



## Bariatric Surgery for Severe Obesity: Clinical, Economic, and Health System Impacts

### Technologies

Bariatric surgical procedures including:

- *malabsorptive/divisionary* – i.e., biliopancreatic diversion (BPD) with or without duodenal switch
- *restrictive* – i.e., adjustable gastric banding (AGB)
- *hybrid* – i.e., Roux-en-Y gastric bypass (RYGB).

### Issue

For severely obese populations, bariatric surgery may be an option when lifestyle modification has not worked. Both the clinical and economic burden of illness is large within such a population. In Canada, the demand for bariatric surgery is increasing and current demand cannot be met by using existing infrastructure. Policies and practices relating to the provision of bariatric surgery vary across Canada.

Decisions around the appropriate use and funding of bariatric surgery across Canada include determining the target patient population eligible for bariatric surgery and the optimal treatment options.

### Methods

A systematic review of the clinical and economic evidence published up to and including March 2010 was conducted. An economic model was developed to estimate procedure demand, capacity, and cost to increase capacity for bariatric surgery.

The economic model examined the costs and clinical effects of bariatric procedures versus standard care (lifestyle modifications – i.e., diet, exercise, and medical counselling). The perspective of the Canadian publicly funded health system was used for the economic model.

### Implications for Decision-Making

- **Based on limited data, bariatric surgery seems to be more effective than standard care for severe obesity in adults.** NOTE: Long-term data from large, adequately powered randomized controlled trials were lacking at the time of analysis.
  - The greatest amounts of weight loss were observed with diversionary procedures (BPD), intermediate effectiveness with hybrid procedures (RYGB), and the least amounts of weight loss with restrictive procedures (AGB).
  - Trade-offs between benefits and risks of adverse events, including the need for procedure reversal or conversion, were noted between procedures.
- **Bariatric surgery may be cost-effective for patients with a body mass index (BMI) of 35 kg/m<sup>2</sup> or more with obesity-related comorbidity OR patients with a BMI of 40 kg/m<sup>2</sup> or more, when compared against accepted thresholds of cost-effectiveness, especially in cases with multiple obesity-related comorbid conditions, or with diabetes.**
- **Gaps in knowledge remain regarding optimal service delivery.** Based on the literature:
  - Higher volumes of bariatric surgical procedures were associated with better clinical outcomes.
  - Current facilities do not meet existing demand and increases in capacity may not meet potential demand.

This summary is based on a comprehensive health technology assessment available from CADTH's website ([www.cadth.ca](http://www.cadth.ca)): Klarenbach S, Padwal R, Wiebe N, Hazel M, Birch D, Manns B, Karmali S, Sharma A, Tonelli M. *Bariatric Surgery for Severe Obesity: Systematic Review and Economic Evaluation* [Internet]. Ottawa: Canadian Agency for Drugs and Technologies in Health; 2010 (CADTH Technology Report; No. 129). [cited 2010-09-20].