The Commonwealth of Massachusetts
Executive Office of Health and Human Services
Department of Public Health
Betsy Lehman Center for Patient Safety
250 Washington Street, Boston, MA 02108-4619

MITT ROMNEY
GOVERNOR

KERRY HEALEY
LIEUTENANT GOVERNOR

RONALD PRESTON
SECRETARY

CHRISTINE C. FERGUSON
COMMISSIONER

WEIGHT LOSS SURGERY: A PRIMER FOR PATIENTS

THE ISSUE

Obesity is a major health problem in the Unites States and its incidence has reached epidemic proportions. In 2001-2002, the U.S reported 11 million people to be severely obese, or 100 lbs. above their ideal body weight. Obesity is a serious, complex, chronic disease. People with unhealthy body weight are at increased risk for developing illnesses such as high blood pressure, heart disease, type 2 diabetes, stroke, osteoarthritis, respiratory problems, sleep apnea and certain types of cancer. In the year 2000, in the U.S. 400,000 deaths were attributed to obesity related diseases.

In addition to the toll obesity takes on a person's physical health, perhaps one of the most painful aspects of being obese may be the psychological stress a person experiences. In American culture there is a strong emphasis on physical appearance, and attractiveness is often associated with being slim. There is a social stigma associated with being at an unhealthy body weight, which may result in people being discriminated against in the fields of education, the workplace, and healthcare.

People with obesity suffer from a chronic disease, which is often difficult to treat. Weight loss surgery, also known as bariatric surgery, may be an option for those who are severely obese and who have been unsuccessful in attempts to lose weight through nonsurgical treatment or who suffer from serious obesity related health problems. As the number of people with severe weight problems has increased, the number of weight loss surgeries has also risen. While only 402 gastric bypass operations were performed in Massachusetts in 1998, the number has climbed to 2761 procedures in 2003, and is expected to increase.

It was this increase in the number of weight loss surgeries as well as concern regarding the safety of these procedures that prompted Christine Ferguson, Commissioner of the Department of Public Health, to assign The Betsy Lehman Center for Patient Safety and Medical Error Reduction the task of convening an expert panel to study weight loss surgical programs and procedures. The 24 member expert panel consisted of specialists in the treatment of obesity, patient safety, nutrition, medical practice, managed care, pediatrics, nursing, ethics, and a consumer representative. Their report was extensive, comprehensive, and outlined what are considered the "best practices" for weight loss surgery.

The information found in this document is a tool and should not be considered all-inclusive for those who are considering weight loss surgery. It will explain the most common weight loss surgical procedures, explore the specific criteria required for potential candidates, and hopefully encourage dialog between patients and their health care providers. We recommend you continue to educate yourself, ask questions, and be sure your sources of information are accurate and reputable.

WHAT IS WEIGHT LOSS SURGERY?

Surgical procedures for the treatment of obesity have been available since the 1970's. Some of those such as the vertical banded gastroplasty (VBG), are becoming outdated, and have been replaced by procedures that have been improved through experience and enhancement of technique. Others, such s the biliopancreatic diversion are considered investigational. The two most common procedures performed in the United States are the Roux-en-Y Gastric Bypass (RYGB) and the Laparoscopic Adjustable Gastric Banding (LAGB).

To gain an understanding of the surgical procedures that are available, and how they promote weight loss, it is a good idea to become familiar with the anatomy of the gastrointestinal tract. Digestion begins in the mouth aided by the help of specific enzymes found in saliva. Once swallowed, food and fluids are propelled through the esophagus, stomach and intestines in a process known as peristalsis. Food and fluids move through the digestive system with the help of specific substances called enzymes. Nutrients, water and minerals from the intake of food are absorbed from the upper end of the small intestine. Undigested parts of the food are propelled to the colon, further digested, and the residual is expelled by the body as a bowel movement.

HOW DO THESE SURGICAL PROCEDURES WORK?

Roux-en Y Gastric Bypass (RYGB) - The most commonly preformed gastrointestinal weight loss surgery performed in the US is the Roux-en Y Gastric Bypass (RYGB). (Figure 1. below). There are currently two surgical approaches possible for this procedure. In a traditional or "open" RYGB, a large incision is made into the abdomen in order to perform the surgery. When the laparoscopic technique is utilized, several small incisions are made in the abdomen. A laparoscope connected to a video camera is inserted through the incisions. The physician is then able to perform the procedure assisted by viewing the internal organs on a television monitor.

In both open and laparoscopic Roux-en-Y bypass, the stomach is divided creating a small pouch, which is closed, by several rows of staples. (Figure 1.) The remaining portion of the stomach is not removed but is "bypassed", and plays a diminished role in the digestive process. A Y shaped portion of the small intestine is then attached to the pouch. The volume the pouch is capable of holding is approximately 1 oz. Weight loss occurs as a result of reduction of calories,.alteration in gut appetite hormones and decreased nutrient absorption.

The Roux-en-Y bypass is considered the "gold standard" for weight loss surgery. Proven benefits identified with both the open or laparoscopic technique include:

- Significant weight loss
- Improvement in obesity related health problems (i.e. cardiovascular disease, hypertension, type 2 diabetes, etc.)
- Reduction in patient mortality

Compared to the open procedure, when the laparoscopic approach is utilized, the post-operative recovery is shorter and the patient is less likely to develop certain complications (e.g. hernia). *However,* laparoscopic surgery is technically more complex, and it is extremely important that highly trained, qualified laparoscopic weight loss surgeons perform the procedure.

As with all surgical procedures, there are some risks associated with bariatric surgery. Complications, which may occur with the Roux-en-Y Gastric Bypass, include:

- Stomal obstruction (5-15% of patients)
- Postoperative bleeding (1-5% of patients)
- Small bowel obstruction (1-3% of patients)
- Gastrointestinal leak (1-3% of patients)
- Deep vein thrombosis (1-2% of patients)
- Splenectomy (1% of patients)
- Pulmonary embolus (0.5% of patients)
- Death within 30 days (0.5-1% of patients)
- Protein-calorie malnutrition (<1% of patients)

Laparoscopic Adjustable Gastric Band Procedure (LAGB) - An additional technique, which has been performed in the U.S since 2001, is the laparoscopic adjustable gastric band procedure. (LAGB). During this procedure, several small incisions are made in the patient's abdomen, and using a laparoscope for guidance, the surgeon places an adjustable band around the upper portion of the stomach. The band is connected to a reservoir, which the surgeon can tighten or loosen, by the infusion of varying amounts of a salt solution. (Figure 2, below) Weight loss occurs because the newly created upper pouch will only allow the patient to consume small amounts of food at a time.

LAGB has been shown to produce short-term weight loss. Since the procedure has only been available since 2001, the effect on long-term weight loss will continue to be monitored. This procedure is less invasive, fewer complications are seen, and patients experience an improvement in obesity related health issues. The surgeon and the patient will determine the type of weight loss surgical procedure that is suitable for each individual.

Complications, which may occur with LAGB surgery, include:

- Slippage of the band (2-3% of patients)
- Band erosion (1% of patients)
- Port infection (1% of patients)
- Injury to adjacent organs (0.5% of patients)
- Death within 30 days (< 0.5% of patients)

When looking at the risks associated with weight loss surgery, it is important to remember that obesity itself carries a high risk of mortality due to obesity related illnesses. For many patients

the potential risks from not having the surgery may be greater than the risks from possible complications of having the procedure.

WHO SHOULD PERFORM THE SURGERY?

In order to promote patient safety and reduce complications, highly trained board-certified or board-eligible surgeons in weight loss centers where at least 100 WLS are performed per year should perform bariatric surgery. Individual surgeons should perform 50-100 cases per year to be considered proficient in the specialty. Facilities where weight loss surgery is performed should provide a multidisciplinary approach to patient care.

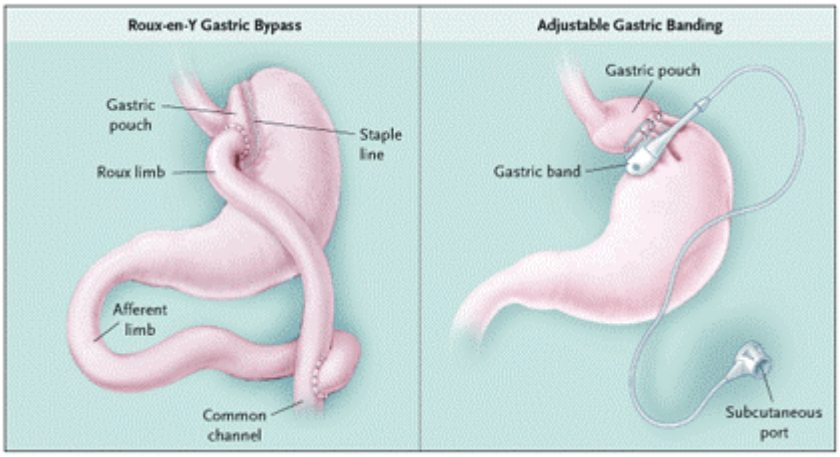

Figure 1. **Figure 2.**

Steinbrook R. Surgery for severe obesity. *New England Journal of Medicine*. 2004; 350:1075-1079

BODY MASS INDEX (BMI)

There are many overweight people in the US, but not all who are overweight are obese. Obesity is measured by a person's BMI, (body mass index), which is calculated from a person's height and weight. To determine your BMI click here: http://www.cdc.gov/nccdphp/dnpa/bmi/index.htm

A BMI of less than 18.5 means that a person is underweight, while a BMI of 18.5-24.9 is considered normal. A BMI of 25.0-29.9 indicates that a person is overweight. People with a BMI of > 30 are regarded as class I obese, BMI 35.0-39.9 class II, while a person whose BMI is ≥to 40.0 is described as severely obese, class III. (See Table 1.)

Table 1. Classification of Obesity

	OBESITY CLASS	BMI (kg/m²)
Underweight	---	**<18.5**
Normal	---	**18.5-24.9**
Overweight	---	**25.0-29.9**
Mild Obesity	I	**30.0-34.9**
Moderate Obesity	II	**35.0-39.9**
Severe Obesity	III	**≥ 40.0**

AM I A CANDIDATE FOR WEIGHT LOSS SURGERY?

Weight loss surgery is not cosmetic surgery. It is a life-altering major surgery and it includes all the discomfort which is controlled by pain management and risk of any major abdominal operation. The patient must understand that it will require a commitment to long term/life-long follow up care. To be eligible for weight loss surgery an adult must meet the specific criteria listed below:

- BMI ≥ 40 kg/m² or BMI ≥35kg/m² in association with major medical complications of obesity (e.g. cardiovascular disease, type 2 diabetes, sleep apnea)
- Be well informed and motivated
- Have a strong desire for substantial weight loss
- Have failed at non-surgical approaches to long-term weight loss
- Be considered an acceptable operative risk

WEIGHT LOSS SURGERY IN CHILDREN AND ADOLESCENTS

Weight loss surgery may be considered for the pediatric/adolescent age group providing the following criteria are met:

- BMI ≥ 40 kg/m² with one serious obesity related disease such as diabetes mellitus, obstructive sleep apnea or severe or complicated hypertension
- BMI ≥ 50 kg/m² with less serious obesity related disease
- Failure of non-surgical treatment for obesity such as diet, exercise or behavior modification
- Adolescents with lower BMI and life threatening obesity related health issues should be considered for weight loss surgery on an individual basis

Obese adolescents who would not be eligible for weight loss surgery include:

- Teens who have not attained near complete sexual development
- Teens who have not reached 95% of adult height
- Females who are pregnant, breast-feeding or plan to become pregnant within two years of surgery.

CONTRAINDICATIONS TO SURGERY

There are some circumstances where the risk of the surgery may outweigh the potential benefits. For example, weight loss surgery may by contraindicated for patients with severe pulmonary disease, unstable coronary artery disease, and other conditions which may seriously compromise anesthesia or wound healing. Women who are pregnant, planning to become pregnant within two years or are currently breastfeeding would not be considered for WLS. Additionally patients, who are unable to understand basic principles of the procedure or follow postoperative instructions, would not be considered as suitable candidates.

HOW SHOULD I PREPARE FOR SURGERY?

Prior to surgery patients should receive psychological, nutritional and medical care, in order to identify and treat potential problems as well as provide patients with greater understanding of the long term treatment which will be necessary. Patients who smoke cigarettes should be encouraged to quit 6-8 weeks prior to surgery. It is also recommended that all patients lose weight preoperatively if possible.

EDUCATION

One of the most important aspects in preoperative preparation for WLS candidates is education. Success of the surgical treatment depends on a highly motivated patient who has realistic goals, is committed and demonstrates a through understanding of the procedure, possible complications, lifestyle changes and medical guidelines which must be followed for the rest of their lives. Patients should be active participants in their own education. They should be encouraged to ask questions, and teaching techniques should be tailored to meet the individual's needs.

Particular attention should be paid to the patient's psychosocial needs. Prior to the surgery, a patient's support system should be identified. Families and friends should be included in the educational process. Some of issues, which should be explored, are the potential impact the surgery may have on relationships, as well as psychological issues, which a patient may experience after surgery.

Obesity is a very serious illness, which can lead to many medical complications. For patients who meet strict criteria, weight loss surgery is a proven intervention that leads to significant weight loss. In addition patients experience improvements in obesity related diseases, and reduce the risk of premature death.

QUESTIONS EVERY WEIGHT LOSS SURGERY CANDIDATE
SHOULD ASK THEIR SURGEON

Weight loss surgery is major surgery. It can result in improved health, greater quality of life and a longer life. However like all surgical procedures it carries a certain amount of risk. As a potential weight loss surgery candidate you should ensure that you are aware off all the risks, have researched your options, and are fully educated about the surgical procedure.

This checklist contains questions, which should be explored with your surgeon prior to scheduling the procedure. You might find it useful to print this document and take it when you see your physician. Your doctor should welcome these questions. If you don't understand the answers, ask the doctor to repeat and explain things clearly. Remember, an informed, educated patient is more likely to be satisfied with the outcome of the surgery.

- Why do I need surgery?
- What other nonsurgical treatments might be appropriate for me?
- How is the surgery expected to improve my health or quality of life?
- Which surgical procedure are you recommending for me?
- Can you explain the operation?
- Can you provide me with a diagram of the surgery?
- Do you have written materials or videotapes about this procedure that I can review?
- What are the risks or complications of this procedure? How often do they occur?
- Do the benefits outweigh the risks?
- What are your credentials? Are you board certified?
- What is your experience with this surgery and how many have you performed?
- Where can I get a second opinion?
- Where will the surgery be performed?
- How long can I expect to be hospitalized?
- Does the hospital provide formal education for patients undergoing bariatric surgery?
- What type of anesthesia will be used and what are the risks?
- How much pain is normal to expect, and how long will it last?
- Will I receive medication for the pain?
- What complications can arise after surgery? What are the signs of complications?
- How often will I need to return for follow up visits?
- Can you give me the name of someone who has undergone this surgery, and who would talk to me about it?
- Will my insurance cover the procedure?
- How can I learn more?