To the faculty of Washington State University:

The members of the committee appointed to examine the project of Jennifer Carlson find it satisfactory and recommend that it be accepted.

Chair: Louise Kaplan, PhD, ARNP

Melody Rasmor, PhD, ARNP

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Primary Care Management of the Bariatric Surgery Patient

Abstract

By

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Washington State University

Fall, 2006

Bariatric surgical procedures are rapidly becoming the preferred treatment modality to induce weight loss and treat co-morbid conditions in the morbidly obese patient. As surgical treatment of obesity grows, the possibility of nurse practitioners encountering patients with a history of weight loss surgery in their practice also grows. Primary care providers in particular will be faced with the life-long management of routine postoperative concerns unique to this patient population. The purpose of this article is to provide nurse practitioners with a guide for the safe management of patients with a history of bariatric surgery.
Primary Care Management of the Weight Loss Surgery Patient

The epidemic of obesity in the United States (U.S.) is quickly becoming one of the most critical primary health care issues facing family nurse practitioners today. The National Center for Health Statistics (NCHS) estimates that in 2003-2004, 17.1% of children and adolescents in the U.S. were overweight and 32.2% of adults were obese.¹ Obesity is now considered to be the second leading cause of preventable death in the U.S.² Surgical treatment is rapidly becoming a preferred treatment modality for severely obese patients with a body mass index (BMI) exceeding 35-40.³ Research is continuing to support the use of weight loss surgery, otherwise known as bariatric surgery, as one of the most effective ways to manage obesity in this population. Recently, the American College of Physicians suggested that “surgery is more effective than nonsurgical treatment for weight loss and control of comorbid conditions in patients with a BMI of 40 or greater”.⁴

It is estimated that over 200,000 patients in the U.S. underwent surgical treatment for weight loss in 2004.⁵ Because of this continuing rise in bariatric surgery procedures, nurse practitioners (NPs) are increasingly likely to encounter patients in their practice who either have a history of weight loss surgery or who desire weight loss surgery. In order to optimally care for their patients, NPs must incorporate into their practice both a basic knowledge of the bariatric surgery procedures performed and an awareness of the long term implications surrounding the management of patients with a history of bariatric surgery. The purpose of this article is to provide NPs with a guide for the safe management of patients with a history of bariatric surgery. This article reviews standard bariatric surgical procedures, long-term postoperative risks, common patient concerns, and current postoperative management guidelines.
**Overview of Common Bariatric Surgery Procedures**

Bariatric surgery procedures can be classified as either restrictive or both restrictive and malabsorptive. Restrictive procedures reduce the capacity of the stomach. Malabsorptive procedures surgically decrease the amount of surface area available for absorption of nutrients. The three most commonly performed bariatric procedures in the U.S. include gastric banding, Roux-en-Y gastric bypass, and the duodenal switch. Gastric banding, a restrictive procedure, involves placing a silicone band around the top portion of the stomach, leaving a 10-20 milliliter (ml) pouch (Figure 1). This pouch expands slightly over time, and the surgeon may periodically inflate or deflate the band via a subcutaneous reservoir adjusting for the needs of the patient. Another version of this banding procedure involves surgically dividing the stomach in addition to placing the band, which is called vertical banded gastroplasty (Figure 2). Patients typically experience a more gradual weight loss with gastric banding and it is considered reversible if complications arise postoperatively.

The Roux-en-Y gastric bypass, the most commonly performed procedure, is both restrictive and mildly malabsorptive. The stomach is surgically divided leaving a 20-30ml pouch that is connected to the distal end of the jejunum (gastrojejunostomy), effectively bypassing the distal stomach, duodenum and proximal jejunum (Figure 3). This bypassed “roux limb” serves as a conduit for digestive enzymes required for absorption of nutrients. The degree of malabsorption experienced from this procedure depends on the length of the roux limb which varies from patient to patient.

The duodenal switch, also called the biliopancreatic diversion with duodenal switch, is also both restrictive and malabsorptive. The majority of the stomach is resected while leaving the pyloric sphincter intact. The proximal duodenum is then reconnected proximal to the
ileocecal valve bypassing a longer portion of duodenum and small intestine (Figure 4). The length of this bypassed intestine also varies from patient to patient. The resultant intestinal limb again serves as a conduit for digestive enzymes. This procedure provides the greatest degree of malabsorption and most risk for postoperative nutrient deficiencies, however, it also provides the greatest potential for weight loss for many patients.6

*Figure 1: Gastric banding*

![Gastric banding diagram]

*Figure 2: Vertical banded gastroplasty*

![Vertical banded gastroplasty diagram]
Figure 3: Roux-en-Y gastric bypass

Figure 4: Duodenal switch

(note: cholecystectomy is performed on a selective basis)
Postoperative Considerations for the Bariatric Surgery Patient

The potential benefits of bariatric surgery have been well documented in the literature. Weight loss leads to improvement in diabetes, hyperlipidemia, hypertension, sleep apnea, depression, cardiac disease, non-alcoholic steatohepatitis, reflux esophagitis, arthritis, infertility, stress incontinence, and venous stasis. As patients experience weight loss over the months and years following surgery, NPs often need to titrate medication regimens to manage conditions such as diabetes, hypertension, and depression. Patients experiencing rapid weight loss also require ongoing dietary guidance due to the potential for postoperative complications resulting from nutrient deficiencies. NPs must also evaluate the changing psychosocial issues surrounding patients undergoing rapid weight loss.

Diabetes

Type 2 diabetes and insulin resistance are common problems among people with obesity. Bariatric surgery has been shown to improve insulin resistance almost immediately following surgery, even before weight loss occurs. In Roux-en-Y gastric bypass patients, research has demonstrated that between 82% and 98% of patients with type 2 diabetes display complete resolution of their disease postoperatively. This profound reduction in insulin resistance has been shown to begin within six days postoperatively in Roux-en-Y gastric bypass patients. Many gastric bypass patients may discontinue all of their diabetic medications upon discharge from the hospital. In patients who continue to take diabetic medications, increasing insulin sensitivity in the postoperative period may predispose patients to hypoglycemic events. Diligent blood glucose monitoring along with closely monitored titration of oral antihyperglycemic medications and/or insulin is required. Continuing postoperative monitoring of glycohemoglobin A1c levels by primary care providers is also urged. One group of researchers
noted that 90% of their diabetic patients maintained glycohemoglobin A1c levels <7% post-operatively and oral anti-hyperglycemic agents and/or insulin were discontinued in 89% of patients studied. The complex relationship of insulin resistance to bariatric surgery has been linked to many mechanisms, including post-operative fasting, decrease in adipose tissue, and hormonal mechanisms involving suppression of ghrelin (an appetite stimulant) and an increase in glucagon-like peptide-1 (GLP-1).

**Nutrient Deficiency**

The risk of nutrient deficiency in patients who have undergone malabsorptive procedures is the most widely recognized postoperative risk. The occurrence of nutrient deficiency depends on many factors including intestinal length, dietary practices, and vitamin supplementation. Several nutrients, including iron, vitamin B-12, calcium, and vitamin D, must be carefully monitored.

Ingested iron is typically broken down into its useable “ferrous” state by acid in the stomach. Iron is mostly absorbed by the duodenum and proximal jejunum, which are bypassed almost entirely by procedures such as the Roux-en-Y gastric bypass and duodenal switch. This coupled with decreased intake of iron-rich foods and patient use of acid reducers places many bariatric surgery patients at great risk for iron-deficiency anemia. It is recommended that postoperatively patients have a CBC and iron studies evaluated every three months for the first six months, then every six months until two years postoperatively, and yearly thereafter. Patients with malabsorptive procedures should be strongly encouraged to take a daily multivitamin containing iron.

Vitamin B-12, absorbed by the distal ileum, requires the presence of stomach acid and intrinsic factor for absorption. Surgical reduction of stomach surface area coupled with a limited
intake of vitamin B-12 containing foods can predispose patients to anemia, thrombocytopenia, and leucopenia.\textsuperscript{13} It is estimated that within the first postoperative year 30\% of bariatric surgery patients will develop vitamin B-12 deficiency without supplementation and up to 70\% can be affected long-term without supplementation.\textsuperscript{14} Although there is controversy surrounding the preferred route of administration, typically patients require either monthly vitamin B-12 intramuscular injections (1000 mcg), daily sublingual tablets (350 mcg), daily oral supplements (300-500 mcg), or weekly nasal spray (500 mcg).\textsuperscript{13} Supplementation is strongly encouraged and the method of administration is usually based on patient preference.

Bariatric surgery patients with malabsorptive procedures are at increased risk for osteoporosis and osteomalacia secondary to decreased absorption and intake of both calcium and vitamin D. Calcium absorption, which is greatest in the duodenum and proximal jejunum, are both bypassed with surgery, and patients tend to have a diminished tolerance of calcium-rich foods after surgery. Furthermore, diminished contact of vitamin D with bile salts can decrease vitamin D absorption as well. Up to 50\% of malabsorptive bariatric surgery patients will develop calcium deficiencies.\textsuperscript{14} Long-term calcium and vitamin D deficiencies can lead to hyperparathyroidism and subsequent bone loss.\textsuperscript{15} Since calcium citrate does not require the presence of stomach acid for absorption, supplementation with 1500 mg to 2000 mg of calcium citrate is recommended with 1500 mg to 2000 mg of calcium carbonate daily as an alternative. Calcium supplements should be accompanied by 400 international units (IU) of vitamin D daily.\textsuperscript{13,16} NPs should routinely monitor chemistry panels, vitamin D levels, and parathyroid hormone according to the schedule suggested in table 1.\textsuperscript{14}
Table 1

Recommended follow-up of the bariatric surgery patient by the non-surgeon (Fujioka, 2005)

<table>
<thead>
<tr>
<th></th>
<th>1 mo.</th>
<th>3 mo.</th>
<th>6 mo.</th>
<th>12 mo.</th>
<th>18 mo.</th>
<th>24 mo.</th>
<th>Annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry Panel</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Magnesium</td>
<td>X</td>
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<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
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<td>CBC</td>
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<td>X</td>
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<td>X</td>
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<tr>
<td>Iron Studies</td>
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<td>X</td>
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<td>X</td>
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<td>X</td>
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<tr>
<td>Vitamin D</td>
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<td>X</td>
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<td>X</td>
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<tr>
<td>Vitamin B12</td>
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<td></td>
<td>X</td>
</tr>
<tr>
<td>Parathyroid hormone</td>
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<td>X</td>
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<tr>
<td>Bone Density</td>
<td>X</td>
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<td>X*</td>
<td></td>
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<td>X*</td>
</tr>
</tbody>
</table>

Recommendations (based on clinical practice) for routine testing of post-operative bariatric surgery patients should be based on surgical procedure performed and complete patient history. *Fujioka suggests that patients with demonstrated low or decreasing bone density should have bone density screened annually.

Dietary Recommendations

Bariatric surgery requires life-long dietary modification in order to maintain weight loss and avoid postoperative complications. Most patients meet with a registered dietician to review dietary choices after bariatric surgery as a requirement for the surgical procedure. However, NPs may need to provide ongoing patient education regarding dietary choices for their patients in the primary care setting.

Patients who undergo bariatric surgery gradually advance their diet from clear liquids to pureed/soft foods over the first two weeks after surgery. After that point, patients may advance to a diet consisting of approximately four ounces of solid food four to six times per day.17 Consuming greater quantities of food at one time may lead to overstretching of the gastric pouch and can lead to nausea, vomiting, bloating, obstructions, or perforations. As part of their daily diet, patients should include foods such as lean protein, fruit, vegetables, and low-fat carbohydrates. Foods not well tolerated and not recommended as part of the postoperative diet
include sweets, desserts, high-fat protein, and high-fat carbohydrates. Protein-rich foods should be included in every meal and consumed first.\textsuperscript{18}

Beverages should never be consumed with solid foods due to reduced stomach volume. Typically, patients with gastric banding should not drink fluids less than ten minutes prior to eating, and should wait thirty minutes after meals to resume fluid intake. Patients with other bariatric procedures should be instructed not to drink fluids within thirty minutes before and after meals.\textsuperscript{17} Adequate fluid intake during all other times is essential in order to prevent dehydration after bariatric surgery.

Proper nutrition is essential to successful bariatric surgery. Research demonstrates that postoperative patients, while significantly reducing intake of fats, soda, and sweets, also tend to limit intake of nutrient-rich foods such as dairy products, meats, breads and cereals, nuts, and fish.\textsuperscript{19} NPs may find it helpful to discuss dietary practices with all of their patients having a history of bariatric surgery in order to detect and help prevent long-term complications or nutritional deficiencies.

\textit{Gastrointestinal complications}

Gastrointestinal complications in the bariatric surgery patient often include nausea, vomiting, diarrhea, and occasionally, constipation. Careful review of the patient’s diet, medications, and surgical procedure can help the NP tailor an effective treatment plan. Dumping syndrome can be experienced by up to 75\% of patients following Roux-en-Y gastric bypass surgery due to surgical bypass of the pyloric sphincter.\textsuperscript{20} Patients may complain of intestinal cramping, diarrhea, diaphoresis, lightheadedness, fatigue, and/or palpitations. Rapid spilling of hyperosmolar stomach contents into the small intestine leads to osmotic fluid shifting into the intestinal tract, ultimately creating the physiologic responses associated with dumping syndrome.
Patients experiencing dumping syndrome should be instructed to try small, frequent meals consisting of protein, fiber, and complex carbohydrates. Ingestion of simple sugars can exacerbate dumping syndrome and should be strongly discouraged.\textsuperscript{20} Patients who undergo rapid weight loss are also at increased risk for developing gallstones.\textsuperscript{13} In patients with an intact gallbladder, medications such as ursodiol (300mg po bid), are often prescribed for approximately six months postoperatively to reduce this risk. Some patients, however, discontinue its use due to cost and taste of the medication. Cholecystectomy is selectively performed along with bariatric surgery making it important for the NP to investigate the need for ursodiol postoperatively.

Patients with a history of gastric reflux disease may note resolution of reflux symptoms postoperatively. Assessment of reflux symptoms after surgery is necessary given that some patients may develop strictures or ulcerations at or around anastamosis sites postoperatively. Patients are usually carefully screened for risk factors related to gastric ulcers prior to surgery. Nonetheless, the use of non-steroidal anti-inflammatory drugs (NSAIDs) and newer cycloxygenase 2 inhibitors are contraindicated after bariatric surgery.\textsuperscript{6}

Vomiting is commonly experienced by patients after bariatric surgery, however, careful evaluation by the NP is still needed to delineate its etiology. Frequently, postoperative vomiting occurs when patients neglect to adhere to dietary recommendations. Other causes of vomiting include inadequate chewing, obstructions, adhesions, internal hernias, gastroesophageal reflux, food intolerance, overfilling of the gastric pouch, gallstones, ulcers, or medications.\textsuperscript{13}

Other related postoperative concerns include wound infections, anastamotic leaks, incisional hernias, bowel obstruction, and strictures. Incisional hernias are more common in patients with open procedures and can occur in up to 39% of gastric bypass patients.\textsuperscript{10} The
development of incisional hernias should be routinely assessed for and patients should be referred for repair as needed. Patients who complain of sensations of food “getting stuck” frequently, along with vomiting, may have anastamotic strictures or obstructions and should be referred back to their surgeons. Most importantly, any patient with acute abdominal pain, tachycardia, tachypnea, altered mental status, severe gastrointestinal complications, and/or fever should be referred for emergency evaluation.

Hypertension

Hypertension is a common co-morbidity associated with obesity. Research describing the effects of bariatric surgery on hypertension in patients varies widely. Some research strongly supports postoperative improvements in blood pressure, while other research suggests marginal effects of weight loss surgery on hypertension, particularly in the long-term. Recently, researchers have begun to clarify the relationship between weight loss surgery and hypertension. Normotensive bariatric surgery patients, or those normotensive through medical management, show small reductions in blood pressure postoperatively. In contrast, patients with significant hypertension preoperatively show marked reductions in blood pressure after weight loss surgery. NPs should continue to closely monitor blood pressure in postoperative bariatric surgery patients recognizing that, although hypertension may not completely resolve, many patients will be able to decrease use of oral antihypertensive medications.

Sleep Apnea

The effects of weight loss surgery on sleep apnea are well documented. Many bariatric surgery patients are tested for sleep apnea prior to surgery in an effort to adequately assess anesthesia risk and to evaluate obesity related co-morbidities. The use of a home continuous positive airway pressure (CPAP) machine to alleviate sleep apnea is common in this population.
Studies suggest that up to 85% of bariatric patients will experience resolution of sleep apnea after surgically-induced weight loss. NPs should consider follow-up sleep studies to re-evaluate sleep apnea in patients who have achieved weight loss and who desire to discontinue use of their home machines.

Pregnancy

It is estimated that 83% of bariatric surgery patients are women with many of those being of childbearing age. Obesity impacts reproductive health in many ways and is linked to infertility, gestational diabetes, and pregnancy-related hypertensive disorders. Obesity also has been shown to increase the risk of spontaneous abortion, macrosomia, cesarean birth, and early neonatal demise. NPs should be aware of both the physical and psychosocial aspects of weight loss on the woman of childbearing age. Weight loss may both increase a woman’s fertility and improve her self-esteem in romantic relationships, increasing the likelihood of pregnancy. Although appropriate weight loss in obese individuals may improve pregnancy outcomes, women who have undergone bariatric surgery and desire to become pregnant should wait at least 18 months following surgery to become pregnant or until the majority of expected weight loss is achieved. Until then, women should be placed on an appropriate method of birth control. It is important to note that oral contraceptives may not be well absorbed by the postoperative bariatric surgery patient.

Careful pre-pregnancy education of the prospective mother before and after bariatric surgery is essential. It has been shown that women who become pregnant soon after bariatric surgery are at increased risk for both maternal and fetal malnutrition. The risk of delivering a small-for-gestational-age (SGA) infant also increases. Women desiring a pregnancy after bariatric surgery should take a daily nutritional supplement containing 1mg of folic acid, 350mcg
of vitamin B12, 1200mg to 1500mg of calcium citrate, and 40mg to 65mg of iron.\textsuperscript{24} In the postpartum period women should be encouraged to breastfeed. Infants, however, should be closely monitored as they are at increased risk for nutritional deficiencies or failure to thrive even if the mother is asymptomatic, making optimum nutrition in the breastfeeding mother critical.\textsuperscript{23} Despite the risks, research has demonstrated that pregnancy can be safely undertaken in postoperative bariatric surgery patients, although the NP should be attentive to the unique challenges it may present.\textsuperscript{6}

\textit{Skin Excess}

Patients who have successfully lost weight through bariatric surgery are often faced with problems relating to excessive skin. Functional limitations and health concerns resulting from excessive skin include intertrigo and musculoskeletal strain. Moreover, difficulty with voiding, problems with hygiene, exercise, and sexual activity create challenges for many patients with excessive skin. Its presence may also create ongoing psychosocial concerns relating to body image. Plastic surgery procedures to help correct this are becoming increasingly common and may include abdominoplasty, body contouring, or body lifts.\textsuperscript{25,26} After bariatric surgery patients have achieved their goal weight loss, NPs should consider referral to a plastic surgeon if excessive skin creates ongoing complications for their patients.

\textit{Weight plateaus}

As patients experience weight loss after bariatric surgery, they may encounter weight plateaus. These plateaus are periods of time during which weight may remain consistent for four weeks or more.\textsuperscript{27} These plateaus may be especially concerning for patients who have not reached their goal weight and they represent a critical time for continuing patient education regarding dietary choices, the importance of exercise, and realistic weight loss expectations.
Lifestyle modification is necessary for patients to achieve successful sustained weight loss with bariatric surgery.

According to the American Society for Bariatric Surgery (ASBS), typical weight loss after Roux-en-Y gastric bypass is over 100 pounds (lbs), or approximately 65% to 75% of a patient’s excess body weight (EBW). “Weight loss generally levels off in 1 to 2 years, and a regain of up to 20lbs from the weight loss nadir to a long-term plateau is common”. Gastric banding patients typically experience a gradual weight loss resulting in loss of 50% of their EBW by two years postoperatively. Duodenal switch patients are expected to lose approximately 70% of EBW without significant weight regain.

As previously described, patients should be encouraged to eat small, frequent, low-fat meals that include protein, nutrient-dense foods, and carbohydrates with a low glycemic index. Carbohydrates with a high glycemic index, such as fruit juices, pasta, and potatoes, may slow down weight loss or even halt it. Exercise is also a critical component to success after weight loss surgery and patients should be encouraged to exercise regularly to maintain lean muscle mass and improve and sustain weight loss after surgery. Research has shown higher postoperative BMI’s to be related to lower postoperative physical activity.

Psychosocial implications

Obesity is linked to a variety of psychiatric/psychosocial disorders that significantly affect a patient’s quality of life both before and after bariatric surgery including anxiety, depression, obsessive-compulsive disorder, social phobias, eating disorders, and hypochondriasis. The incidence of anxiety and depression is three to four times greater in obese patients. It is also estimated that up to half of patients seeking bariatric surgery could be diagnosed with at least one DSM Axis-I disorder. Psychological evaluations are commonly
performed prior to bariatric surgical procedures as part of routine preoperative screening. As noted by the ASBS “…patients are typically faced with initial dietary restrictions, permanent changes in eating and dietary habits, altered body sensations and experiences, shifting body image and self care behaviors, new cognitions and feelings, and an emerging and different lifestyle”.30

Postoperatively, research has shown improvement in health-related quality of life as well as a reduced incidence of depression.10 However, social and interpersonal relationships with friends and family frequently change, often as a result of the patient’s newborn self-image. As postoperative bariatric surgery patients experience the psychosocial adjustments associated with weight loss, it is important for NPs to be sensitive to the changing needs of these patients and the potential need for psychosocial support. Many communities and hospitals provide support groups for bariatric surgery patients and various internet sites, such as www.obesityhelp.com, offer patients the opportunity to connect with other bariatric surgery patients. Patient participation in organized support groups has been shown to improve weight loss after surgery.31 Referral to a mental health provider may be indicated for patients who have difficulty adjusting well in the postoperative period.

**Role of the Family Nurse Practitioner**

Patients with a history of bariatric surgery pose a unique challenge to NPs in the primary care setting. Supporting the postoperative bariatric surgery patient can be very rewarding when successful surgeries provide improved health and quality of life for patients. However, these same patients provide challenges to the NP, particularly if they are unable or unwilling to follow the advice provided by healthcare providers or if they are experiencing postoperative complications.
According to Funnell, Anderson, and Ahroni\textsuperscript{32} a model of empowerment and self-management may help provide continual support to the postoperative bariatric surgery patient. As an alternative to the traditional prescriptive approach to patient care, they recommend a more collaborative approach in which the healthcare provider and patient act in a partnership toward healthcare goals. For instance, beginning a visit by asking the patient how they are feeling and how they are managing their health-related goals instead of immediately focusing attention on the patient’s weight, diet, exercise, and medications, sets the stage for a more collaborative interaction. This philosophy of empowering bariatric surgery patients requires that patients be “well-informed active partners or collaborators in their own care” and that healthcare providers assist patients in making informed decisions “to achieve their goals and overcome barriers through education, appropriate care recommendations, expert advice, and support”.\textsuperscript{32} This approach also allows the NP to immediately extract from the interview what the patient views as their primary obstacle or concern. Addressing these issues first may lead to greater overall success in furthering the patient’s health-related goals.

As bariatric surgical procedures become increasingly common, NPs will be required to assume more responsibility of lifelong postoperative care. Providing safe and effective care to this patient population can be confidently managed by gaining an awareness of current practices in bariatric surgery and common or potential postoperative concerns. Facilitating a collaborative relationship with patients may improve postoperative outcomes and lead to the continued success of bariatric surgery as a treatment for morbid obesity.
References


22. Fernstrom JD, Courcoulas AP, Houck PR, Fernstrom MH. Long-term changes in blood pressure in extremely obese patients who have undergone bariatric surgery. *Arch Surg.* 2006; March;141:276-283.


Sounds fine and you have my permission
You will need to attach a written statement that I can sign and fax back
to you if you need an actual signature
One thing that somehow got cut off the original paper is
recommendations for B12 yearly
Good luck
Ken

-----Original Message-----
From: Jennifer Johnson-Carlson [mailto:carlsjen@ohsu.edu]
Sent: Friday, September 22, 2006 11:24 PM
To: Fujioka, Ken MD
Subject: Re: Bariatric surgery article published Diabetes Care 2005

Mr. Fujioka,

I am a family nurse practitioner student at Washington State University
in Vancouver, Washington currently working on a clinical project
involving the primary care aspects of bariatric surgery. I found your
article "Follow-up of Nutritional and Metabolic Problems After Bariatric
Surgery", published in the October 2005 issue of Diabetes Care, quite
informative. Although there is currently a lack of standard guidelines
regarding the recommended laboratory follow-up required following
certain bariatric procedures, your recommendations based on clinical
practice alone are the most precise I have found in the literature thus
far.

I am interested in including your table "recommended follow-up of the
bariatric surgery patient by the non-surgeon" in my clinical project
paper as a way to clarify the importance of regular laboratory follow-up
of postoperative bariatric surgery patients. Written permission by you,
the author, is required in order for me to include this content in my
clinical project paper. My intentions are to submit my completed
article to the Washington State University Intercollegiate School of
Nursing as a requirement for graduation. I also anticipate submitting
my article to The Nurse Practitioner publication.

Please feel free to contact me if you have any questions or would like
me to send you a copy of my paper in its entirety. My faculty advisor
is Louise Kaplan, Phd, ARNP, if you would like to speak with a WSU
faculty representative. She can be reached at (360) 546-9618 or by
e-mail at kaplanla@wsu.edu.

Thank you,

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