Title: Bariatric Surgery for the Treatment of Morbid Obesity: Guidelines

Date: 11 January 2008

Context and policy issues:

Morbid obesity refers to individuals with a Body Mass Index (BMI) value greater than or equal to 40 kg/m². According to the Canadian Community Health Survey in 2001, 651,000 Canadians (2.7% of Canadian adults) had a BMI of 40 or greater. Obesity is a risk factor for a number of chronic conditions, such as diabetes and heart disease.

Numerous surgical and non-surgical treatment options for morbid obesity exist. Non-surgical treatments include a very low calorie or liquid diet, exercise therapy and lifestyle counseling or use of weight loss drugs (e.g., appetite suppressants and lipase inhibitors) in combination with diet and exercise therapy.

Bariatric surgical procedures for morbid obesity are considered when all non-surgical treatments have failed. There are two types of surgery; malabsorptive (bypassing part of the gastrointestinal tract to limit the absorption of food) and restrictive (decreasing the size of the stomach so that the patient is satiated with less food). Roux-en-y-gastric bypass (RYGB) and biliopancreatic diversion with duodenal switch (BPD-DS) are examples of the malabsorptive technique, and vertical banded gastroplasty (VBG) and laparoscopic adjustable gastric banding (LAGB) are restrictive techniques. Policy decisions across Canada include determining the target patient population eligible for bariatric surgery and optimal surgical procedure to treat morbid obesity.

This topic was brought forward by ongoing discussions by the Policy Forum. The mandate of the Forum is to provide federal, provincial, and territorial (F/P/T) jurisdictions with opportunities to share information and collaborate on health technology policy development, where it is beneficial to its members. Through access to evidence-based information about health
technologies and options, the Forum will identify opportunities to achieve common purpose and economies in the implementation, management, and decommissioning of health technologies. The Canadian Agency for Drugs and Technologies in Health serves as the Secretariat for the Forum.

Research questions:

1. What guidelines are available for the treatment of morbid obesity with bariatric surgery?
2. Are these guidelines evidenced-based?
3. What surgical treatments are available and funded in Canada by jurisdiction (province and territory)?

Methods:

A limited literature search was conducted on key health technology assessment resources, including PubMed, The Cochrane Library (Issue 4, 2007), University of York Centre for Reviews and Dissemination (CRD) databases, ECRI, EuroScan, international HTA agencies, and a focused Internet search. Results include articles published between 2002 and the present, and are limited to English language publications only. Filters were applied to limit the retrieval to health technology assessments, meta-analyses, systematic reviews and guidelines.

Two reviewers (JP, KC) independently assessed the guidelines using the Appraisal of Guidelines for Research & Evaluation (AGREE) Instrument. The AGREE Instrument provides a systematic framework to evaluate key components in the guidelines. In total, 23 items are reviewed and are grouped into six domains as follows: (1) scope and purpose, (2) stakeholder involvement, (3) rigour of development, (4) clarity and presentation, (5) applicability (i.e., organizational and cost implications of implementing guidelines), and (6) editorial independence (i.e., potential conflicts of interest from the guidelines development group and source of funding). Appendix 1 includes a summary of each domain. The items are scored separately on a four-point Likert scale (i.e. 4-strongly agree to 1-strongly disagree), followed by the domain scores (%) based on the average scores of the items. An overall assessment of whether the guideline should be recommended is also provided.

A federal, provincial and territorial program survey of surgical treatment options for morbid obesity was also conducted across Canada through communication with the appropriate contact person or website (provincial ministry of health and HTA agency) for each jurisdiction. Currently, HTIS only offers this service to the members of the Policy Forum.

Summary of findings:

One set of clinical practice guidelines on the management and prevention of obesity in adults and children, published by the Canadian Medical Association Journal (CMAJ), was identified. The primary objective of this guideline was to address both the management and the prevention of obesity in individuals. The guideline dedicates a chapter to the surgical treatment of morbid obesity.

Nine guidelines were identified from American agencies or institutes, such as the Society of American Gastrointestinal and Endoscopic Surgeons, American College of Physicians, California Association of Health Plans, the Department of Veteran Affairs, and American Society
for Bariatric Surgery Committee on Standards. Five guidelines focused on bariatric surgery, and four guidelines provided recommendations for the management of overweight and/or obesity, including bariatric surgery. The American College of Physicians also published guidelines on the pharmacologic and surgical management of obesity in primary care.

In Europe, the Bariatric Scientific Collaborative Group, European Association for Endoscopic Surgery, and numerous national associations of obesity, nutrition and diabetes in France put forth guidelines on obesity surgery. The United Kingdom also published two guidelines on obesity. Finally, the Singapore Ministry of Health published guidelines in 2004 on obesity.

The target population in all guidelines consisted of individuals who were morbidly obese. Two sets of guidelines were specific to the pediatric and adolescent population.

All guidelines on bariatric surgery in the adult population recommend that patients with a BMI greater than or equal to 40 kg/m$^2$ or with a BMI greater than or equal to 35 kg/m$^2$ with co-morbidities be eligible for bariatric surgery when non-surgical treatments have failed. Comorbidities may include severe cardiac disease, type 2 diabetes, obstructive sleep apnea and other respiratory disease, end-organ damage, pseudo-tumor cerebi, gastroesophageal reflux disease, hypertension, hyperlipidemia and severe joint or disc disease if it interferes with daily functioning. Additional criteria on the patient population for which bariatric surgery is recommended are included in Appendix 2.

Bariatric surgery recommendations for adolescents are provided in two guidelines. Adolescents with a BMI greater than or equal to 40 kg/m$^2$ with one serious comorbidity, or with a BMI greater than 50 kg/m$^2$ with less serious comorbidities and a failure of non-surgical treatments for obesity are eligible for bariatric surgery. Adolescents with a BMI less than 35 and life-threatening comorbidities should be considered for bariatric surgery on a case-by-case basis. The CMAJ guidelines recommend that bariatric surgery for adolescents be limited to exceptional cases.

Laparoscopic RYGB is the recommended bariatric surgery with the most evidence of sustained weight loss and improved comorbidities for patients with a BMI $\geq$ 40 kg/m$^2$. Laparoscopic procedures have lower mortality and morbidity compared with open procedures. Numerous guidelines also highlight the importance of appropriately trained surgeons to ensure the patients’ recovery and return to normal function with this approach. Moreover, a multidisciplinary team should provide the patient with preoperative and postoperative assessment, information on the available surgical options and management of comorbidities, psychological support, and access to suitable equipment, such as scales. Based on the results of five RCT studies, the American College of Physicians guidelines support the RYGB as a procedure that produces weight loss superior to that produced by gastroplasty procedures, such as VGB. The French guidelines also recommend RYGB as a first course of action in more severe forms of obesity, due to better efficacy in weight loss and lower risk of adverse events. The CMAJ guidelines suggest a minimally invasive technique for weight loss surgery if an appropriately trained surgical team and resources are available; however, they do not identify any particular surgical procedure. For the adolescent population, RYGB appears to be the most appropriate surgical option. Best practice guidelines by Apovian et al. in pediatric/adolescent weight loss surgery conclude that RYBG and LAGB are generally safe and produce sustained weight loss for this population group based on the limited data.
Some guidelines have suggested that there is insufficient evidence-based data to recommend an optimal surgical procedure and recommend that the patient and clinician review and discuss all available options prior to assigning a patient to a specific procedure.\textsuperscript{17,18,20} Guidelines published by the Institute for Clinical Systems Improvement, Singapore Ministry of Health, Clinical Resource Efficiency Support Team, and California Association of Health Plans described the existing evidence for each surgical procedure but did not provide any recommendations on the most appropriate option.\textsuperscript{13,14,21,22}

Seven guidelines used an evidence-based approach (i.e., systematic review of the literature using electronic databases, such as MEDLINE, EMBASE, Cochrane Controlled Clinical Trials Register and HealthSTAR) to develop their guidelines.\textsuperscript{7,8,11,16-18,20} The only Canadian guideline, which was published in CMAJ, and included in this report, used an evidence-based approach.\textsuperscript{7} The Singapore Ministry of Health workgroup conducted a hand search of published literature and electronic databases\textsuperscript{22}, and the remaining guidelines did not indicate the data sources for their recommendations.\textsuperscript{9,10,12-15,19,21}

A number of guidelines graded their recommendations based on the quality and strength of scientific evidence.\textsuperscript{7,8,13,17,18,22} The Oxford classification system for evidence was applied in three guidelines.\textsuperscript{8,17,18} The Institute for Clinical Systems Improvement, CMAJ Steering Committee, and Singapore Ministry of Health appraised the level of evidence and, subsequently, assigned a grade to recommendations.\textsuperscript{7,13,22} Details on the various methods used for assessing the evidence are included in Appendix 3.

The AGREE instrument was applied to the guidelines and their respective scores are displayed in Appendix 4. The CMAJ clinical practice guidelines and the recommendations put forth by NICE are strongly recommended in the overall assessment, since they achieved a score of greater than 60% in most domains.\textsuperscript{7,20} Furthermore, 11 guidelines in the report, with most domain scores between 30% and 60%, are recommended.\textsuperscript{8,11-18,21,22} Three guidelines had scores lower than 30% and are not recommended.\textsuperscript{9,10,19} Two guidelines scored zero on applicability,\textsuperscript{11,22}, and three guidelines which scored zero did not state any potential conflicts of interest and source of funding.\textsuperscript{9,10,16} In general, guidelines explicitly stated their scope and purpose and were clearly presented.

Currently, HTIS conducts surveys of federal, provincial and territorial programs only as a service to members of the Policy Forum. Information on morbid obesity treatment options provided by jurisdictions who responded to our queries is presented in Appendix 5.\textsuperscript{9} Five out of ten provinces (British Columbia, Alberta, Ontario, Quebec, and New Brunswick) perform bariatric surgery within their jurisdictions. Other jurisdictions that do not perform bariatric surgery refer eligible patients outside the province to access these services, and patients receive either partial medical coverage (i.e., cost of surgery and physician fees only) or complete medical coverage (i.e., cost of surgery and physician fees and travel expenses). The surgical procedures funded vary by jurisdiction. For example, LABG expenses are fully insured only in Alberta, Quebec and New Brunswick. Other jurisdictions may either partially fund or not fund the entire procedure.

\textsuperscript{a} The FPT Program Survey Summary information was true at that time it was collected and readers are advised to contact the ministries of health for up-to-date information.
Conclusions and implications for decision or policy making:

Authors of the guidelines recognize obesity as an epidemic and sought to provide a comprehensive approach to prevention, maintenance, and treatment of obesity (both surgical and non-surgical options). Recommendations on bariatric surgery to treat morbid obesity published in North America, Europe, and Asia are available in adults and adolescents, but not all guidelines are evidence-based. According to the reviewers’ scores based on the AGREE Instrument, some guidelines should not be followed. Also, a number of guidelines do not indicate the feasibility of applying the recommendations in terms of organizational and cost impact. All guidelines in the report include a review of the malabsorptive and restrictive procedures, and, in general, recommend RYGB as the optimal option due to the greatest amount of evidence for sustained weight loss. However, the procedure must be performed by a highly trained surgical team for a safe and effective treatment. Since the evidence is limited, further studies comparing the available procedures are necessary to make an informed decision on bariatric surgery to treat morbid obesity in the adolescent and adult population. The availability and funding of surgical and obesity drug treatments vary by jurisdiction. Some jurisdictions cannot provide the surgical procedures to its population due to the lack of health human resources available. As a substitute, they provide out-of-province referral and funding for eligible patients.

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Guidelines for Bariatric Surgery

References:


## Appendix 1: Summary of the AGREE Instrument⁶

<table>
<thead>
<tr>
<th>Domain</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope and purpose</td>
<td>It is concerned with the overall aim of the guideline, the specific clinical questions and the target patient population.</td>
</tr>
<tr>
<td>Stakeholder involvement</td>
<td>It focuses on the extent to which the guideline represents the views of its intended users. Guideline development should involve all stakeholders whose activities are likely to be covered in the proposed guideline. This should also include patient groups.</td>
</tr>
<tr>
<td>Rigour of development</td>
<td>It relates to the process used to collect and synthesise the evidence, the methods to formulate the recommendations and to update the guideline. This includes information about the literature searches that were carried out, criteria used to select the evidence and the methods used for formulating the recommendations. The recommendations should be explicitly linked to the supporting evidence. A guideline should be reviewed externally before publication and should contain a clear statement about the procedure for updating them.</td>
</tr>
<tr>
<td>Clarity and presentation</td>
<td>It deals with the language and format of the guidelines. Because the main role of guidelines is to help clinicians and patients make better decisions, busy clinicians need simple, patient-specific, user-friendly guidelines that are easy to understand. A good guideline presents clear information about the management options available and the likely consequences of each.</td>
</tr>
<tr>
<td>Applicability</td>
<td>It pertains to the likely organizational and cost implications of applying the guideline. Guidelines should be feasible to use in the current organization of care and must fit within routine practice and the time constraints of the jobs. In addition, review criteria should be derived from the key recommendations.</td>
</tr>
<tr>
<td>Editorial independence</td>
<td>It is concerned with the independence of the recommendations and acknowledgement of possible conflict of interest from the guidelines development group. An increasing number of guidelines are funded, directly or indirectly, by external funding. Those who fund guidelines may have a vested interest. There should be an explicit statement that the views or interests of the funding body have not influenced the final recommendations.</td>
</tr>
</tbody>
</table>
### Appendix 2: Additional Patient Selection Criteria for which Bariatric Surgery is recommended

<table>
<thead>
<tr>
<th>Guidelines (Authors, Publication Year, Country)</th>
<th>Additional Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006 Canadian clinical practice guidelines on the management and prevention of obesity in adults and children (CMAJ, 2007, Canada)⁷</td>
<td>None</td>
</tr>
<tr>
<td>Best practice guidelines in pediatric/adolescent weight loss surgery (Apovian <em>et al.</em>, 2005, US)₁⁶</td>
<td>• Additional considerations taken into account by most weight surgeons include family support, motivation, prior attempts at weight loss, and commitment to long-term follow-up.</td>
</tr>
</tbody>
</table>
| Bariatric surgery for severely overweight adolescents: concerns and recommendations (Inge *et al.*, Pediatrics, 2004, US)⁹ | Adolescents being considered for bariatric surgery should:  
• Have failed ≥ six months of organized attempts at weight management, as determined by their primary care provider.  
• Have attained or nearly attained physiologic maturity  
• Be very severely obese (BMI ≥ 40) with serious obesity-related comorbidities or have a BMI of ≥ 50 with less severe comorbidities  
• Demonstrate commitment to comprehensive medical and psychologic evaluations both before and after surgery  
• Agree to avoid pregnancy for at least one year postoperatively  
• Be capable of and willing to adhere to nutritional guidelines postoperatively  
• Provide informed assent to surgical treatment  
• Demonstrate decisional capacity  
• Have a supportive family environment |
<p>| Guidelines for the clinical application of laparoscopic bariatric surgery (Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) Publication #30, 2003, US)₁⁰ | None |
| Pharmacologic and surgical management of obesity in primary care: a clinical practice guideline from the American College of Physicians (Snow <em>et al.</em>, 2005, US)₁¹ | None |
| Clinical practice guideline for the screening &amp; management of overweight and obesity (The Management of Overweight and Obesity Working Group, 2006, US)₁² | None |
| Health care guidelines: prevention and management of obesity (mature adolescents and adults) Institute for Clinical Systems Improvement, 2006, US)₁³ | None |
| The consensus guidelines on bariatric surgery (California Association of Health Plans Obesity Initiative Workgroup, 2006, US)₁⁴ | None |</p>
<table>
<thead>
<tr>
<th><strong>Guidelines (Authors, Publication Year, Country)</strong></th>
<th><strong>Additional Criteria</strong></th>
</tr>
</thead>
</table>
• A commitment to, and mechanisms available for, life long follow-up. |
| Best practice recommendations for surgical care in weight loss surgery (Kelly et al., 2005, US) | None |
| Clinical guidelines: inter-disciplinary European guidelines on surgery of severe obesity (Fried et al., 2007, E.U.) | • Weight loss as a result of intensified treatment before surgery (patients who reach a body weight below the required BMI surgery) is not a contraindication for the planned bariatric surgery.  
• Bariatric surgery is indicated in patients who exhibit a substantial weight loss in a conservative treatment program but start to gain weight again. |
| Obesity surgery: evidence-based guidelines of the European Association for Endoscopic Surgery (E.A.E.S)(Sauerland et al., 2005, E.U.) | • Adult patients with a BMI between 30 and 35 accompanied by substantial obesity-related comorbidity or after prolonged medical treatment should undergo surgery only in the context of controlled clinical trials. |
| Recommendations regarding obesity surgery (Laville et al., 2005, France) | None |
| Obesity: the prevention, identification, assessment and management of overweight and obesity in adults and children (National Institute for Health and Clinical Excellence, 2006, UK) | • All appropriate non-surgical measures have been tried but have failed to achieve or maintain adequate, clinically beneficial weight loss for at least six months.  
• The patient has been receiving or will receive intensive management in a specialist obesity service.  
• The patient is generally fit for anesthesia and surgery.  
• The person commits to the need for long-term follow-up. |
| Guidelines for the management of obesity in secondary care (Clinical Resource Library Efficiency Support Team, 2005, UK) | None |
| Obesity (Singapore Association for the Study of Obesity, 2004, Singapore) | • Commensurate BMI thresholds for action among Asians may be 37.5 and 32.5 kg/m² |
### Appendix 3: Methods for Grading Evidence

<table>
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<tr>
<th>Name</th>
<th>Description</th>
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</table>
| **The Oxford Classification System** | Four levels of evidence:  
• Level A: consistent RCT, cohort study, all or none, clinical decision rule validated in different populations  
• Level B: consistent retrospective cohort, exploratory cohort, ecological study, outcomes research, case-control study; or extrapolations from Level A studies  
• Level C: case-series study or extrapolations from Level B studies  
• Level D: expert opinion without explicit critical appraisal, or based on physiology, bench research or first principles |
| **Singapore Ministry of Health** |  |
| **Level of Evidence** |  
• Level Ia: Evidence obtained from meta-analysis of randomized controlled trials  
• Level Ib: Evidence obtained from at least one randomized controlled trial  
• Level IIa: Evidence obtained from at least one well-designed controlled study without randomization  
• Level IIb: Evidence obtained from at least one other type of well-designed quasi-experimental study  
• Level III: Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies  
• Level IV: Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities |
| **Grades of Recommendations** |  
• Grade A (evidence levels Ia, Ib): Requires at least one randomized controlled trial as part of the body of literature of overall good quality and consistency addressing the specific recommendation  
• Grade B (evidence levels IIa, IIb, III): Requires availability of well conducted clinical studies but no randomized controlled trials on the topic of recommendation  
• Grade C (evidence level IV): Requires evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities. Indicates absence of directly applicable clinical studies of good quality  
• GPP (good practice points): Recommended best practice based on the experience of the guideline development group |
| **Canadian Medical Association Journal** |  |
| **Levels of Evidence** | 1. Randomized controlled trials (or meta-analyses) without important limitations  
2. Randomized controlled trials (or meta-analyses) with important limitations  
• Observational studies (non-randomized clinical trials or cohort studies) with overwhelming evidence  
3. Other observational studies (prospective cohort studies, case-control studies, case series)  
4. Inadequate or no data in population of interest  
• Anecdotal evidence or clinical experience |
| **Grades of Recommendations** | A-Strong recommendation (action can apply to most individuals in most circumstances) |
### Name

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<tr>
<th>Description</th>
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</table>
| • Benefits clearly outweigh risks (or vice versa)  
  • Evidence is level 1, 2 or 3 |
| **B-Intermediate recommendation** (action may vary depending on the person’s characteristics or other circumstances) |
| • Unclear whether benefits outweigh risks  
  • Evidence is level 1, 2 or 3 |
| **C-Consensus (weak) recommendation** (alternative actions may be equally reasonable) |
| • Unclear whether benefits outweigh risks  
  • Evidence is level 3 or 4 |

### Classes of Research Reports

A. **Primary Reports of New Data Collection:**

- Class A: Randomized, controlled trial
- Class B: Cohort study
- Class C: Non-randomized trial with concurrent or historical controls; case-control study; study of sensitivity and specificity of a diagnostic test; population-based descriptive study
- Class D: Cross-sectional study; case series; case report

B. **Reports that Synthesize or Reflect upon Collections of Primary Reports**

- Class M: Meta-analysis; systematic review; decision analysis; cost-effectiveness analysis
- Class R: Consensus statement; consensus report; narrative review
- Class X: Medical opinion

### Conclusion Grades

**Grade I:** The evidence consists of results from studies of strong design for answering the question addressed. The results are both clinically important and consistent with minor exceptions at most. The results are free of any significant doubts about generalizability, bias, and flaws in research design. Studies with negative results have sufficiently large samples to have adequate statistical power.

**Grade II:** The evidence consists of results from studies of strong design for answering the question addressed, but there is some uncertainty attached to the conclusion because of inconsistencies among the results from the studies or because of minor doubts about generalizability, bias, research design flaws, or adequacy of sample size. Alternatively, the evidence consists solely of results from weaker designs for the question addressed, but the results have been confirmed in separate studies and are consistent with minor exceptions at most.

**Grade III:** The evidence consists of results from studies of strong design for answering the question addressed, but there is substantial uncertainty attached to the conclusion because of inconsistencies among the results from different studies or because of serious doubts about generalizability, bias, research design flaws, or adequacy of sample size. Alternatively, the evidence consists solely of results from a limited number of studies of weak design for answering the question addressed.

**Grade Not Assignable:** There is no evidence available that directly supports or refutes the conclusions.
### Appendix 4: Quality Assessment of Guidelines using the AGREE Instrument

<table>
<thead>
<tr>
<th>Guidelines (Authors, Publication Year, Country)</th>
<th>Scope and purpose (%)</th>
<th>Stakeholder involvement (%)</th>
<th>Rigour of development (%)</th>
<th>Clarity and presentation (%)</th>
<th>Applicability (%)</th>
<th>Editorial independence (%)</th>
<th>Overall assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006 Canadian clinical practice guidelines on the management and prevention of obesity in adults and children (CMAJ, 2007, Canada)⁷</td>
<td>72</td>
<td>42</td>
<td>83</td>
<td>100</td>
<td>44</td>
<td>92</td>
<td>Strongly recommend</td>
</tr>
<tr>
<td>Best practice guidelines in pediatric/adolescent weight loss surgery (Apovian et al., 2005, US)⁸</td>
<td>61</td>
<td>16</td>
<td>45</td>
<td>71</td>
<td>56</td>
<td>42</td>
<td>Recommend</td>
</tr>
<tr>
<td>Guidelines for the clinical application of laparoscopic bariatric surgery (Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) Publication #30, 2003, US)¹⁰</td>
<td>22</td>
<td>17</td>
<td>17</td>
<td>38</td>
<td>50</td>
<td>0</td>
<td>Would not recommend</td>
</tr>
<tr>
<td>Pharmacologic and surgical management of obesity in primary care: a clinical practice guideline from the American College of Physicians (Snow et al., 2005, US)¹¹</td>
<td>72</td>
<td>38</td>
<td>43</td>
<td>88</td>
<td>0</td>
<td>75</td>
<td>Recommend</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Guidelines (Authors, Publication Year, Country)</th>
<th>Scope and purpose (%)</th>
<th>Stakeholder involvement (%)</th>
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<th>Clarity and presentation (%)</th>
<th>Applicability (%)</th>
<th>Editorial independence (%)</th>
<th>Overall assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical practice guideline for the screening &amp; management of overweight and obesity (The Management of Overweight and Obesity Working Group, 2006, US)</td>
<td>89</td>
<td>50</td>
<td>79</td>
<td>92</td>
<td>33</td>
<td>8</td>
<td>Recommend</td>
</tr>
<tr>
<td>Health care guidelines: prevention and management of obesity (mature adolescents and adults) Institute for Clinical Systems Improvement, 2006, US</td>
<td>67</td>
<td>46</td>
<td>40</td>
<td>83</td>
<td>61</td>
<td>8</td>
<td>Recommend</td>
</tr>
<tr>
<td>The consensus guidelines on bariatric surgery (California Association of Health Plans Obesity Initiative Workgroup, 2006, US)</td>
<td>50</td>
<td>38</td>
<td>19</td>
<td>58</td>
<td>33</td>
<td>8</td>
<td>Recommend</td>
</tr>
<tr>
<td>SSAT patient guidelines: surgery for obesity (The Society for Surgery of the Alimentary Tract, 2005, US)</td>
<td>50</td>
<td>33</td>
<td>19</td>
<td>42</td>
<td>11</td>
<td>0</td>
<td>Recommend</td>
</tr>
<tr>
<td>Best practice recommendations for surgical care in weight loss surgery (Kelly et al., 2005, US)</td>
<td>44</td>
<td>17</td>
<td>41</td>
<td>71</td>
<td>56</td>
<td>42</td>
<td>Recommend</td>
</tr>
<tr>
<td>Clinical guidelines: inter-disciplinary European guidelines on surgery of severe obesity (Fried et al., 2005, US)</td>
<td>56</td>
<td>50</td>
<td>50</td>
<td>54</td>
<td>11</td>
<td>8</td>
<td>Recommend</td>
</tr>
<tr>
<td>Guidelines (Authors, Publication Year, Country)</td>
<td>Scope and purpose (%)</td>
<td>Stakeholder involvement (%)</td>
<td>Rigour of development (%)</td>
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<td>Applicability (%)</td>
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<td>Overall assessment</td>
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<tr>
<td>Obesity surgery: evidence-based guidelines of the European Association for Endoscopic Surgery (E.A.E.S.) (Sauerland et al., 2005, E.U.)</td>
<td>61</td>
<td>46</td>
<td>79</td>
<td>50</td>
<td>17</td>
<td>58</td>
<td>Recommend</td>
</tr>
<tr>
<td>Recommendations regarding obesity surgery (Laville et al., 2005, France)</td>
<td>17</td>
<td>29</td>
<td>21</td>
<td>58</td>
<td>17</td>
<td>8</td>
<td>Would not recommend</td>
</tr>
<tr>
<td>Obesity: the prevention, identification, assessment and management of overweight and obesity in adults and children (National Institute for Health and Clinical Excellence, 2006, UK)</td>
<td>100</td>
<td>63</td>
<td>90</td>
<td>96</td>
<td>72</td>
<td>17</td>
<td>Strongly recommend</td>
</tr>
<tr>
<td>Guidelines for the management of obesity in secondary care (Clinical Resource Library Efficiency Support Team, 2005, UK)</td>
<td>67</td>
<td>33</td>
<td>9</td>
<td>71</td>
<td>72</td>
<td>8</td>
<td>Recommend</td>
</tr>
<tr>
<td>Obesity (Singapore Association for the Study of Obesity, 2004, Singapore)</td>
<td>67</td>
<td>50</td>
<td>50</td>
<td>79</td>
<td>0</td>
<td>50</td>
<td>Recommend</td>
</tr>
</tbody>
</table>
# Appendix 5: Treatments for Morbid Obesity in Canada by Jurisdiction: Results of FPT Program Survey for the Policy Forum

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Morbid Obesity Surgical Treatments</th>
<th>Surgical procedures available</th>
<th>Funding of surgical procedures through the provincial physician fee schedule?</th>
<th>Surgical procedure billed through global budget or other mechanisms? If yes, please specify</th>
<th>Restrictions or clinical criteria applied for funding?</th>
</tr>
</thead>
<tbody>
<tr>
<td>British Columbia</td>
<td>Gastric bypass (includes VBG and other gastroplasties)</td>
<td>Gastric surgeries are funded through the available amount.</td>
<td></td>
<td></td>
<td>Decisions on medical care are made by the attending specialist</td>
</tr>
<tr>
<td>(Dianne Kirkpatrick, Ministry of Health/Medical Services Division, British Columbia, Victoria, BC: personal communication, 2007. Sep.)</td>
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<tr>
<td>Alberta</td>
<td>Bariatric surgery (RYGB and LAGB)</td>
<td>The surgical procedure (physician service) is an insured service and funded through the Schedule of Medical Benefits.</td>
<td>Regional health authorities (RHAs) are responsible for the cost of the related hospital and facility services. The funding for this component is part of the global population-based funding allocation that is provided to the RHAs.</td>
<td></td>
<td>No. The province (AHW) has not issued any guidelines.</td>
</tr>
<tr>
<td>(Brenda Petzold and Henry Borowski, Alberta Health &amp; Wellness, Edmonton, AB: personal communication, 2007 Sep.)</td>
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<td>Saskatchewan</td>
<td>Currently, Regina Qu’Appelle Health Region is setting up a bariatrics program. The surgeon involved in this program is doing a very limited number of bariatric procedures prior to its inception. No other surgeons perform bariatric surgery in the province at present.</td>
<td>Out-of-province funding for is available for patients for gastric bypass surgery. Only surgical procedures and physician fees are covered; travel expenses are not covered.</td>
<td></td>
<td>The clinical criteria for eligibility depend on the specific clinic to which they are referred.</td>
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<tr>
<td>(Gwendolyn Friedrich, Saskatchewan Health, Regina, SK: personal communication, 2007 Sep.)</td>
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<tr>
<td>Manitoba</td>
<td>Bariatric surgery is not available locally</td>
<td>Patients who require bariatric surgery (e.g. gastric bypass) are referred out-of-province to access these services</td>
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</tbody>
</table>
### Morbid Obesity Surgical Treatments

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Surgical procedures available</th>
<th>Funding of surgical procedures through the provincial physician fee schedule?</th>
<th>Surgical procedure billed through global budget or other mechanisms? If yes, please specify</th>
<th>Restrictions or clinical criteria applied for funding?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ontario</strong></td>
<td>Bariatric surgery</td>
<td>Surgical procedures are funded through the Ontario Health Insurance Plan (OHIP) Schedule of Benefits for Physician Services (S120 gastric bypass or partition, for morbid obesity)(^{23})</td>
<td>For existing insured services, the only reference in the physician fee schedule is for gastric bypass/partitioning or intestinal bypass for morbid obesity (BMI (\geq 40))(^{23})</td>
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</tr>
<tr>
<td><strong>Quebec</strong></td>
<td>Bariatric surgery (RYGB, VGB, LAGB, and BPD-DS) is available</td>
<td>Surgical procedures are funded by the provincial physician fee schedule based on specific codes for the procedures</td>
<td>There are no restrictions for funding; however, given the long waiting list, patients are prioritized based on clinical criteria (e.g. the most severe cases are at the top of the list)</td>
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<tr>
<td><strong>New Brunswick</strong></td>
<td>Roux-en-Y gastric bypass and LAGB are available</td>
<td>The surgical procedures (RYGB and LAGB) are funded through the provincial physician fee schedule</td>
<td>See Appendix 6 for complete criteria</td>
<td></td>
</tr>
<tr>
<td><strong>Nova Scotia</strong></td>
<td>No surgeon performs bariatric surgery in the province at present.</td>
<td>Out-of-province funding is provided to patients who meet the criteria.</td>
<td>See Appendix 7 for complete criteria</td>
<td></td>
</tr>
<tr>
<td>Jurisdiction</td>
<td>Morbid Obesity Surgical Treatments</td>
<td>Funding of surgical procedures through the provincial physician fee schedule?</td>
<td>Surgical procedure billed through global budget or other mechanisms? If yes, please specify</td>
<td>Restrictions or clinical criteria applied for funding?</td>
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<td>Prince Edward Island</td>
<td>No surgeon performs bariatric surgery in the province at present.</td>
<td>Full medical coverage is available for VBG for patients who meet the clinical criteria.</td>
<td>Patients must meet the following clinical criteria for coverage eligibility:</td>
<td>1. BMI ≥40</td>
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<tr>
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<td></td>
<td>Partial funding is available for LAGB for patients who meet the clinical criteria.</td>
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<td>2. Existence of comorbidities such as hypertension</td>
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<td></td>
<td>3. Proven weight loss initiatives that were unsuccessful</td>
</tr>
<tr>
<td>Newfoundland &amp; Labrador</td>
<td>No surgeon performs bariatric surgery in the province at present.</td>
<td>Out-of-province funding is available for patients undergoing gastric bypass surgery (open or laparoscopic) who meet the clinical criteria for gastric bypass surgery</td>
<td>Patients must meet the following clinical criteria for coverage eligibility:</td>
<td>1. BMI ≥40 or BMI ≥35 with coexisting morbidities or current weight is 45kg or 100%&gt; than average weight</td>
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<td>2. Absence of endocrinological disease</td>
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<td>3. Psychological stability</td>
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<tr>
<td>Northwest Territories</td>
<td>No surgeon performs surgery for morbid obesity in the territory at present.</td>
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<td>Treatment is decided by the treating surgeon.</td>
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<tr>
<td>Jurisdiction</td>
<td>Morbid Obesity Surgical Treatments</td>
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<tr>
<td></td>
<td>Surgical procedures available</td>
<td>Funding of surgical procedures through the provincial physician fee schedule?</td>
<td>Surgical procedure billed through global budget or other mechanisms? If yes, please specify</td>
<td>Restrictions or clinical criteria applied for funding?</td>
</tr>
<tr>
<td>Yukon</td>
<td>No reply</td>
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<td>Nunavut</td>
<td>None</td>
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<td></td>
<td>(W. Alexander MacDonald, GN Health and Social Services, Iqaluit, NU: personal communication, 2007 Sep.)</td>
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Appendix 6: Criteria Suggested by the Advisory Group in New Brunswick (Based on Nova Scotia Criteria Revised in January 2003)

All three criteria must be met for patients to be eligible:

1) Patients with a body mass index (weighted in kilograms divided by the height in meters square) >40 kg/m$^2$, provided written documentation showing failure of medical/dietary management over an extended period to control weight through a structured program has been completed. Patients must have been seen, assessed and referred for bariatric surgery by a psychiatrist and/or a specialist in internal medicine.

2) Patients with a body mass index of 40kg/m$^2$ who also have serious medical problems that would improve with weight loss. These would include:
   a) Hypertension or obesity-related cardiomyopathy.
   b) Abnormal glucose tolerance or Type II diabetes.
   c) Reflux esophagitis.
   d) Severe sleep apnea, Pickwickian Syndrome or obesity related asthma.
   e) Disabling degenerative arthritis:
      i) Chronic low back pain.
      ii) Osteoarthritis of knees and/or ankles.
      iii) Pending knee or hip replacement surgery.
   f) Breakdown of skin due to excess pannus with ongoing cellulitis, or recurrent abscess formation in the pannus.
   g) End-stage obesity syndromes requiring hospitalization to improve operative risk
   h) Pseudotumour cerebri.
   i) Hyperphagic syndromes (Bardet-Biedl, Froelich's, etc.)
   j) Steatohepatitis and cirrhosis
   k) Hyperlipidemia (particularly triglyceridemia)

3) Patients who have a BMI of less than 40 would not normally be considered a candidate for bariatric surgery.

Prior approval from Medicare is mandatory for every patient.

Note: Weight-loss surgery cannot be approved as a preventative measure to developing diseases/conditions in the future or as an alternative to other weight-loss programs. It is up to the patient and his/her physician to find the best way of losing weight, and patient motivation and compliance in these programs are of essence.

(Zeljko Bolesnikov, Medicare NB, Fredericton, NB: personal communication, 2007 Sep.)
Appendix 7: Criteria Suggested in Nova Scotia for Coverage Eligibility

1. Patients with a BMI (weighted in kilograms divided by the height in meters square) >40 kg/m², provided written documentation showing failure of medical/dietary management over an extended period to control weight through a structured program has been completed. Patients must have been seen, assessed and referred for bariatric surgery by a psychiatrist and/or a specialist in internal medicine.

2. Patients with a BMI of 40 kg/m² who also have serious medical problems that would improve with weight loss. These would include:
   a) Hypertension or obesity-rate cardiomyopathy
   b) Abnormal glucose tolerance or Type II diabetes
   c) Reflux esophagitis
   d) Severe sleep apnea, Pickwickian Syndrome or obesity-related asthma
   e) Disabling degenerative arthritis
      i) Chronic low back pain
      ii) Osteoarthritis of knees and/or ankles
      iii) Impending knee or hip replacement surgery
   f) Breakdown of skin due to excess pannus with ongoing cellulitis, or recurrent abscess formation in the pannus
   g) End-stage obesity syndromes requiring hospitalization to improve operative risk
   h) Pseudotumour cerebri
   i) Hyperphagic syndromes (Bardet-Biedl, Froelichès, etc.)
   j) Steatohepatitis and cirrhosis
   k) Hyperlipidemia (particularly triglyceridemia)