an important factor in weight management, only recently have we come to appreciate that obesity is really a very complex disease that involves a wide variety of factors, including metabolic, environmental, social, behavioral, and psychological factors (Hensrud & Klein, 2006).

The association of obesity with chronic diseases, such as heart disease, hypertension, sleep apnea, degenerative joint disease, gastroesophageal reflux disease, asthma, and depression, is well documented and reinforces the benefit of achieving and maintaining a "normal" weight (Harrington. 2006; Hughes & Dennison, 2008; Sheipe, 2006). Bariatric surgery provides dramatic improvement in these chronic conditions (See Figure 1. Chronic Conditions Improved After Bariatric Surgery [pdf], which is used by permission of the Cleveland Clinic Foundation.) Traditional diet, exercise, and behavior modification programs produce short-term results, but have limited long-term (greater than 5 years) success for obese persons (Wadden, Butryn, & Byrne, 2004). Bariatric or weight-loss surgery is the appropriate option for some of these obese persons. In this article the authors will address the incidence of obesity and the criteria for weight-loss (bariatric) surgery; describe the preoperative evaluation and selection of the appropriate surgical procedure; discuss postoperative complications and required nursing care; and give readers a preview of future options for surgical weight loss.

The Incidence of Obesity

The National Health and Nutrition Examination Survey (NHANES) revealed that in 2005-2006, 33.3% of men and 35.3% of women were obese (Ogden, Carroll, McDowell, & Flegal, 2007). These numbers do not include the many persons who are merely overweight (Ogden et al.). Equally alarming is the percentage of obese children, estimated by the Centers for Disease Control and Prevention (CDC) (CDC National Center for Health Statistics, 2006) to be 17%. Obese and overweight persons are those whose weight is greater than what is deemed healthy for their given height. The Body Mass Index (BMI) uses a person's height and weight to measure the degree of obesity. A BMI calculator is available at the Department of Health and Human Services (DHHS) National Heart, Lung and Blood Institute (NHLBI) (1998) website. www.nhlbisupport.com/bmi. Table 1 lists the BMI classifications.

Table 1. BMI Classifications		
Classifications for BMI	BMI	
Underweight	$< 18.5 \text{ kg/m}^2$	
Normal weight	$18.5 - 24.9 \text{ kg/m}^2$	
Overweight	$25 - 29.9 \text{ kg/m}^2$	
Obesity (Class 1)	$30 - 34.9 \text{ kg/m}^2$	
Obesity (Class 2)	$35 - 39.9 \text{ kg/m}^2$	

Obesity (Class 3) >40 kg/m²

Surgical Criteria

The U.S. Department of Health and Human Services (DHHS) National Institutes of Health (NIH) Clinical Guidelines (1998) addressing weight-loss surgery indicate that surgery is an appropriate option, and poses an acceptable operative risk, for people who have a BMI>40, or BMI >35 with along with comorbid conditions, such as cardiovascular disease, sleep apnea, uncontrolled type 2 diabetes, and/or physical problems interfering with performance of daily activities. Additional criteria include failure of medically supervised, nonsurgical weight-loss programs; absence of uncontrolled psychotic or depressive disorders; and absence of current alcohol or substance abuse. The ideal candidate is highly motivated, well-informed, and has a supportive family and social environments (Brethauer, Chand, & Schauer, 2006). Also, of paramount importance is the patient's capacity to

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understand the lifestyle changes required for a safe, successful, postoperative course, including a lifelong commitment to revised eating patterns, vitamin supplementation, and regular monitoring by their healthcare provider.

Preoperative Evaluation

Once the patient qualifies for surgery, a thorough preoperative assessment takes place to optimize the patient's health status, reduce operative risk, and identify potential barriers to the desired outcome. Depending on the patient's health status, this process may take several weeks to several months. In the first step, the patient completes a comprehensive questionnaire that provides the bariatric team, consisting of surgeons, dietitians, psychologists, nurses, and bariatricians (physicians who specializes in the medical management of weight loss), a "snapshot" of the patient's lifestyle. Included are questions about medical, surgical, and psychological history, food intake and eating habits, activities of daily living, mobility, and activity tolerance.

The next step is a detailed physical exam by the surgeon which may prompt further evaluation by specialists in the areas of cardiology, pulmonology, endocrinology, anesthesia, or vascular medicine. In anticipation of surgery, specialists adjust treatment regimes for the most effective management of chronic conditions, thereby optimizing the patient's physical status. The patient also completes a battery of diagnostic tests that establish baseline values and examine preoperative function. Included are the assessment of complete blood counts, electrolytes, renal and hepatic function, chest x-ray, and electrocardiography. In patients with known heart disease and poor exercise tolerance a dobutamine stress echocardiography may be required (McGlinch et al., 2006). Due to the prevalence of obstructive sleep apnea in the obese patient, a sleep study is commonly performed to identify patients that require treatment. Preoperative assessment by a member of the anesthesia team is also important due to challenges in airway security, vascular access, and heightened anesthesia risk associated with the obese patient (Benotti & Rodriguez, 2007).

The preoperative phase also includes visits with the dietitian to learn about the postoperative bariatric diet. The patient gains experience in reading food labels, identifying eating cues, keeping food diaries, determining nutrition content, and establishing portion sizes (Sullivan, Logan & Kolasa, 2006). These visits focus on the dietary changes necessary to achieve and sustain weight loss while maintaining an adequate intake of protein and nutrients.

Most importantly the nurse sets expectations for the entire experience. The psychologist also meets with the patient to assess general competency; readiness for change; commitment to weight loss; mental status; the presence of substance abuse, including tobacco; and/or an underlying eating disorder, such as binge eating. The patients are required to quit smoking prior to surgery (Ide. Farber. & Lautz, 2008). Should a psychological issue be discovered, the appropriate course of treatment ensues. The patient becomes eligible for reassessment and reconsideration for surgery upon completion of the treatment and demonstration that stability has been achieved.

The nurse plays a key role throughout this evaluation phrase. During office visits the nurse provides and reinforces key points required for successful surgical weight loss. The nurse facilitates the patient's progression through each phase of the program while providing ongoing education. Most importantly the nurse

sets expectations for the entire experience. Detailed patient education is provided by the nurse regarding preoperative preparation (Walsh, Albano, & Jones, 2008) and postoperative care, dangerous warning signs, when to call the office, and community resources. Relationships develop as the nurse and patient get to know each other over time. The nurse serves as the resource person to answer questions of any nature and is a continuing support person across the continuum of preoperative, postoperative, and follow-up care. Additionally, many bariatric-surgery programs require the patient to attend nurse-led group educational sessions and support group meetings prior to surgery (Fox, 2007). These serve as a method of reinforcing education about surgical procedures, activity, and diet changes, while developing supportive peer relationships that are very valuable through all phases of the surgical experience.

Choosing a Surgical Procedure

Bariatric Surgery is the only weight-loss method proven to achieve lasting, longterm results in the fight against obesity (Barth & Jensen, 2006). Through education and discussion, weighing the pros and cons, and considering the risks and benefits, the patient and surgeon choose, on an individualized basis. which surgical procedure will be performed.

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Laparoscopic Adjustable Gastric Band

The surgical procedures most commonly performed today work on two principles: restriction and malabsorption. Procedures, such as the laparoscopic adjustable gastric band (LAGB), and the laparoscopic sleeve gastrectomy (LSG) are successful simply because they restrict the amount of food the patient is able to consume at any one meal without interfering with digestion. Laparoscopic gastric banding has gained favor in that it is the least invasive of the restrictive procedures. It results in early and prolonged satiety, it is adjustable, and it is fully reversible. An inflatable gastric band is placed around the upper stomach creating a small gastric pouch and a narrow outlet to the stomach (See Figure 2. Laparoscopic Adjustable Gastric Band [pdf], which is used by permission of Cleveland Clinic Foundation.) At first, the pouch will fill with only an ounce of food; over time this will stretch to hold approximately 4 ounces (Gabriel & Garguilo, 2006). The band has tubing attached to a small subcutaneous port in which saline is added or removed to adjust band size for optimal results (Deitel, 2007). The patient is required to eat very small meals, chew food thoroughly, and eat slowly: else epigastric discomfort and vomiting will result. Generally, patients will accomplish peak weight loss of 44% to 68% of excess weight over a two to three year period of time (Brethauer et al., 2006).

Laparoscopic Sleeve Gastrectomy

The laparoscopic sleeve gastrectomy (LSG) is a procedure being use as both a primary intervention, and as the first procedure of a staged intervention for the patient that is super obese (BMI>60 kg/m²) or very high-risk (Braghetto et al., 2007). (See Figure 3. Laparoscopic Sleeve Gastrectomy [pdf] which is used by permission of Cleveland Clinic Foundation.) Because this procedure is simple and straightforward, it can be accomplished in a relatively short period of time making it more feasible in the extremely large and/or high risk patient. This procedure also offers an option to the select group of patients in which the Roux-en-y gastric bypass is contraindicated (see Fig 3). The sleeve gastrectomy is primarily considered a restrictive procedure; however, excision of the grehlinproducing portion of the stomach provides an added benefit, namely early satiety (Gumbs, Gagner, Dakin, & Pomp, 2007; Tucker, Szomstein, & Rosenthal, 2008). Grehlin is considered the "hunger hormone," in that it stimulates appetite. A reduction in the amount of grehlin results in a decreased appetite. Additional benefits to the LSG procedure, as indicated by Braghetto and colleagues (2007), are that the complication of dumping syndrome is avoided because the pylorus is preserved, resulting in a decrease in the likelihood of nutritional deficiency (Gumbs et al.). Dumping syndrome is triggered by food or liquid rapidly entering the intestine resulting in nausea, cramping, diarrhea, and/or dizziness (Gallagher, 2005).

Roux-en-y Gastric Bypass

The Roux-en-y (rü-en-wi) (RNYGBP) gastric bypass is a procedure that employs both mechanisms of restriction and malabsorption to achieve weight loss. Food intake is limited by dividing the stomach to create a 15-30 ml pouch which is then connected to a loop of small intestine. Connecting the gastric pouch to the small intestine allows food to bypass the distal stomach, duodenum, and a portion of the jejunum, thus achieving malabsorption (See Figure 4. Roux-en-y Gastric Bypass [pdf], which is used by permission of Cleveland Clinic Foundation). Although the RNYGBP can usually be performed laparoscopically, some individuals will require an open approach. This procedure is contraindicated in those patients who have a history of Chron's Disease, multiple abdominal surgeries, or are heavy smokers (Tucker et al., 2008), require anti-inflammatory medication, or have a history of inflammatory bowel disease (Braghetto et al., 2007). This procedure is the most common weight-loss surgery performed in the US and constitutes nearly 80% of all bariatric procedures (Brethauer et al., 2006).

Postoperative Surgical Care and Complications

The keys to preventing post-operative complications for the bariatric-surgery patient are also a careful and thorough baseline assessment and close surveillance. The customary postoperative nursing measures, specifically pain management, wound care, venous thromboembolism prophylaxis, pulmonary toilet, early and frequent ambulation, line and drain maintenance, fluid balance, nutrition therapy, continued education, and emotional support, are of paramount importance (Harrington, 2006).

Regardless of whether the approach is open or laparoscopic, bariatric surgery constitutes major abdominal surgery and potential exists for the typical postoperative complications of hemorrhage, surgical-site infection, sepsis, atelectasis, and pulmonary embolism. Complications directly related to

bariatric-surgery procedures are divided into two categories, namely early complications and late complications. Of the early complications (those occurring prior to hospital discharge), one of the most serious is an anastomotic or staple-line leak. Brethauer and colleagues (2006) explained that changes in patient status can be subtle and added that tachycardia is often the only presenting sign of an anastomotic leak. As intraperitoneal irritation progresses, patient presentation is characterized by complaints of increasing pain, hiccups, restlessness, and tachycardia (Barth & Jensen, 2006). The condition of the patient with a leak may rapidly deteriorate as peritonitis, sepsis, and respiratory distress ensue. Therefore, any element of suspicion (tachycardia, fever, tachypnea, oliquria, or increasing oxygen requirement) warrants a call to the surgeon in anticipation of orders for gastrografin swallow x-ray, computed tomography scan with contrast, and/or a return trip to the operating room. The incidence of leakage after laparoscopic RNYGBP is from 0% to 4.4% (Brethauer et al.)

Pulmonary embolism is the second most common cause of mortality in bariatric-surgery patients; the rate of occurrence is 2% (Chand, Gugliotti, Schauer, & Steckner, 2006). Diligent postoperative monitoring is required to facilitate early detection of this critical complication. Prevention of pulmonary embolism will be discussed in greater detail below.

Obese patients are at risk for wound complications, including dehiscence, infection, and slow healing. This is due to the poor vascularity of adipose tissue, increased wound tension, greater intra-abdominal pressure, and the frequent presence of diabetes (Fox, 2007).

Rhabdomyolysis (RML), although a rare occurence, is also considered an early complication of bariatric surgery. It involves muscle damage, degradation, and necrosis due to prolonged muscle compression and associated ischemia (Barth & Jensen, 2006). The presentation may be subtle complaints of hip, shoulder, or buttock discomfort, along with numbness, bruising, swelling, and/or weakness (Tanaka & Brodsky, 2007). The primary diagnostic indicator is the elevation of the serum creatine phosphokinase (CPK) levels; elevation at five times the normal level (>1000 I/U) is indicative of rhabdomyolysis (Lagandre et al., 2006). In severe cases, acute renal failure ensues as the kidneys become overwhelmed by the high concentrations of myoglobin in the urine (Tanaka & Brodsky, 2007). Factors that predispose a patient to rhabdomyolysis include a BMI > 40 kg/m², a surgical procedure lasting four hours or more, decreased functional status (American Society of Anesthesiologist Classification II-IV), and diabetes (Lagandre et al.).

In describing nursing care of the bariatric-surgery patient, Fox (2007) defines late complications as those which occur once the patient has been discharged from the hospital and has recovered from the surgery. These complications can be further classified according to the surgical procedure performed.

In the patient who is post-sleeve gastrectomy, late complications are few and have been identified as weight regain and gastric sleeve dilatation (<u>Tucker et al., 2008</u>). Late complications following the LAGB include reflux esophagitis, band slippage, adhesions, port complications, cholelithiasis, pouch dilatation, and individualized intolerance to foods. RNYGBP-patient late complications include adhesions, small bowel obstruction, marginal ulceration, stomal stenosis, cholelithiasis, pouch dilatation, depression, intolerance of sweet and/or fatty foods, dumping syndrome, nausea, vomiting, and diarrhea. A critical point is that with comprehensive patient education and close postoperative follow-up, complications may be detected early, minimized, or avoided all together. The need for compliance with postoperative instruction and ongoing monitoring by a healthcare provider cannot be overstated

Early Postoperative Nursing Care

The keys to the specialized nursing care of the bariatric-surgery patient, too, are a careful and thorough baseline assessment and close surveillance. The customary postoperative nursing measures, namely pain management, wound care, venous thromboembolism prophylaxis, pulmonary toilet, early and frequent ambulation, line and drain maintenance, fluid balance, nutrition therapy, continued education, and emotional support, are of paramount importance (Harrington, 2006) as described

Pain Management

Adequate pain management improves patient mobility and lessens pulmonary morbidities (Farshad & Bell, 2004). Patients are more willing and able to use incentive spirometry, cough, and deep breathe every hour when their pain is manageable. During the initial 24-48 hours, patient controlled analgesia (PCA) is frequently employed to achieve pain control (Gallagher, 2004) with a switch to liquid oral agents when the patient is able to tolerate oral intake (O'Leary, Paige, & Martin, 2007). It is not uncommon for this group of patients to have a history of chronic pain due to debilitating joint and back conditions, resulting in the chronic use of narcotic pain medication. In these cases, achieving pain management can be challenging; and the input of pain management specialists may be required (O'Leary et al., 2007)

Wound & Skin Care

With increasing size, comes the need for greater attention to

In the uncomplicated patient with a lesser BMI, skin and wound care are straightforward and uncomplicated. These activities include monitoring the surgical site(s) for bleeding or hematoma development, observing for signs of infection, and keeping the dressings clean and dry. Excessive intra-abdominal pressure (such as that which occurs during vomiting) can add strain to incision lines. Hence treatment of nausea and prevention of vomiting are important during the postoperative phase (Fox, 2007). An abdominal binder is helpful in adding abdominal support as well.

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With increasing size, comes the need for greater attention to skin care. Patients who are less mobile will need assistance with turning and repositioning. The large patient is prone to skin breakdown due to pressure from surgical-drain and foley-catheter tubing that is allowed to become lodged against the skin or in skin folds. These devices should be repositioned every two hours as the patient is

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an embolic event.

turned. Arms, legs, or skin folds resting against side rails for prolonged periods of time have also been found to develop skin erosion (Fox. 2007). Skin should be kept clean and dry. Intertrigo and fungal infections in skin folds under the breasts and/or on the back, abdomen, thighs, and perineum can be minimized by placing absorbent fabric, gauze, or silver impregnated textile products within the fold (Barth & Jensen, 2006). The use of powder or talc should be avoided because they tend to clump and contribute to irritation. Plastic-lined underpads create excessive heat and perspiration; they should be abandoned in favor of a fabric pad, or one that is specially formulated to wick away moisture. It is best to apply tape to the skin spaningly as the epidermal layer is stretched thin and susceptible to skin tears from tape. In the case of a complicated wound, consulting the wound nurse specialist, or a related specialist if a wound nurse specialist is not available within the institution, is recommended.

Venous Thromboembolism (VTE) Prophylaxis

It is well documented that the bariatric-surgery patient is at great risk for an embolic event. The following reasons for this risk have been offered:

- Polycythemia from chronic respiratory insufficiency and stasis from immobility (<u>Gabriel & Garguilo, 2006</u>)
- Increased abdominal pressure and decreased mobility (Clark, 2007)
- Carbon dioxide insufflation that exacerbates the already elevated intra-abdominal pressure, resulting in increased pressure in the femoral veins secondary to vena caval compression (O'Leary et al., 2007)
- Elevated levels of fibrinogen and plasminogen activator inhibitor, as well as antithrombin III
 deficiency and decreased fibrinolysis (O'Leary et al., 2007)

The institution of VTE prophylaxis can potentially be a life-saving measure for the obese patient. It is recommended that sequential compression devices be applied in the operating room, prior to the administration of anesthetic agents. The administration of either unfractionated or low-molecular-weight heparin preparations, early postoperative mobilization, and frequent ambulation comprise the triad that is considered "VTE prophylaxis." In the event that the patient has a history of venous stasis, endothelial damage, and a hypercoagulable state (Virchow's triad), and/or prior VTE or pulmonary embolism, consideration should be given to the preoperative placement of a filter in the inferior vena cava (IVC) that lessens the migration of emboli from the lower extremities to the heart, lungs, or brain (Miller & Rovito, 2004: Ojo. Asiyanbola, Valin, & Reinhold, 2008). The stable patient should be encouraged to sit and dangle legs over the bedside in the immediate postoperative period. If this is well tolerated, activity can gradually be progressed to out-of-bed walking in the halls a minimum of three to four times daily, beginning by the end of postop-day one. In the non-ambulatory patient, hourly leg exercises and range of motion activity is encouraged as the patients recover their baseline level of activity.

Pulmonary Considerations

...obese patients have a reduced functional residual capacity... [and] little reserve capacity. As previously mentioned, turning, coughing, and deep breathing (incentive spirometry) are the tried and true nursing interventions for pulmonary care in the postoperative surgical patient. In the obese patient, additional assessment, interventions, and monitoring are required. Due to the changes in pulmonary function associated with obesity, obese patients have a reduced functional residual capacity. When they are faced with respiratory distress, they have little reserve capacity.

Through careful assessment and monitoring for slight changes, complications can be minimized. Because the administration of anesthetic agents and narcotic medications can contribute to respiratory depression, continuous pulse oximetry, supplemental oxygen, and cardiac monitoring are employed for the first 24-48 hours after surgery. Auscultation of breath sounds can best be accomplished by positioning the patient in a reverse trendelenberg

position leaning forward, or sitting on the side of the bed. The side-lying option is best tolerated if the head of the bed remains elevated 30-45 degrees. It also is helpful to lift or move skin folds in order to detect breath sounds more clearly. The patient with obstructive sleep apnea who uses continuous positive airway pressure (CPAP) or bilevel positive airway pressure (BiPAP) at home will need to continue its use while hospitalized. Some facilities encourage the patient to bring their masks and equipment from home for maximum fit and comfort. However, it is wise to check the policy for the use of personal medical devices at one's institution before suggestion this to a patient.

Psychosocial and Emotional Support

It would be remiss to conclude this look at postoperative care of the bariatric-surgery patient without discussing psychosocial and emotional support. It is difficult to do justice to this important topic in the

http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJI...

limited space available here. Reto (2003) provides a comprehensive look at providing this support; caregivers are encouraged to read this helpful article.

The typical bariatric-surgery patient can tell stories reflecting a lifetime of social typecasting as a result of being overweight. In society today, obesity is often linked to the misperceptions of laziness, uncleanliness, low intellect, ineptness, and lack of willpower (Reto. 2003). As a result of these experiences, patients undergoing bariatric surgery continue to feel misunderstood and mistreated by caregivers (Fox. 2007). Unfortunately, it has been noted that fat bias and prejudice are perpetuated by all persons, including bedside caregivers.

It is important for the nursing staff to be aware of their own feelings and fears about excess weight.

It is important for the nursing staff to be aware of their own feelings and fears about excess weight. To help nurses examine their personal attitudes, Puhl (2006) recommends that nurses ask themselves the following questions:

- Do I make assumptions about a person's character, intelligence, professional success, health status, or lifestyle behaviors based only on weight?
- Am I comfortable working with people of all shapes and sizes?
- Do I give appropriate feedback to encourage healthful behavior changes?
- Am I sensitive to the needs and concerns of overweight and obese individuals?
- . Do I treat the individual or the condition?

Through education about obesity, heightened awareness of self-presentation and tools for implementing therapeutic interaction, caregivers can be a positive agent in the bariatric-surgery patient's quest for lifelong change. Many times it is the small acts that make the biggest difference. Approaching the patient in an unhurried manner, making eye contact, appropriate touch, and positive reinforcement of small successes all help to create a positive outcome for patients and staff alike.

Obese patients commonly demonstrate low self-esteem and limited socialization which can result in manipulative behaviors (Barth & Jensen, 2006). It is important that caregivers consult the team of bariatric psychologists for assistance in developing strategies to deal with the more difficult patient. Studies have demonstrated that over 50% of bariatric-surgery patients have a concurrent diagnosis of anxiety, depression, or a psychological disorder. For these patients, resuming the administration of anxiolytics, antidepressants, and/or antipsychotic medications as soon as possible after surgery is imperative to avoid the negative effects associated with withdrawal. It is recommended that for these patients, a treatment plan to address these concerns be developed prior to surgery.

Future Options for Surgical Weight Loss

...less than one percent of the potential bariatric-surgery patients decide to undergo bariatric surgery. The range of benefits resulting from successful bariatric surgery are substantial, including improvement in a range of health conditions, reduction in certain cancer risks, improvement in the quality of life, and "cure" of some diseases, such as diabetes. Despite these benefits, less than one percent of the potential bariatric-surgery patients decide to undergo bariatric surgery. The main reasons for not undergoing the surgery are centered on health insurers not covering the procedure and patients (along with the insurers) being apprehensive due to the perceived potential risks and complications (Shikora, 2008).

New and novel techniques, and the re-emergence of some older ones, are surfacing today in the treatment of morbid obesity. Metabolic surgery is the new term to describe the surgical procedures performed to treat metabolic conditions, such as type 2 diabetes, hypertension, high cholesterol, non-fatty liver disease, and obstructive sleep apnea. The American Society for Metabolic

and Bariatric Surgery (ASMBS) <u>www.asmbs.org/</u> is instrumental in the development of the guidelines and recommendations regarding metabolic surgeries (<u>ASMBS, 2007</u>).

New procedures are being developed that are more appealing to the patients. These procedures are less complex and result in less severe and fewer complications (Schauer, Chand, & Brethauer, 2007a). One new concept evolving in this field is that of the endoluminal procedure (surgery performed entirely within the lumen of the gastrointestinal tract). Another is the transgastric procedure (transluminal procedure performed within the peritoneal cavity). These procedures combine endoscopy with the minimally invasive surgery. These procedures have a great potential to be less complex and costly, and ambulatory in nature (Schauer, Chand, & Brethauer, 2007a). The primary benefit is that they eliminate the need to enter the peritoneal cavity, thus reducing the physical discomfort and pain associated with the traditional bariatric procedures. Other benefits are reduced recovery time and no visible scarring because of the use

New and novel techniques, and the reemergence of some older ones, are surfacing today in the treatment of morbid obesity. of natural orifices such as mouth, anus, or vagina (Madan & Martinez, 2008). This new field, recently named Natural Orifice Transluminal Endoscopic Surgery™ or NOTES®, is outlined by the Natural Orifice Surgery Consortium for Assessment and Research. www.noscar.org. This consortium was formed to provide guidance, oversight, and evaluation of NOTES® techniques and related research.

These emerging endoluminal technologies (See Table 2) can be used as primary weight-loss procedures for weight loss or for preoperative weight loss in staged procedures. They can also be used as revisional procedures for stoma or gastric pouch size change, such as utilizing the injection of sclerosing agents or endoscopic "sewing machines" (Madan & Martinez, 2008; Schauer, Chand, & Brethauer, 2007a).

Table 2. Available and Emerging Endoluminal Technologies			
Technology class	Mechanism of action and clinical application.	Problems / complications associated with the device or technique	
Endoluminal suturing and stapling	"Sewing machine" for partial and full-thickness sewing Endoscopic stapling devices	Durability - mucosa to mucosa suturing may not hold. No complications are reported in the literature. Risk of staple-line leakage. Although it is serosa-to-serosa stapling, gaps have been reported in the staple line. Long-term staple line dehiscence is another problem. Engineering obstacles and challenges remain.	
Injection or prosthesis	Tube/stent placement in duodenum for the purpose of malabsorption (the duodenum and first part of jejunum is bypassed via an endoscopic bypass sleeve). Studies are underway for Type 2 diabetes resolution with this procedure Endoluminal balloon	Some report problems with the anchors that hold the device in place and mucosal tearing with the removal of the device. This is the only device available in this category, it is not FDA approved. Weight regained with balloon removal. Vomiting, reflux, hypokalemia, renal dysfunction, and intestinal blockage occur.	
Electrical stimulation	Electrodes implanted to slow down gastric emptying Vagal nerve down regulation to slow digestion, gastric emptying, and curb hunger	Gastric perforation and lead dislodgement can occur.	
Ablation Table 2 is based	Injection of a sclerotherapeutic agent for endoscopic reduction of stoma size on the following sources:	Possible stenosis that would require dilatation of the stoma	

Madan, A. K., & Martinez, J. M. (2008, November). Natural Orifice Bariatric Surgery: An Update. (R. Rosenthal, Ed.) Bariatric Times , 5 (11), pp. 34-38.

Schauer, P., Chand, B., & Brethauer, S. (2007a). New Applications for Endoscopy: The Emerging Field of Endoluminal and Transgastric Bariatric Surgery. Surgical Endoscopy , 21, 347-356.

Schauer, P. R., Chand, B., & Brethauer, S. A. (2007b). The Emerging Field of Endoluminal and Transgastric Bariatric Surgery. In P. R. Schauer, B. D. Schirmer, & S. A. Brethauer (Eds.), Minimally Invasive Bariatric Surgery (pp. 395-405). New York: Springer.

New procedures are being developed that are more appealing to the patients. Other innovations focus on the techniques that are already established. The sleeve gastrectomy is routinely performed using five-to-seven trocar sites. Reavis, Hinojosa, Smith, and Nguyen (2008) report a case of a laparoscopic sleeve gastrectomy that was performed through a single laparoscopic incision, where they have removed the gastric specimen through the same incision. Although this innovation requires one incision that is four cm long, it can only be used in patients with a lower BMI. Other surgeons have focused on decreasing the scarring that results from these laparoscopic surgeries. Kim, Kim, Lee, and

Lee (2008) report on a minimal-scar, laparoscopic, adjustable gastric-banding, noting that use of this technique results in a natural-looking and nearly invisible scar around the umbilicus. The access port is placed above the umbilicus allowing easy localization for band adjustments.

While these innovations are exciting, they are still in their initial phases of development. Clear guidelines and more research are needed before they can be marketed to patients and insurers. As procedures evolve, continuing education will be necessary so that research teams and nurses in the field can stay on the same page with regard to the ever-changing institutional and administrative requirements. Most significantly, though, will be the heightened necessity for an increased focus on pre- and post-operative education procedures, if the evolution of weight-loss surgery moves this surgery into the realm of out-patient surgery.

Conclusion

Helping bariatric-surgery patients make monumental lifestyle changes in the quest for permanent weight loss can be a most rewarding endeavor. The treatment of obesity requires a dedicated, multidisciplinary team in-order-to achieve consistent, sustainable outcomes. The surgeons, dietitians, psychologists, nurses, and bariatricians must carefully orchestrate each step in the process so as to provide optimal care of the bariatric-surgery patient. Each client is unique and presents his/her own set of challenges. The time interval from initial contact, through surgical clearance, and arrival at the actual surgery date may be several months. Postoperative care and monitoring will continue for 12-18 months or longer. Care coordination and communication are of key importance.

It is the nurse who guides the patient through a variety of medical, physical, and emotional challenges. Witnessing a patient's transformation and ultimate success is what makes the effort worthwhile. Weight-loss surgery is not an "easy fix" or "once and done" solution to morbid obesity; however, it is one tool available to improve the health and longevity of obese patients.

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References

American Society for the Metabolic and Bariatric Surgery. (2007). Statements, guidelines, action items. Retrieved December 3, 2008, from www.asmbs.org/Newsite07/resources/asmbs items.htm.

Barth, M., & Jensen, C. E. (2006). Postoperative nursing care of gastric bypass patients. *American Journal of Critical Care*, 15, 378-388.

Benotti, P., & Rodriguez, H. (2007). Preoperative preparation of the bariatric surgery patient. In H. C. Buchwald (Ed.), *Surgical Management of Obesity* (pp. 102-107). Philadelphia, PA, USA: Saunders.

Braghetto, I., Korn, O., Valladares, H., Gutierrez, L., Csendes, A., Debandi, A., et al. (2007). Laparoscopic sleeve gastrectomy: Surgical technique, indications and clinical results. *Obesity Surgery*, 17, 1442-1450.

Brethauer, S., Chand, B., & Schauer, P. R. (2006). Risks and benefits of bariatric surgery: Current evidence. *Cleveland Clinic Journal of Medicine* (11), 993-1008.

CDC, National Center for Health Statistics. (2006). *Prevalence of overweight among children and adolescents: United States, 2003-2004.* Retrieved September 10, 2008 from: www.cdc.gov/nchs/products/pubs/pubd/hestats/overweight/overwght_child_03.htm.

Chand, B., Gugliotti, D., Schauer, P., & Steckner, K. (2006). Perioperative management of the bariatric surgery patient: Focus on cardiac and anesthesia considerations. *Cleveland Clinic Journal of Medicine*, 73, S51-S56.

Clark, W. (2007). Laparoscopic gastric bypass using the circular stapler. In H. C. Buchwald (Ed.),

Surgical Management of Obesity (pp. 1208-1213). Philadelphia: Saunders.

Deitel, M. (2007). A synopsis of the development of bariatric operations. *Obesity Surgery*, 17, 707-710.

Farshad, A., & Bell, R. (2004). Assessment and management of the obese patient. *Journal of Critical Care Medicine*, 32 (4), S87-S91.

Fox, K. (2007). Nursing care of the bariatric surgery patient. In H. C. Buchwald (Ed.), *Surgical Management of Obesity* (pp. 406-417). Philadelphia: Saunders.

Gabriel, S., & Garguilo, H. (2006). *Nursing made incredibly easy: Bariatric surgery basics.* Retrieved August 8, 2008, from: www.nursingcenter.com/prodev/ce article.asp?tid=622767

Gallagher, S. (2004). Taking the weight off with bariatric surgery. Nursing 2004, 34 (3), 58-63.

Gallagher, S. (2005). *The challenges of caring for the obese patient*. Edgemont, PA, USA: Matrix Medical Communications.

Gumbs, A., Gagner, M., Dakin, G., & Pomp, A. (2007). Sleeve gastrectomy for morbid obesity. *Obesity Surgery*, 17, 962-969.

Harrington, L. (2006). Postoperative care of patients undergoing bariatric surgery. *MEDSURG Nursing*, 15 (6), 357-363.

Hensrud, D. D., & Klein, S. (2006). Extreme obesity: A new medical crisis in the United States. *Mayo Clinic Proceedings*, 81 (10, suppl), S5-S10.

Hughes, S., & Dennison, C. R. (2008). Cardiovascular nurses called to don public health hats. *Journal of Cardiovascular Nursing*, 23 (6), 536-537.

Ide, P., Farber, E. S., & Lautz, D. (2008). Perioperative nursing care of the bariatric surgical patient. *AORN Journal*, 88 (1), 30-58.

Kim, E., Kim, D., Lee, S., & Lee, H. (2008). Minimal-scar laparoscopic adjustable gastric banding (LAGB). *Obesity Surgery*, [epub ahead of print].

Lagandre, S., Arnalsteen, L., Vallet, B., Robin, E., Janey, T., Onraed, F., et al. (2006). Predictive factors for rhabdomyolosis after bariatric surgery. *Obesity Surgery*, *16*, 1365-1370.

Madan, A. K., & Martinez, J. M. (2008, November). Natural orifice bariatric surgery: An update. (R. Rosenthal, Ed.) *Bariatric Times, 5* (11), 34-38.

McGlinch, B., Que, F. G., Nelson, J. L., Wrobleski, D. M., Grant, J. E., & Collazo-Clavell, M. L. (2006). Perioperative care of patients undergoing bariatric surgery. *Mayo Clinic Proceedings*, (pp. S25-S33). Rochester.

Miller, M., & Rovito, P. F. (2004). An approach to venous thromboembolism prophylaxis in laparoscopic Roux-en-Y gastric bypass surgery. *Obesity Surgery*, *14*, 731-737.

Ogden, C.L, Carroll, M.D., McDowell, M.A., & Flegal, K.M. (2007). Obesity among adults in the United States - no statistically significant change since 2003-2004. *U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. National Center for Health Statistics. Data Report, 1*, 1-8.

Ojo, P., Asiyanbola, B., Valin, E., & Reinhold, R. (2008). Post discharge prophylatic anticoagulation in gastric bypass patient - how safe? *Obesity Surgery, 17*, 791-796.

O'Leary, J., Paige, J. T., & Martin, L. F. (2007). Perioperative management of the bariatric surgery patient. In H. C. Buchwald (Ed.), *Surgical Management of Obesity* (pp. 119-130). Philadelphia: Saunders

Puhl, R. (2006). *The stigma of obesity and its consequences*. Retrieved November 25, 2008, from: http://74.125.95.132/search?

 $\label{eq:q_cache} $$q=$ cache: YdQobHQfCMYJ: www.obesityaction.org/resources/oacnews/oacnews3/Stigma%25200f% 25200besity.pdf+The+stigma+of+obesity&hl=en&ct=clnk&cd=1&gl=us $$$

Reavis, K. M., Hinojosa, M. W., Smith, B. R., & Nguyen, N. T. (2008). Single-laparoscopic incision transabdominal surgery sleeve gastrectomy. *Obesity Surgery*, 18, 1492-1494.

Reto, C. S. (2003). Psychological aspects of delivering nursing care to the bariatric patient. *Critical Care Nursing Quarterly*, 26 (2), 139-149.

Schauer, P., Chand, B., & Brethauer, S. (2007a). New applications for endoscopy: The emerging field of endoluminal and transgastric bariatric surgery. *Surgical Endoscopy, 21*, 347-356.

Schauer, P. R., Chand, B., & Brethauer, S. A. (2007b). The emerging field of endoluminal and

transgastric bariatric surgery. In P. R. Schauer, B. D. Schirmer, & S. A. Brethauer (Eds.), *Minimally Invasive Bariatric Surgery* (pp. 395-405). New York: Springer.

Sheipe, M. (2006). Breaking through obesity with gastric bypass surgery. *The Nurse Pracitioner, 31* (10), 13-23.

Shikora, S. (2008, September). Emerging technologies: The introduction of new technologies in bariatric and metabolic surgery- Are you ready to embrace them? (M. Bessler, Ed.). *Bariatric Times*. Retrieved November 17, 2008, from http://bariatrictimes.com/2008/09/20/emerging-technologies-the-introduction-of-new-technologies-into-bariatric-and-metabolic-surgery%E2%80%94are-you-ready-to-embrace-them/

Sullivan, C. S., Logan, J., & Kolasa, K. M. (2006). Medical nutrition therapy for the bariatric patient. *Nutrition Today*, 41 (5), 207-214.

Tanaka, P., & Brodsky, J. B. (2007, November/December). Rhabdomyolysis following bariatric surgery. *Bariatric Times*. (C. Hutchinson, Ed.). *Bariatric Times*. Retrieved November 17, 2008, from http://bariatrictimes.com/2007/12/17/rhabdomyolysis-following-bariatric-surgery/

Tucker, O. N., Szomstein, S., & Rosenthal, R. J. (2008). Indications for sleeve gastrectomy as a primary procedure for weight loss in the morbidly obese. *Journal of Gastrointestinal Surgery*, 12, 662-667.

United States Department of Health and Human Services / National Institutes of Health, National Heart, Lung and Blood Institues. (1998). The evidence report on the identification, evaluation, and treatment of overweight and obesity in adults (No. 98-4083). Washington, D.C.: National Institute of Health

Wadden, T. A., Butryn, M. L., & Byrne, K. J. (2004). Efficacy of lifestyle modification for long-term weight control. *Obesity Research*, *12*, 1515 - 162S.

Walsh, A., Albano, H., & Jones, D. B. (2008). A perioperative team approach to treating patients undergoing laparoscopic bariatric surgery. *AORN Journal*, *88* (1), 59-64.

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