

Information for referrers to bariatric surgery¹

General background

Obesity is a chronic disease requiring multidisciplinary and long-term management. Here is the link to the Ministry of Health clinical guidelines for weight management in New Zealand adults;

[http://www.moh.govt.nz/moh.nsf/pagesmh/9838/\\$File/weight-management-adults-guidelines.pdf](http://www.moh.govt.nz/moh.nsf/pagesmh/9838/$File/weight-management-adults-guidelines.pdf)

In New Zealand morbid obesity is the second leading cause of preventable death after smoking. As BMI increases, so does the risk of dying prematurely. At BMI of 40 the risk is double that of people with a normal BMI and escalates above this BMI.

Obesity affects more people than can be treated with surgery currently so better overall management is needed. Bariatric surgery should be set in the context of wrap-around services that support pre-op and post-op programmes including nutritional and diet, lifestyle changes and other management

There are a number of factors that work together to cause obesity. The main one is genetic tendency but this together with hormonal, environmental, social and cultural factors produce a powerful and irresistible drive to eat. That drive is made up of two components that can be hard to draw apart; food addiction and insulin resistance.

Factors contributing to obesity

- Portion size
- Food choices
- Stress management/emotional
- Addictive behaviours
- Family relationships
- Lack of exercise

Food addiction; over time the brain comes to depend on food as the solution to challenging situations or as a way to make the good times better. Trying to overcome the urge to eat is harder than resisting alcohol and cigarettes because

¹ This document has been compiled from four main sources: patient information prepared by Auckland District Health Board; patient information prepared by Counties Manukau District Health Board, the Obesity Surgery website <http://www.obesitysurgery.co.nz/>, and the HAS (Haute Autorite De Sante) website <http://www.has-sante.fr>

we cannot give up food completely. Initial successful weight loss is often sabotaged once a plateau is reached as it is hard to continue and any stress becomes an excuse to break the diet. Often weight ends up being higher than before a diet (yo-yo dieting).

Insulin resistance; the normal fat cell is meant to take up fat and sugar when we eat and then release the stored energy two hours later as blood levels of energy reduce. Obese patients' fat cells do not release the energy so the brain registers insufficient fuel at 2 hours post-prandial and makes the patient hungry again. Insulin dysfunction is thought to be underlying this. Obese patients have raised insulin levels with a blunted response. Sugar and simple carbohydrates craving ensues.

So a combination of food addiction and insulin resistance can create an overwhelming obsession with food.

Bariatric surgery combined with lifestyle changes, is the most effective weight loss method for people with morbid obesity. Bariatric surgery is accepted as a cost effective option for the management of adult morbid obesity. Bariatric surgery can also be used to control or improve certain co morbidities, to improve quality of life, and to reduce obesity related mortality.

Pre operative discussion is important. Patients may have unrealistic ideas about the amount of weight they are likely to lose, the need for long-term follow up and potential complications. By itself, surgery is not a magic bullet.

For 3-6 months after bariatric surgery, appetitive suppression creates a window of opportunity to change eating habits and lifestyle. If eating patterns steadily improve, by 9-12 months after operation a wide range of high protein, moderate fat and low carbohydrate foods can be eaten, in socially adequate amounts.

Approach to selection of patients for publicly funded bariatric surgery

BMI can be a poor indicator of clinical need or functionality. A person with a lower BMI but with co morbidities related to their obesity could benefit more from surgery than someone with simply more weight. Therefore, the focus is on patients who will benefit most. Improvement in their health will help reduce future health expenditure.

In New Zealand publicly funded bariatric surgery is indicated for adult patients (aged 18 and over) who present with potentially reversible conditions alongside their obesity, these include the following:

- Type 2 diabetes

- Obstructive sleep apnoea
- Hypertension
- Non alcoholic steatohepatitis
- Gastrointestinal reflux disease
- Arthritis (especially when joint replacement is indicated but withheld due to obesity related issues)
- Obstetric/gynaecological issues e.g. pregnancy complications, polycystic ovary syndrome
- Infertility due to obesity)
- Urological/Renal conditions e.g. stress incontinence, hyperfiltration

There are few **absolute** contraindications for bariatric surgery:

- ASA score 4 or above*
http://www.anzjsurg.com/view/0/ASA_score.html
- Current non trivial malignancy

Relative contraindications include:

- Significant co-morbidities unlikely to be improved by bariatric surgery
- Uncontrolled psychiatric conditions (psychosis, severe neurosis or addiction)
- Previous gastric surgery or abdominal irradiation
- Non dietary causes of obesity (neurological e.g. Prada Willi syndrome, steroid induced etc)
- BMI less than 35
- Addictive behaviours e.g. smoking

The option to refer a patient for bariatric surgery should only be taken following a complete assessment of:

- Past efforts to lose weight. Where a patient has successfully lost weight previously it is likely they have the ability to change their lifestyle/eating habits
- Whether alternative non- surgical approaches are appropriate.

In addition, patients should be informed of the risks and side effects associated with bariatric surgery, as well as the need for long-term follow up care, as noted below.

Preoperative programme

Patients who are accepted for possible surgery after FSA enter a programme of preparation and assessment. This usually includes elements such as diagnostic tests such as gastroscopy, psychological assessment, nutritional assessment, starting a weight loss programme and beginning re-education on diet and exercise. Commitment to the programme is often considered a prerequisite for

being offered surgery as an indicator of likely initial success and ongoing adherence to long term requirements.

Types of surgery

The surgical techniques that are currently used are either restrictive or malabsorptive.

Restrictive procedures physically reduce the size of the stomach, initially limiting the amount of food that can be eaten, resulting in weight loss.

Procedures are:

- Adjustable gastric banding
- Sleeve gastrectomy

Malabsorptive procedures bypass the normal absorptive capacities of the gut.

Procedures are:

- Biliopancreatic diversion (no longer offered). It is a more extensive form of gastric bypass with the gastric pouch joined to the ileum. This results in more extreme malabsorption.

Gastric Bypass (Roux-En-Y, REYGB) is both a **restrictive** and **malabsorptive** procedure.

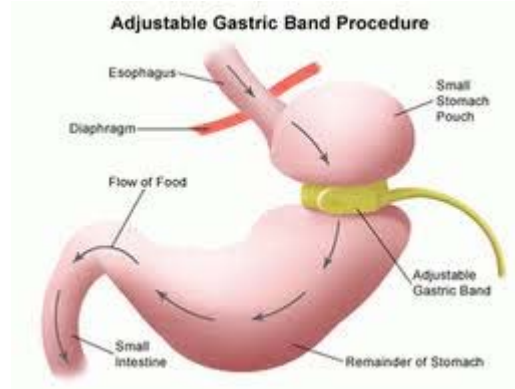
Laparoscopic sleeve gastrectomy and bypass have been shown to be safer, with less surgical morbidity, than open procedures.

Description of bariatric procedures

Laparoscopic adjustable gastric banding: is the simplest obesity operation. However it generally has the lowest percentage of excess weight loss. A silicone band with an inner circumferential inflatable balloon is placed around the upper stomach. The patient feels full after only a small amount of food. The band can be adjusted by injecting fluid into a reservoir (port) placed under the fat in the abdominal wall. The port is attached to the balloon of the band, enabling modification of the degree of restriction, depending on the rate of weight loss and any problems relearning to eat.

The operation requires a significant amount of commitment and compliance by the patient. The successes are great in those who take ownership of their lives, but in those who don't weight loss can be minimal or non-existent.

If the band dislodges or deflates weight loss stops. Hence the importance of monitoring weight loss long term. The average weight loss after two years with the band is 50-60% of excess weight.

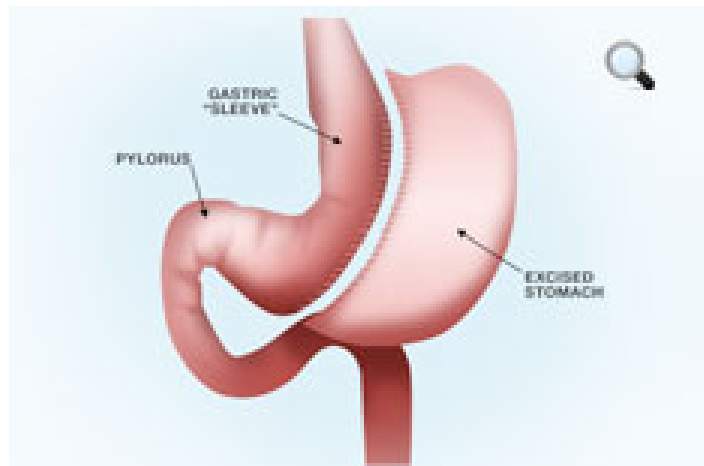


www.weightlossexercisediet.com

Sleeve gastrectomy: is a relatively new technique. It is an easier operation to perform than REYGB, as there are no joins and is being used more widely. There is less data on long term outcomes to date.

The procedure is performed laparoscopically; a stapler is used to completely divide the stomach, leaving a thin tube down to a normal outlet. The remaining stomach is removed through a slightly enlarged 12 mm incision. Weight loss at one year averages 60% of excess weight. In the first three months post operatively patients can be plagued with reflux and nausea.

The advantages are that there is less malabsorption so possibly less need for supplements, and there is little risk of bowel obstruction or ulcers. The disadvantages are similar to REYGB: bleeding and leaks from the staple line. This procedure is irreversible.



www.wyomingvalleybariatriccenter.com

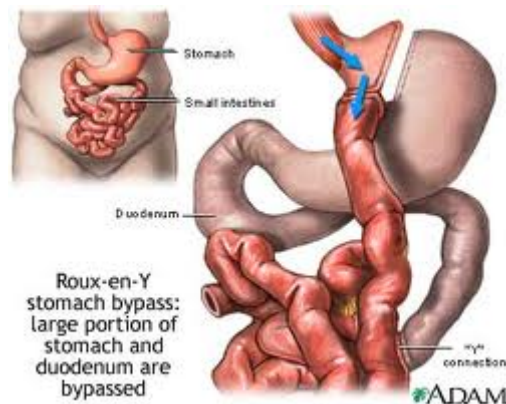
Gastric bypass: a small gastric pouch (restrictive) is created and joined to the jejunum, bypassing the duodenum and proximal jejunum (malabsorptive). Usually performed laparoscopically..

The stomach is completely divided with a stapler to leave a pouch that initially measures only 15ml. The small bowel is divided and the divided end brought up to the small stomach pouch. The other end is joined back to the small bowel about a metre from the stomach. Thus apart from a tiny pouch, the stomach and duodenum are bypassed.

The operation works in two ways: initially the pouch means that only a small amount of food (1/3 cup) can be taken in at a sitting, producing an rapid weight loss. Longer term an entrée sized meal can be eaten. The weight stays off because of a feeling of fullness after a small meal and switching off of the intense need to eat.

The procedure has a higher complication rate than some other operations. However the weight loss is more consistent and patients lose more, quickly. Patients will need to take daily supplements for the rest of their life. Complications arise from dividing and stapling including bleeding, leaks from joins or staple lines, and bowel obstruction.

The expected average weight loss is around 70% of excess weight.



www.nlm.nih.gov

weightlosssurgery.com.au

Complications and disadvantages of bariatric surgery

Risks: mortality from banding is in the order of 1:2000 whilst for sleeve gastrectomy and gastric bypass it is around 1:1000

Peri-operative complications

As for any abdominal surgery, include venous thrombo embolism, infection, bleeding and death. The less radical (such as gastric banding) and the

laparoscopic procedures have fewer serious complications. Bleeding after stapling-about 1% require transfusion

- Banding.

Possible complications of banding are band slippage, leakage, infection or migration.

Long term problems with the band relate primarily to over inflation and not changing eating habits, making patients vomit. If the band is too tight the gullet can eventually give up an stop pushing food through the band.

Too much vomiting can cause the small amount of stomach above the band to expand, giving night-time reflux and stopping solid food going down. Softer foods and liquids are more likely to be substituted. Unfortunately these tend to be carbohydrate rich foods, thus reactivating insulin excess causing weight regain.

A very tight band can erode the stomach, which is life-threatening. Rarely the band may deflate even years after the operation. Hunger will rapidly return with weight regain.

- Bypass surgery

Surgical complications include leakage or stenosis of the stoma, small bowel obstruction, hernias and GI ulcers or bleeding as the small bowel is not designed to receive stomach acid. Rerouting of the small bowel creates potential spaces for bowel torsion which can cause life-threatening bowel death.

Dumping syndrome: If undigested high sugar food passes into the small bowel it causes an osmotic effect resulting in symptoms such as nausea, sweating, flushing, light-headedness, palpitations, fatigue and diarrhoea. It is a neurohormonal reaction. It may help to discourage over eating. If patients don't experience the feelings of dumping they can eat simple carbohydrates and get back into the addiction cycle. About 30% of people experience dumping long term.

Malnutrition: micronutrient deficiencies are a recognised problem, especially with malabsorptive procedures and should be watched for. Iron, calcium, folate and fat-soluble vitamin deficiencies can occur. Thiamine, B12 and copper deficiencies may cause neurological symptoms. Protein – calorie malnutrition can also occur. Long-term follow-up is vital.

- General

Nausea and vomiting due to overeating or stenosis at the surgery site.

Hyperoxaluria and oxalate renal calculi; this can be mitigated to some extent by aggressive fluid intake, oral calcium and citrate supplementation.

Inadequate weight loss and weight regain. Inadequate weight loss may be due to the surgical procedure e.g. size of the band. Both inadequate loss and regain can be due to behavioural patterns that may be assessed pre operatively to identify individuals at risk. Any patient can overcome the restrictions to intake if they try. Hence the need for ongoing support for lifestyle changes and monitoring of weight loss.

Gout will worsen immediately post-operatively due to increased protein breakdown. This can be minimised by high protein intake.

Follow up and management of the patient post operatively

Follow up and management of the patient is lifelong. Obesity is a chronic disease and there can be late complications after surgery. Follow up consultations must focus on:

- Assessing psychological and relationship impacts of this life-changing procedure.*

Patients need support for dealing with their own self-image changes. Spouses, family members, friends and work colleagues may or may not welcome the patient's new appearance and their need for ongoing dietary, nutritional and other life changes. Divorce rates have been recorded as doubling after surgery as part of significant life change. Addiction substitution can also occur such as from food to gambling. Learning better coping skills for dealing with life stresses and building self esteem may be part of post-op management.

- Support of lifestyle change with education on diet and physical activity.

The success of any obesity operation requires the patient to take responsibility for their eating and exercise patterns. Continue to give practical support for changed eating habits and lifestyle. Advise patients to:

- Eat three regular nutritious meals each day, with preferably no snacks in between
- Eat foods that help meet nutritional requirements
- Take time and chew food well. Stop when comfortable.

- Avoid drinking a half hour before and an hour after eating. Fluids will flush food through without achieving a sense of fullness
 - Take prescribed supplements such as B12, folate and iron
 - Exercise daily. This has been shown to be key to maintaining weight loss after surgery
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- Monitoring of weight loss maintenance. See above re possible signal for re referral re gastric band malfunction.
 - Prevention and detection of vitamin or nutritional deficiencies. Search for clinical signs (in particular neurological signs) and biological signs of malnutrition or vitamin deficiencies. Corrective supplementation after malabsorptive surgery is important.*
 - Identification of complications or malfunctioning of the surgical assembly.*
 - Adaption of treatments; treatment of comorbidities e.g. reduce/stop antihypertensives, reduce/stop hypoglycaemics and/or altered regime of treatments that may be affected by malabsorptive surgery.
 - Possible requirement for plastic surgery for skin excess. The majority of patients do not require plastic surgery but some will have significant functional problems with skin flaps. Usually this would not be considered till 2 years post surgery when weight and nutritional state are stable.
 - Effective contraception; pregnancy is preferably avoided till weight and nutritional state are stabilised.

*Link to referral resource page with relevant research papers;
<http://bariatric.hiirc.org.nz/section/17841/bariatric-surgery-discussion/?tab=4471>