Bariatric Surgery in the KP Northwest Region: Optimizing Outcomes by Using a Multidisciplinary Program

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Abstract
Although bariatric surgery can be an appropriate treatment option for extremely obese patients, uncertainty exists as to how to optimize treatment outcomes. This article describes a coordinated multidisciplinary program designed to educate and behaviorally prepare patients for bariatric surgery and to support long-term behavioral change.

Key aspects of our program include adequate preoperative obesity-related assessment, including nutritional, psychosocial, and physical assessment; emphasis on preoperative behavior change; changing the inpatient surgical treatment care path to decrease the length of hospital stay; and providing long-term management by using enhanced clinical decision support that includes Intranet-based practice resources embedded in the electronic medical record. Self-care is facilitated through group classes and support groups.

A multidisciplinary bariatric program optimizes short- and long-term postoperative success and maximizes the safety and cost-effectiveness of bariatric surgery.

Introduction
Bariatric surgery can be an appropriate treatment option for severely obese patients with obesity-related medical or functional problems and is a covered benefit for many Kaiser Permanente (KP) members. Despite the popularity of weight loss surgery, little information is available to guide programs toward improving the quality and cost-effectiveness of care. This article describes the KP Northwest Region (KPNW) bariatric surgery program, which we believe is a model of multidisciplinary collaboration that efficiently delivers excellent patient care to a high-risk population. Since 2001, over 200 Health Plan members in KPNW have participated in our preoperative program and subsequently had bariatric surgery. To better understand this process from a Health Plan member’s perspective, we asked one of our program participants for her perspective on how bariatric surgery and the preparation for it has changed her life. She told us:

I knew I needed to make some changes. I felt my health slipping away. Walking caused pain—by the time I was able to get to my car in the parking lot at the end of the day, I would be in tears. A fall where I could not get up without help “woke me up.” I weighed 325 pounds on a 64-inch frame. I developed health conditions related to weight. I was tired, in pain, and had little energy. About ten years ago, I went to my doctor for a check-up. He told me, “come back when you have lost weight.” Needless to say, I never went back. I had been through bariatric surgery before—I had a stomach stapling—but eventually regained the weight. I knew I had only one more chance.

A Problem of Quality
The prevalence of extreme obesity is increasing rapidly as are the human and economic costs of obesity-related diseases, such as diabetes, hypertension, weight-bearing joint disorders, sleep apnea, and lipid abnormalities. Disability, work loss, and daily pain also are strongly associated with extreme obesity.

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Disability rates for basic activities of daily living are fourfold higher in the severely obese population.\(^5\)

Unfortunately, obesity and severe obesity are common in KPNW member population: 37% of adults in this population are obese, and 7% have been identified as both severely obese (BMI > 40) and as potential candidates for bariatric surgery. Research data from the KP Northern California Region indicates that health costs are 80% higher in KP members with severe obesity as compared with members whose weight is normal.\(^6\) Traditional clinical weight management strategies and primary care-based management approaches have shown only limited effectiveness in severely obese patients. The primary care approach is limited by the comorbid disease burden, inadequate obesity assessment in this context (ie, due to short visit length), and high rate of psychosocial distress in this population.

Roux en y gastric bypass surgery is considered an appropriate treatment option for selected patients. National consensus guidelines\(^7\) suggest that bariatric surgery should be done only in motivated, educated patients who have completed an interdisciplinary assessment process and a trial of behavior-based weight loss. However, adequate preoperative obesity-related assessment, preparation, and education combined with postoperative support have not been either the standard of care in our community nor used in KPNW before our multidisciplinary coordinated program was created. Community surgeons have been willing to operate on unprepared patients, and commercial insurance companies have provided inadequate coverage for preoperative preparation and nonsurgical follow-up.

For severely obese patients who seek bariatric surgery, the result of this situation has been poor-quality care: expensive, risky operations on unprepared patients; an unnecessarily high number of perioperative complications and extended hospital stays; long-term nutritional and medical complications; and fragmented care that lacks necessary coordination between patient, primary care clinician, and surgeon. Although national statistics are difficult to ascertain, excessive weight regain following bariatric surgery can occur and usually results from failure to sustain the behavioral change necessary to support both weight loss and long-term maintenance of this weight loss. Owing to concern about an excessive number of complications and patient deaths, well-established bariatric surgery programs in our community have either closed or have temporarily suspended operations as have prestigious programs in respected academic centers.\(^7\)

In this environment, KPNW Severe Obesity and Weight Management Program was founded in 2001 and is supported by a collaborative team from the Departments of General Surgery, Internal Medicine, Health Education, Nutrition Services, Social Work, Physical Therapy, and Inpatient and Ambulatory Nursing. The program is designed to serve the needs of three stakeholders: severely obese members contemplating bariatric surgery, clinicians struggling to manage the obesity-related disorders of their patients, and administrative concern about meeting members’ needs in a clinically effective, cost-efficient manner. From the outset of the program, our work has been guided by the following philosophy:

- An expert, coordinated regional multidisciplinary team will best serve our patients.
- Severe obesity is a complex multifactorial condition in which food is often used as a coping mechanism for stressors.
- Detailed individual assessment, psychosocial management, and physical rehabilitation are prerequisite to surgical intervention.
- Preoperative education and behavioral change result in safe, effective weight loss and maintenance.

The Importance of Preparation

The bariatric program participant continued her story:

I was nervous about attending the introductory class called “Options for Severe Obesity.” I was a little less nervous after I went—the team obviously took this decision seriously, answered my questions, and it turned out that a lot of other people were struggling with the same issues. I was nervous again when I had individual consultations with the dietician, social worker, and physical therapist. I didn’t believe the physical therapist, Tamara, when she told me I would be able to get active and that I needed forearm crutches. She told me to get into the water to do aerobics. It wasn’t easy, but I did it—and over the next year before surgery, I got stronger and healthier. I lost some weight too. And it turns out that no one really cares what you look like in a swimsuit at six in the morning!

The goal of our preoperative preparation program is to ensure that the surgery is done for informed and prepared patients while improving their health, helping them to achieve greater insight into obesity,
and supporting new sustainable behavior patterns that will promote long-term maintenance of weight loss. Behavioral expectations are clearly stated from the time of referral, and referred members are advised that the rate of their progress through the program is directly related to the success of their behavioral change. Goals are set individually and are reassessed at follow-up visits. Care is provided efficiently through group classes and group visits as well as through individual sessions where the need for this intervention is documented in the EMR (Figure 1). All program participants are advised to maintain adequate physical activity, monitor their weight, and maintain a healthy diet. They are also encouraged to attend bariatric support groups throughout the preoperative process. At all times, behavioral change is emphasized more than weight loss, although weight loss is an excellent marker for ongoing efforts at behavioral change. A nurse case manager tracks for ongoing efforts at behavioral change. Goals are set individually and are reassessed at follow-up visits. Care is provided efficiently through group classes and group visits as well as through individual sessions where the need for this intervention is documented in the EMR (Figure 1). All program participants are advised to maintain adequate physical activity, monitor their weight, and maintain a healthy diet. They are also encouraged to attend bariatric support groups throughout the preoperative process. At all times, behavioral change is emphasized more than weight loss, although weight loss is an excellent marker for ongoing efforts at behavioral change. A nurse case manager tracks progress through the program. Patients move through the program at their own pace; the typical duration of preoperative preparation ranges from 6 months to 18 months.

An extensive preoperative questionnaire is the basis for evaluating patients’ baseline quality of life and functional status; this questionnaire thus provides information necessary for improving the bariatric program’s quality. The questionnaire contains validated screening measures of common obesity-related conditions including sleep apnea, binge eating, depression, and adverse childhood experiences. In an obese person, any of these issues may be driving the obesity and may affect management strategies.

**Psychosocial Preparation**

A critical first step in preparing an obese patient for bariatric surgery is to adequately assess the psychosocial factors and life events that may have contributed to the patient’s weight problem. Depression and eating disorders (eg, binge eating or night eating) have been well established as factors that may lead to overeating and to weight gain. Recognition of these problems can be a foundation for behavioral change and treatment. Review of the patient’s weight history often alerts the clinician to major life events (eg, childbirth, divorce, depression, or addiction transference) that coincide with the patient’s excessive weight gain. Adverse childhood experiences such as physical, emotional, or sexual abuse, frequent humiliation, and growing up in the presence of substance abuse are common—both in our member population and in the wider population—and may result in excessive weight gain or maladaptive coping patterns. Understanding the role of weight and food in a person’s life is important. Every patient is different: one may describe obesity as conferring a sense of power, whereas another may feel invisible as a result of the obesity. Patients who have used eating or obesity as coping mechanisms can easily become vulnerable after surgery when these coping mechanisms have been removed. New, healthy, adaptive mechanisms unrelated to food must be developed as part of presurgical preparation. Patients also must be prepared for postoperative psychosocial stress related to possible disruption of family relationships, changing body image, or sexuality-related issues. A useful strategy for addressing these issues may include referral to mental health resources, stress management resources, community resources, or a combination. Another useful strategy is for the patient to attend postoperative bariatric support groups to share similar experiences with others. Another approach, journaling—whether used as a complete strategy or in conjunction with other activities—can provide insight into the change process and has been used successfully in our bariatric population.

**Physical Preparation**

Physical preparation results in improved mobility and strength, and this conditioning promotes earlier ambulation after surgery and more successful preoperative weight loss and sets the stage for postsurgical maintenance of weight loss. Having a physical therapist as an integral part of our bariatric team has been critical for achieving these goals. Before bariatric surgery is scheduled, all patients are required to work toward establishing a 60- to 90-minute daily home exercise program that includes moderate aerobic activity; warm-up and cooldown exercises; and stretching and strengthening exercises. Properly fitting, shock-absorbing footwear is
recommended for patients who can tolerate walking. Water aerobics—
even just “water walking” in accessible pools—are excellent activities
that are well accepted by bariatric patients. Owing to the excessive
forces on joints, higher-impact activities, such as running and jumping,
must be avoided. Patients receive education about avoiding overheating and heat exhaustion
(possible consequences of the insulating properties of excessive adipose tissue).

Many severely obese people have major physical challenges—degenerative joint disease, plantar fasciitis, asthma or respiratory insufficiency of obesity, and deconditioning are common examples—that may preclude traditional exercise routines. Obese people may also have psychologic barriers and negative attitudes about activity (ie, because of previous injury or pain experienced during activity) or may fear the humiliation they expect to suffer if they are seen exercising. Patients who cannot progress gradually to these exercise regimens are referred for individual physical therapy for assessment and for development of a management plan. This treatment facilitates individual assessment of rehabilitation potential and may include positioning for sleep, body mechanics training, methods of optimizing independent mobility, pedal edema management, use of adaptive equipment, pacing, and graduated progression of the home exercise program. The ultimate goal is to find safe, sustainable physical activities that can be incorporated into daily life and daily routine on a long-term basis. Specific criteria are used for assessing physical rehabilitation potential, and bariatric surgery candidates must have “fair” or “good” rehabilitation potential before they can be scheduled for bariatric surgery.11

Nutritional Preparation
Most patients presenting for bariatric surgery have proved to be “expert dieters” but may nonetheless lack the behavioral skills or basic nutritional knowledge needed to maintain a lower body weight. All members contemplating bariatric surgery are strongly encouraged to attend the KPNW Health Education Service’s “Freedom from Diets” research-based weight management program. This program uses a nondiet, behavioral approach to improve eating and everyday fitness. The program emphasizes alternative (ie, nonfood) strategies for coping with stress and for preventing “emotional eating.” During this program and throughout the preparation process, patients learn to set specific, attainable goals for food and exercise management. Use of four to six daily low-fat, low-sugar, hypocaloric meals often leads to modest weight loss—one to two pounds weekly—and mentally prepares patients for the frequent meal times needed after surgery. Structured meal times help patients to manage their clinical or subclinical problems with binge eating. After patients attend the group classes, the program dietician individually assesses program members’ progress and fine-tunes strategies until members show confidence in sustaining the types of behavior necessary for maintaining a healthier body weight. Immediately before surgery, group classes are used to discuss and solve problems related to postoperative dietary progression.

Medical Preparation
Optimization of patients’ medical status usually parallels their efforts at behavioral change. Before surgery can be scheduled, chronic diseases—diabetes and hypertension, for example—must be controlled, and patients must be current with scheduled health maintenance examinations. Sleep apnea is prevalent in the severely obese population, and perioperative risk is thought to be reduced by adequate preoperative management of this condition. All patients are screened for sleep apnea as part of their preoperative questionnaire and are referred for overnight sleep study if indicated. Nonsteroidal antiinflammatory medication is stopped before surgery, because these drugs present a risk for bleeding and stomach ulceration. Other pain management strategies are then substituted.

Outcomes of Preparation: Improved Health and Readiness
The success and usefulness of the preoperative preparation process has been obvious: Presurgical weight loss has been as much as 125 pounds and has averaged a mean 19 pounds per patient. Patients participating in the bariatric program have had improvement in all dimensions of health: comorbid medical conditions, pain, functional level, exercise tolerance, mood, and stress levels. Moreover, several patients achieved such benefit from the preoperative preparation that they subsequently opted not to pursue surgery! For most patients, education and preparation have contributed to smooth, uneventful hospitalization, allowed patients to know what to expect after surgery, and ensured that patients are physically ready to move around and start a liquid diet on the first postoperative day. Despite concern that the preoperative process is slower than they would like or the perception that preparation is a “barrier” between them and bariatric surgery,
most program participants who have had the surgery recognize that the extensive preparation was valuable, necessary, and critical—both for positive initial results and as foundation for long-term maintenance of weight loss (L DeBar, PhD, MPH, personal communication, April 2004).  

Improving the Inpatient Experience  
Our patient said also of her experience with the bariatric program:

Surgery went smoothly for me. The inpatient RNs knew what to do and helped me a lot. It wasn’t fun, but I knew what to do. I had surgery on Wednesday, started drinking a nutritional supplement—one ounce every 15 minutes—beginning on the next morning, and was walking the halls and went home on Friday. Once I got home, it was rough for a few days, but I got through it.

Bariatric care at the KP Sunnyside Medical Center was regionalized to improve consistency and quality. After a needs assessment was completed, various improvements were made through collaboration between surgeons, operating suite staff, nurses, anesthesiologists, and hospital administration. Equipment (including special tables, instruments, and retractors) were obtained to meet the needs of patients receiving bariatric surgery. An orientation handout for all staff and a postoperative order template was developed by the operating suite team to improve coordination before, during, and after surgery. Inpatient units obtained needed equipment (eg, wheelchairs, commodes, beds, and linens) designed for the safety and comfort of bariatric patients. Sensitivity toward obese patients has been promoted via in-service training sessions for nursing staff and for other inpatient staff.

Within nine months and using rapid-cycle CQI and critical-incident analysis, changes in perioperative and postoperative care led to reduced length of hospital stay, improved pain management, and a safer and more sensitive inpatient environment. (Figure 2). Introduction of wound infusion devices that are used with local anesthesia rapidly eliminated epidural anesthesia as a supportive analgesic technique. Observations by nurses led to earlier transition to oral pain medication and feeding; and these results led to earlier ambulation and discharge. Because of the physical conditioning that precedes surgery, patients in the bariatric program are mobile and ambulatory during their inpatient stay, but a lift team is nonetheless available on an as-needed basis. For all these reasons, safety concerns of personal injury were allayed early in the program, and no staff have been injured. As expected for a high-risk patient population, major complications have occurred: For 9% of patients, the hospital stay has been six days or longer, and 18% of patients were ultimately readmitted to the hospital because of complications of bariatric surgery, including protracted postoperative vomiting, pulmonary emboli, wound infections, or elective readmission for incisional hernia repair. Although no standards yet exist for reporting complications, postoperative mortality rates have been consistent with national norms.

Maintaining Long-Term Success  
Our bariatric program considers that “success” in bariatric surgery is defined as enabling patients to achieve their own goals for their health; creating a safe operative experience and weight-loss process; and avoiding near- and long-term complications of bariatric surgery (including weight regain). We consider “extreme-obesity-status-post-bariatric-surgery” as a chronic medical condition with unique physiology and as a risk factor for later development of medical problems, including iron-deficiency anemia, vitamin B12 deficiency, and osteoporosis. Excessive weight regain also continues to be a concern and can be avoided with healthy eating and adequate physical activity. Strategies learned by patients during their preoperative preparation support other coping mechanisms unrelated to eating. Focus groups have indicated that patients who most effectively internalize the preoperative preparation have more successful long-term outcomes (L DeBar, PhD, MPH, personal communication, April 2004).  

From a systems standpoint, elements of the chronic disease model—eg, use of support groups to enhance self-care, use of safety-net registries, and use of clinical practice guidelines—are helpful for managing long-term risk and for promoting optimal health outcomes. The program dieticians and case manager actively follow patients for two years postoperatively via for-
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The visits by the dietician and case managers support positive behavioral change, monitor development of problems such as vomiting or excessive weight gain or weight loss, and help patients to follow their prescribed diet as they progress through the postoperative period and beyond. After patients receive initial surgical postoperative care, primary care practitioners address most care-related needs of the patients. Practice management guidelines and laboratory templates (embedded in the electronic medical record and available on the KPNW’s Intranet) efficiently support primary care clinicians in their work with patients who have received bariatric surgery.13 The bariatric team continues to be available for postoperative patients on an as-needed basis and leads four monthly support groups throughout KPNW for members and families involved in all phases of the bariatric program.

Our patient recently updated us on her progress. She told us:

“Tomorrow will be a year since my surgery and about two years since I was referred to the program. I’m really appreciative of the team for supporting and helping me through the process pre- and postoperatively. I’ve lost more weight than I thought I would, and my health has improved too. I still work at it—I do my water aerobics five times weekly at 6 a.m. and need to be careful with my diet. I somehow think that if I had been as prepared and knew what I know now at the time of my first operation, I might have not needed to go through bariatric surgery again. I have a bright future now and am so grateful for all you have done for me. You have given me my life back!”

References

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