



## Bariatric surgery – Cure-all for serious obesity?

The global trend for obesity has been accompanied by an increased interest in bariatric surgery. The impact of bariatric surgery can be impressive: after the operation, patients lose weight rapidly and, over time, associated conditions such as impaired glucose tolerance (including type 2 diabetes) and mild hypertension may no longer be evident. But how sustainable are the treatment results and what do they mean for risk analysis in life and disability insurance?

The number of bariatric operations is increasing rapidly. No other surgical discipline is experiencing such high growth rates. The reasons for this are quite clear. Worldwide, more and more people are dangerously obese and face the health care risks and the challenges of obtaining significant and sustainable weight loss. For select individuals in whom traditional weight reduction measures have failed, bariatric surgery can be a viable option, as more people are looking for an effective long-term remedy.

Doctors define “obesity” in adults as having a body mass index (BMI) equal to or greater than 30 kg/m<sup>2</sup> and “extreme obesity/Class III obesity” as having a BMI equal to or greater than 40 kg/m<sup>2</sup>. The incidence of extreme obesity is increasing particularly fast; in the U.S., it increased by 120 percent from 2000 to 2010 and in Canada there has been a 140 percent increase between 2003 and 2012. The situation is similar in many other industrialized countries.

In the past bariatric surgery was only recommended for extreme obesity (BMI 40 or higher). More recently, it is being promoted for individuals with BMI above 35 who also have a related co-morbid condition (e.g. type 2 diabetes, hypertension, etc.) and who have failed

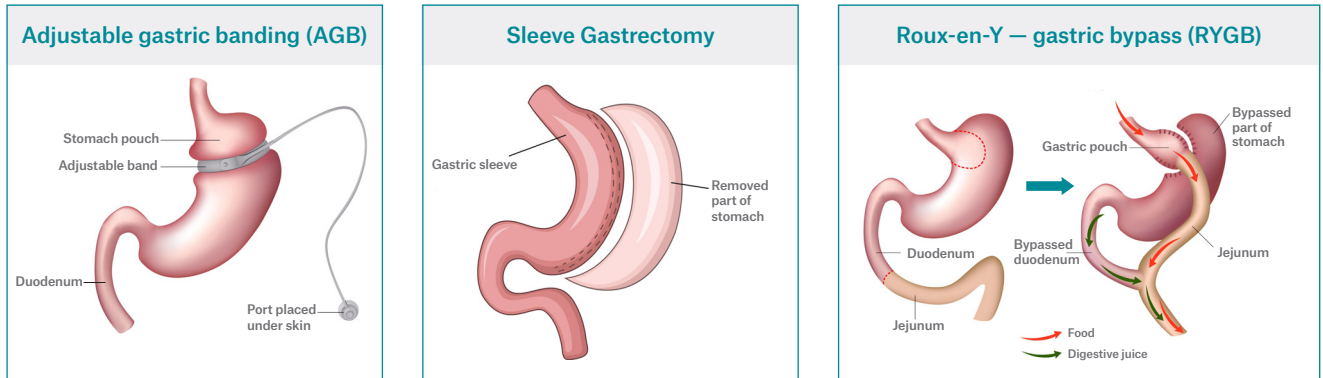
### WHAT YOU NEED TO KNOW

- Obesity (BMI>30) is associated with increased morbidity and mortality.
- A number of factors are key to risk assessment after bariatric surgery:
  - Pre- and post-op BMI
  - Age at time of surgery
  - Time since surgery
  - Impact of co-morbidities
  - Compliance with post-op care

to attain significant and sustained weight loss using other measures (diet, exercise, pharmacotherapy, etc.)

#### Obesity is the key cause of many widespread diseases

Obesity increases the risk of morbidity and mortality as it is frequently accompanied by secondary conditions including diabetes, high blood pressure, cardiac and circulatory issues, metabolic disorders, musculoskeletal impairments and certain forms of cancer. Doctors therefore advise patients to lose weight in a sustainable manner. When conventional methods such as changes in diet, physical activity and targeted medications are unsuccessful, bariatric surgery may become an attractive alternative. The various operative procedures (see info box) all can lead to significant and rapid weight loss and may also have a similarly positive effect on co-morbid conditions.



### The most common bariatric surgical procedures

Several different surgical procedures have now become established. The three most common approaches are illustrated above.

Bariatric surgery aims to limit the body's ability to absorb nutrients. To achieve this, the anatomy and functional capacity of the stomach can be surgically altered. Surgery can either (a) reduce the effective size of the stomach (by lap banding or partial gastrectomy), or (b) bypass parts of the gastrointestinal tract (RYGB procedure), or (c) combine both approaches.

### Diabetes can abate within a few days

The favorable effects of a bariatric procedure on obese patients with type 2 diabetes can be impressive. Blood sugar values can normalize within a few days of the operation, even before significant weight loss occurs. This phenomenon is not fully understood; changes in digestive hormone release in the stomach and duodenum probably play a role. But the initial results of the operation are clear and undisputed. Longer term studies have shown that in 70 percent of bariatric surgery patients with type 2 diabetes at the time of operation, the glucose levels are reduced to normal within the first two years after the operation. This high success rate does not always last, however. In 50 percent of the "cured" patients, glucose levels may increase to pathological levels again within ten years. Obese patients who developed diabetes close to the time of the operation have the best prospects for a long-term remission or "cure" from diabetes. Even after bariatric surgery, however, the risk of developing diabetes for obese and formerly obese persons is still double that of the general population.

### Impact on morbidity and mortality

Studies also demonstrate rapid initial success with regard to weight loss. Regardless of the surgical

procedure chosen, on average, patients may lose up to 32 percent of their body mass in the first two years after the operation. In subsequent years, however, some measure of weight gain generally occurs in all patient groups; this is most often the case in patients who previously had extremely high BMI values. The reasons for this are manifold and range from post-operative dietary compliance issues to postoperative complications that reduce the effectiveness of surgery or necessitate further procedures.

Nevertheless, in the majority of cases, and over time, BMI stabilizes at a significantly lower level than before surgical intervention - with a correspondingly positive effect on morbidity and mortality. This is shown by, for example, the Swedish SOS Study (Swedish Obese Subjects). In this study, the data of about 2,000 obese patients who received surgery and the data of an equally large patient group in conventional therapy were evaluated over an observation period of 20 years.

The results show that in the group selected for surgery, the long-term mortality was reduced by 30 percent compared to the patient group who did not receive surgery. The difference in outcomes was attributed to the reduced frequency and impact of secondary BMI-related conditions, specifically diabetes, myocardial infarction, stroke and certain cancers. There was, over the long term, also noted a small increase in all-cause mortality in the operated group related to non-BMI related causes, e.g., suicide, effects of medical treatment, etc., which was not sufficient to significantly offset the overall favorable mortality improvement.

### View from an insurance industry perspective

Despite its generally positive impact, bariatric surgery is not a simple cure-all for the potential consequences of extreme obesity. Patients undergoing successful bariatric procedures also require ongoing compliance

with dietary and nutritional guidance and life-long medical follow-up. Mortality during, and shortly after, the operation is less than one percent although, in some cases, more than one surgical intervention may be required. With successful bariatric surgery and good patient compliance, an individual's mortality risk can be significantly improved yet remains somewhat elevated for the reasons cited above.

As regards disability cover, claims experience suggests that bariatric interventions may be of variable benefit. In some cases it appears that insured patients who have undergone bariatric surgery file for claims only slightly less frequently than insureds who are obese and have not undergone surgery. A possible explanation for this may be that some long-term and less reversible effects of obesity may have already been incurred before the operation, for example, damage to components of the musculoskeletal system.

Whether reviewing an application for life or disability cover for individuals who have undergone successful bariatric surgery, individual consideration of factors such as age, pre- and post-operative BMI, time since surgery, potential impact of pre-existing or current co-morbidities and compliance with long-term post-operative care can be key to accurate risk assessment



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