



## Obesity and Overweight in Adults

### **DRAFT FOR EXTERNAL REVIEW**

Questionnaire Available Here: <https://shorturl.at/GSKZW>

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### Scope

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This guideline provides recommendations for primary care practitioners regarding the diagnosis, assessment, and management of obesity and overweight in non-pregnant adults aged 19 and older.

For guidance on supporting patients with obesity who are pregnant or are planning to become pregnant, please refer to the [Canadian Adult Obesity Clinical Practice Guidelines: Weight Management Over the Reproductive Years for Adult Women With Obesity](#).

### Key Recommendations

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- Understand obesity is a chronic medical disease, not a behaviour or lifestyle choice.
- Do not dismiss patients' other health concerns as being due to weight. Be mindful of weight bias in health care, and take steps to ensure a non-stigmatizing clinical environment, including appropriate office equipment and clinical communication.
- BMI is the current diagnostic tool for obesity; however, use of BMI alone has significant limitations.
  - Focus on health complications of obesity or overweight.
  - Use waist circumference for further metabolic risk stratification in patients with BMI 25-35.
  - Note that metabolic complications accrue at a lower BMI in non-white ethnicities.
- Take a comprehensive weight history including patient's goals, previous treatments, life events associated with weight change, nutrition, physical activity, medication review, and complications/comorbidities.
- Provide evidence-based education on weight and health.
- Offer pharmacotherapy for obesity early in treatment. For patients with obesity or overweight (BMI  $\geq 27$ ) and preexisting cardiovascular disease treated with semaglutide, the SELECT trial demonstrated a 20% relative risk reduction in major adverse cardiovascular events.
- Refer selected patients to an obesity medicine specialist or obesity medicine clinic.
- Bariatric surgery is an MSP-covered procedure. Refer to bariatric surgeon if BMI  $\geq 35$ , or BMI  $\geq 30$  in a patient with type 2 diabetes.

## Definitions

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**Obesity:**\* a chronic disease characterized by increased body fat resulting in an impairment of health. It is mediated by genetic factors, abnormal physiology, and social determinants of health. Despite common misconceptions, it is not a behavioural or lifestyle choice. Body mass index (BMI)  $\geq 30$  is the current diagnostic criteria for obesity. However, use of BMI alone for diagnosis has significant limitations (see Controversies in Care).

**Overweight:** BMI 25-29.9 is the current diagnostic criteria for overweight.

**Obesity medicine specialist:**† a physician with specialized training in obesity medicine. Recognized specialized training may include the American Board of Obesity Medicine (ABOM) Diplomate designation and/or additional training in the field of obesity medicine through clinical courses, shadowing programs, accredited review courses or fellowship programs.

**Obesity medicine clinic:**‡ a clinic led by an obesity medicine specialist that provides comprehensive care including a full medical assessment and dedicated follow up visits that address the complications associated with obesity. Management support should address nutritional factors, pharmacological therapy, disordered eating, exercise and counseling around the appropriateness of bariatric surgery. Clinics may also provide access to a multidisciplinary team (nursing support, dietitian, mental health).

Referring patients to clinics or programs that advertise access to pharmacological therapies in isolation, without a comprehensive initial assessment or routine follow up, is strongly discouraged.

**Bariatric surgical centre:** a multidisciplinary surgical site run by a bariatric specialty-trained surgeon offering comprehensive care to patients pre- and post- bariatric surgery. Bariatric surgery is currently available at two accredited sites in B.C.: Richmond and Victoria.<sup>3</sup>

## Epidemiology

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In 2022, 26% of adults in BC were classified as having obesity based on body mass index (BMI).<sup>4</sup> The prevalence is projected to rise to over 1 in 3 adults in Canada by 2031.<sup>5</sup> The prevalence of obesity is equally distributed between men and women, but women are more likely to seek and receive treatment.<sup>6</sup>

Obesity is associated with reduced life expectancy. Comorbidities and complications include, but are not limited to, cancer, cardiovascular disease, osteoarthritis, type 2 diabetes, metabolic-associated fatty liver disease,<sup>5</sup> and depression.

The annual direct healthcare costs of patients with obesity in Canada are nearly double those of patients without the disease. Public Health Agency of Canada data confirms the cost saving benefits to the system achieved through treatment and prevention of this chronic disease.<sup>7</sup>

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\* Terminology is changing over time to reflect the evolving understanding of obesity pathophysiology and treatment and with the goal of reducing stigma. The American Association of Clinical Endocrinologists and American College of Endocrinology recommend using the term “adiposity-based chronic disease” (ABCD).<sup>1,2</sup>

† This guideline uses “obesity medicine specialist” throughout. “Obesity medicine specialist” and “bariatric specialist” are equivalent terms.

‡ This guideline uses “obesity medicine clinic” throughout. “Obesity medicine clinic” and “bariatric medicine clinic” are equivalent terms.

§ Terminology for metabolic-associated fatty liver disease (previously known as NAFLD, NASH) is evolving. “Metabolic dysfunction associated steatotic liver disease” may be preferred.

## Etiology

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Obesity involves dysregulation of energy balance. It encompasses a complex neurohormonal network that is regulated by genetic and environmental factors resulting in an inappropriate starvation response.

Factors that contribute to the development of obesity include:

- **Genetic predisposition:** accounts for approximately 40 to 70% of risk<sup>8,9</sup>
- **Associated chronic diseases:** e.g. hypothyroidism, polycystic ovarian syndrome, sleep disorders
- **Medications that cause weight gain:** see *Appendix A: Medications that Promote Weight Gain and Alternatives*
- **Social determinants of health:** e.g. food insecurity, race/racism, trauma (adverse childhood experiences<sup>10</sup>, adult and intergenerational trauma), limited education and literacy, employment, physical environment, access to healthcare, working conditions, access to recreation facilities, immigration, experiences of discrimination, weight bias
- **Mental health:** e.g. mood disorders, binge eating disorder, substance use disorders, and attention-deficit/hyperactivity disorder (ADHD)

## Approach to Care

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### Weight Bias and Stigma

Healthcare providers should inform their approach to care with an understanding that patients with obesity have often had prior negative health care experiences. Weight-related bias is common in healthcare. 65% of Canadian patients with obesity have experienced stigma (“fat shaming”) from their physicians. This leads to inequity in delivery of healthcare for patients with obesity, regardless of their presenting complaint. Patients’ symptoms are more likely to be attributed to their weight. Physicians spend less time with patients with obesity and are less likely to examine them. Weight bias leads to increased morbidity and mortality.<sup>11-13</sup>

Patients with obesity and overweight are less likely to seek care including screening tests. They may experience internalized bias which can hinder engagement in treatment.

### Office Environment

Ensure the office equipment, environment, and clinical communication are weight-friendly (see *Appendix B: How to Make an Office Weight-Friendly*) and able to accommodate patients of all sizes.

### Health and Weight

Incorporate the following evidence-based teaching points and strategies into your practice:

- Encourage patients to adopt sustainable, realistic, long-term healthy eating and physical activity plans as part of a comprehensive chronic disease management plan.
- Discuss the concept of “healthy weight” to promote body acceptance and realistic outcome goals. Health is different for every individual.
- Encourage setting achievable goals that improve health, function, and quality of life, rather than specific weight loss targets.<sup>14</sup>
- Weight loss may or may not happen when individuals create new healthy eating and exercise habits.<sup>15</sup>

## Assessment and Diagnosis

Assess, diagnose, and arrange follow up for obesity or overweight over several visits. The following approach is suggested and should be individualized as required.

### First Visit: Initiate a discussion about weight

- Initiate a discussion about weight:
  - Topic may be brought up by the patient
  - If primary care practitioner-initiated, then first ask permission to discuss weight
  - Determine weight, height, and BMI
  - Diagnose obesity or overweight using BMI (Table 1) and measure waist circumference in patients of BMI 25-35 (Table 2).
- Book a dedicated visit to conduct a full assessment.

**Table 1. Weight classification by BMI**

BMI (kg/m <sup>2</sup> )	Weight Classification
European <sup>17</sup>	
<18.5	Underweight
18.5 – 24.9	Normal
25 – 29.9	Overweight
30 – 34.9	Obesity Class I
35 – 39.9	Obesity Class II
≥ 40	Obesity Class III
South-, Southeast- or East Asian <sup>18</sup>	
<18.5	Underweight
18.5-22.9	Normal
23-24.9	Overweight – At risk
25-29.9	Overweight – Moderate risk
≥30	Overweight – Severe risk

**Table 2. Waist circumference for use with patients of BMI 25-35<sup>16</sup>**

Ethnicity	Sex	Increased cardiometabolic risk
European	Men	≥ 102 cm (40 inches)
	Women	≥ 88 cm (34.5 inches)
Asian	Men	≥ 85 cm (33.5 inches)
	Women	≥ 75 cm (29.5 inches)

**Note:** BMI is routinely used but has significant limitations including lack of comprehensive data and guidance for non-white ethnicities. Refer to [Controversies in Care](#).

### Second Visit: Full Assessment

- Identify patient’s goals.
- Take a weight history: Refer to *Appendix C: Taking an Obesity or Overweight Medical History*
- Review and adjust patient’s current medications:<sup>††</sup>
  - Identify current medications which may promote weight gain
  - Consider alternate medications with a more weight-neutral impact (Refer to *Appendix A: Medications that Promote Weight Gain and Alternatives*)
- Introduce the idea of pharmacotherapy for obesity:
  - Provide evidence-based education to support patient’s understanding of weight management

<sup>††</sup> Note: Common medication may contribute to excess weight. Clinicians are encouraged to familiarize themselves with the weight-related side effects of medications and select medication with a more desirable body weight response wherever possible. See *Appendix A: Medications that Promote Weight Gain and Alternatives*.

- Begin to assess patient's barriers and facilitators for weight management
- Arrange a follow-up visit for a focused physical exam and education.

### Third Visit: Focused physical exam and education

- Conduct a focused physical exam including:<sup>‡‡</sup>
  - Check blood pressure/screen for hypertension. Refer to: [BC Guideline: Hypertension – Diagnosis and Management](#).
  - Examine for relevant comorbidities or complications (e.g. type 2 diabetes, dyslipidemia, obstructive sleep apnea).
- Determine and order appropriate investigations:
  - **Note that there is no specific secondary work-up or testing for obesity itself**
  - Include any appropriate cancer screening (for age or as per family history, as per provincial guidelines)
- Follow up on the idea of weight management and provide ongoing evidence-based education.
- Arrange a follow-up visit to review any screening and to discuss management plan specifics.

### Fourth Visit: Management Plan

- Follow up on results of investigations.
- Discuss individualized management options including pharmacotherapy, and/or referral to obesity medicine specialist, obesity medicine clinic, or bariatric surgical centre as appropriate.
- Diagnose and treat comorbidities as appropriate.<sup>§§</sup>
- Refer to *Management* (below) for further details.

### Follow Up Visits

- Arrange follow-up visits at regular intervals to reassess the patient and management plan.
- Follow up visits may initially be conducted at 4–6-week intervals, and then adjusted according to patient's status.

## Management Principles

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Obesity is a chronic disease requiring individualized treatment and long-term support. The long-term goal of obesity treatment is to prevent and mitigate obesity-related complications, enhance overall well-being and quality of life, and reduce mortality rates. Evidence supports that 5-10% body weight loss reduces risk by decreasing the impact of comorbid conditions (refer to Table 3 below) and improves quality of life.<sup>16,19-21</sup>

<sup>‡‡</sup> Note: Consider necessary equipment sizes (e.g. BP cuffs, measuring tape, speculums, chairs) and location of office weight scales, in order to provide respectful, appropriate care to your patients with obesity. See *Appendix B: How to Make an Office Weight-Friendly*.

<sup>§§</sup> Note: A diagnosis of obesity should not interfere with the diagnosis and treatment of comorbidities. Symptoms in patients with obesity should not be dismissed as being primarily associated with obesity.

**Table 3. Impact of 5–10% weight loss on chronic conditions in patients with obesity or overweight<sup>21</sup>**

Condition	Impact
Type 2 diabetes	Reduces A1c by 0.5%
Hypertension	Decreases both systolic and diastolic blood pressure by 5mmHg
Cholesterol	Increases HDL by 0.13 mmol/L, decreases triglycerides by 0.45 mmol/L

Obesity is now managed primarily through pharmacological and surgical interventions. As with any chronic disease, nutrition and physical activity should be considered (refer to Tables 4 and 5).

Management includes:

- early intervention
- long-term strategies
- a multi-modal approach
- a focus on improved quality of life
- a focus on health, utilizing health indicators (e.g. blood pressure, A1c)
- a focus on % of total weight lost, rather than on changes in BMI

**Table 4. Comparison of interventions**

Intervention	Average percentage of body weight loss	Appropriate for patients with overweight	Appropriate for patients with obesity
Nutrition	2 – 4%	Yes	Yes; but not in isolation
Exercise	2 – 4%	Yes	Yes; but not in isolation
Medication	5 – 20%	Yes, for those with weight-related comorbidities	Yes
Bariatric surgery	20 – 40%	No	Yes

**Table 5. Summary of overweight and obesity management recommendations**

Overweight (BMI 25-29)	Obesity (BMI ≥30)
<ul style="list-style-type: none"> <li>• Prescribe medication if patient has BMI ≥27 and weight-related complications (e.g. hypertension, dyslipidemia, type 2 diabetes, obstructive sleep apnea, cardiovascular disease)</li> <li>• For all other patients, provide evidence-based education and support</li> </ul>	<ul style="list-style-type: none"> <li>• Prescribe medication</li> <li>• Bariatric surgical centre referral if: <ul style="list-style-type: none"> <li>○ BMI ≥30 and type 2 diabetes</li> <li>○ BMI ≥35</li> </ul> </li> <li>• Obesity medicine specialist or obesity medicine clinic referral if: <ul style="list-style-type: none"> <li>○ Severe obesity (BMI ≥40 or BMI ≥35 with comorbidities)</li> <li>○ Complex case (e.g. complex medication review, binge eating disorder, night eating syndrome)</li> <li>○ Need for multidisciplinary approach (obesity medicine clinic)</li> </ul> </li> </ul> <p>Note: Evaluation and preparation for bariatric surgery (preconditioning) can be done either by an obesity medicine clinic or a bariatric surgical centre.</p>

## Non-Pharmacological Management

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Primary care practitioners are encouraged to recognize that most patients with obesity have already tried “diet and exercise” strategies, which have not been effective. No specific nutritional program or intervention has evidence to support its long-term effectiveness in the treatment of obesity (e.g., intermittent fasting or keto).

Although physical activity provides metabolic health benefits and can aid in weight maintenance, it is not an effective tool for weight loss. An overview of 12 systematic reviews and 149 studies found exercise promotes an average of 1.5 – 3.5kg of weight loss; this degree of weight loss is not significantly impactful for most patients with obesity.<sup>22</sup>

## Pharmacological Management

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Primary care practitioners are encouraged to initiate pharmacotherapy for the management of obesity and overweight as appropriate, without waiting for a patient to see an obesity medicine specialist or to be reviewed at an obesity medicine clinic. Many patients with obesity and overweight do not require specialist referral. If there are questions, practitioners are encouraged to call the RACE line. Select patients are appropriate for obesity medicine specialist or obesity medicine clinic referral. Refer to Table 5, above.

Indications for pharmacotherapy include:

- **BMI criteria:**
  - BMI  $\geq$  27 kg/m<sup>2</sup> with weight-related complications (e.g. hypertension, dyslipidemia, type 2 diabetes, obstructive sleep apnea, cardiovascular disease)
  - BMI  $\geq$  30 kg/m<sup>2</sup>
- **As an adjunct to bariatric surgery:** May be used to prepare candidates for bariatric surgery, or address weight-regain post bariatric surgery.

**Anti-obesity medications are part of a long-term treatment strategy. While clinical trials consistently demonstrate significant weight loss during medication use, up to two-thirds of the lost weight may be regained if the medication is discontinued.**<sup>23</sup>

### Choice of Pharmacotherapy

Use the detailed medical history and assessment (see *Appendix C: Taking an Obesity or Overweight Medical History*) to match the patient’s needs and goals with the available medications. Table 6, below, provides an overview of the pharmacological agents available for the management of obesity. Refer to *Appendix E: Medications for Treatment of Obesity and Overweight* for detailed information.

### Approved Medications to Treat Obesity

In Canada, there are four medications currently approved for the treatment of obesity (Table 6). Their efficacy has been supported by randomized placebo-controlled trials, showing weight loss ranging from 5% to 20% of total body weight.<sup>23–28</sup> For more details including recommended dose, approximate cost, adverse effects, and therapeutic considerations, refer to *Appendix E: Medications for Treatment of Obesity and Overweight*. None of the medications approved for treating obesity are currently covered by PharmaCare. Medication costs are a frequent barrier to treatment.

**Table 6. Weight loss outcomes of medications for the management of obesity at approximately one year**

Class of medication	Mechanism of action <sup>29</sup>	Generic name (Brand name)	Average weight reduction (%)
Glucose-dependent insulinotropic polypeptide (GIP) and glucagon-like peptide (GLP-1) agonist	Reduces appetite and food/calorie intake	Tirzepatide ( <i>Mounjaro</i> / <i>Zepbound</i> )  Refer to note below.	15-21% <sup>24</sup> (3% placebo)  5 mg: 15.0% 10 mg: 19.5% 15mg: 20.9%
GLP-1 agonist	Reduces appetite and food/calorie intake	Semaglutide ( <i>Wegovy</i> )	15% <sup>30</sup> (2% placebo)
		Liraglutide ( <i>Saxenda</i> )	8% <sup>25</sup> (3% placebo)
Opioid agonist/ dopamine reuptake inhibitor	Reduces appetite and cravings	Naltrexone/bupropion ( <i>Contrave</i> )	6% <sup>26</sup> (1% placebo)
GI lipase inhibitor	Inhibits GI lipase to prevent fat absorption	Orlistat ( <i>Xenical</i> )	8.5% <sup>27</sup> (5.4% placebo)

**Note:** Tirzepatide is approved in Canada as a type 2 diabetes medication (*Mounjaro*). Tirzepatide is not currently approved nor currently available in Canada as an anti-obesity medication (USA trade name: *Zepbound*).

**Note:** weight loss trials use different methodological designs and enrol different patient populations. These estimates are from the largest weight loss trial for each medication. Weight loss trials tested these medications in combination with a reduced calorie diet and increased physical activity (tirzepatide, semaglutide, liraglutide, naltrexone/bupropion) or a mildly hypocaloric diet (orlistat).<sup>31</sup>

Research trials are studying the impact of GIPs and GLP-1 agonists on non-weight endpoints such as cardiovascular outcomes, renal outcomes, and all-cause mortality. In the SELECT cardiovascular outcomes trial, semaglutide led to a 20% relative risk reduction (absolute risk reduction of 1.5%) in major adverse cardiovascular events in people with obesity or overweight (BMI  $\geq 27$ ) and preexisting cardiovascular disease, without diabetes.<sup>32</sup> In the STEP-HFpEF trial, semaglutide led to reduced symptoms, reduced physical limitations, and improvements in exercise function in people with heart failure with preserved ejection fraction and obesity.<sup>33</sup>

### Pharmacotherapy and Fertility

Weight loss can increase the likelihood of pregnancy in patients with infertility. This may occur through restoring ovulation in conditions such as polycystic ovary syndrome. Patients on anti-obesity medications who are amenorrheic might resume ovulation before resuming menstrual cycle bleeding. Accordingly, patients taking anti-obesity medications should be counselled to use reliable contraception and to test intermittently for pregnancy.

Anti-obesity medications are considered class X in pregnancy due to teratogenic effects noted in animal studies and potential for early pregnancy loss.<sup>34-36</sup>

**Anti-obesity medications should be completely discontinued before attempting pregnancy.**



Consider a slow taper of anti-obesity medications to reduce the chance of excess rebound weight gain, as follows:<sup>\*\*\*</sup>

- Liraglutide: reduction of 0.3 mg every 2-4 weeks
- Semaglutide: reduction of 0.125-0.25 mg every 2-4 weeks
- Tirzepatide: reduction of 2.5 mg every 2-4 weeks
- Naltrexone/bupropion: reduction of 1 pill every 2-4 weeks

Medications should be completely discontinued by:<sup>ss</sup>

- Liraglutide, semaglutide, and tirzepatide: 6 weeks prior to attempting conception
- Naltrexone/bupropion: 4 weeks prior to attempting conception

**If a patient becomes pregnant, stop anti-obesity medications immediately.** In the setting of dual treatment for obesity and type 2 diabetes, start safe alternate agents for glycemic control.<sup>37</sup>

## Surgical Management

### Access to Bariatric Surgery in BC

Bariatric surgery is an MSP-covered procedure (refer to Table 7).

**Table 7. Metabolic and bariatric surgery in BC**

Surgeries covered by MSP	Surgeries not covered by MSP (not recommended)
<ul style="list-style-type: none"> <li>• Sleeve gastrectomy</li> <li>• Roux-en-Y gastric bypass</li> <li>• SADI-S (single anastomosis duodenoileostomy with sleeve gastrectomy)</li> <li>• BPD-DS (biliopancreatic diversion with duodenal switch)</li> </ul>	<ul style="list-style-type: none"> <li>• Gastric band</li> <li>• Gastric balloon</li> <li>• Mini gastric bypass</li> </ul>

See *Appendix E: Bariatric Surgery Procedure Types* for more detail.

Access to bariatric surgery may be challenging. Efforts are made to support patients accessing bariatric surgery from rural/remote locations (e.g. virtual pre- and post-surgical care where appropriate). Bariatric surgery is currently available in two locations in BC: Richmond and Victoria.

### Benefits and Outcomes of Bariatric Surgery

Bariatric surgery, also known as metabolic and bariatric surgery (MBS), results in 20 – 40% total body weight loss, depending on the type of procedure.<sup>38</sup> It is one of the most efficient and cost-effective treatments of obesity. Bariatric surgery is often used in conjunction with pharmacotherapy and other treatment strategies to manage the underlying chronic disease of obesity (see *Post-operative Management*).

Beyond weight-loss, bariatric surgery alters regulatory physiology. It is now well understood that these procedures offer metabolic alterations of physiology that lead to rapid improvements in comorbidities **independent of weight loss**.<sup>39,40</sup>

For example, the majority of bariatric surgery patients with type 2 diabetes experienced improvement or remission.<sup>41</sup> Significant positive results also exist for other comorbidities such as

<sup>\*\*\*</sup> Expert opinion.

hypertension, dyslipidemia and metabolic associated fatty liver disease.<sup>41</sup> Obstructive sleep apnea (OSA), cardiac events, incidence of cancer and overall mortality also improve significantly.<sup>42,43</sup>

Long-term complications of bariatric surgery include:<sup>†††</sup>

- Nutrient deficiencies
  - Vitamin 5%
  - Protein calorie malnutrition: <10% for BPD-DS
- Kidney stones 5%
- Gall stones 5%
- Internal hernia 1-2%
- Gastrointestinal complications
  - Ulcer 1%
  - Gastroesophageal reflux disease (GERD): up to 50% for sleeve
  - Chronic abdominal pain: 10-20% for bypass
- Diarrhea: more common with BPD-DS

### **Indications for Referral to Bariatric Surgical Centres**

Consider referring patients for bariatric surgery in the following situations:

- BMI  $\geq 35$
- BMI  $\geq 30$  with type 2 diabetes

Consider early referral, particularly for eligible patients with diabetes.<sup>44</sup> Note that diabetes remission after bariatric surgery is inversely correlated with the duration and severity of diabetes. Bariatric surgery is recommended at 2.5 points lower BMI for Asian patients.<sup>45</sup> Wait times for bariatric surgery are significant.<sup>†††</sup>

A patient may be referred to either an obesity medicine clinic or bariatric surgical centre for pre-conditioning (preparation for surgery and its significant impact on the patient's life). A multidisciplinary team will determine if a patient is eligible to be considered for surgery (refer to Table 9).

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<sup>†††</sup> Based on current experience in bariatric surgery in B.C. (unpublished data).

<sup>††††</sup> Wait times for bariatric surgery in BC are available online using the [Surgical Wait Times](#) tool.

**Table 8. Relative contraindications for bariatric surgery<sup>45-48</sup>**

Medical	Psychosocial	Surgical
<ul style="list-style-type: none"> <li>• Cirrhosis/Portal hypertension</li> <li>• Unstable coronary artery disease</li> <li>• Heart failure</li> <li>• End stage lung disease</li> <li>• Severe coagulopathy</li> <li>• Uncontrolled obstructive sleep apnea</li> <li>• Active cancer treatment OR cancer with poor 5-year prognosis<sup>46</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Substance and alcohol dependency</li> <li>• Inability to adhere to postoperative instructions</li> <li>• Smoking (nicotine or marijuana)</li> <li>• Untreated or uncontrolled psychosis, depression, or bipolar disorder<sup>48</sup></li> <li>• Recent suicide attempts or active suicidal ideation</li> <li>• Untreated eating disorder</li> </ul>	<ul style="list-style-type: none"> <li>• Ehlers-Danlos Syndrome (EDS), scleroderma, lupus, or connective tissue disorders<sup>47</sup></li> <li>• Crohn's/Ulcerative colitis</li> <li>• Severe chronic pancreatitis</li> <li>• Previous stomach pathology (e.g. cancer), perforation, or non-bariatric gastric surgery</li> </ul>

**Counsel patients who are planning pregnancy that efforts to conceive must be delayed for at least 18 to 24 months after bariatric surgery.** Patients are advised to use a long-acting reversible contraception method (LARC) e.g. IUD, IUS, implant, with very strong recommendation that this be started pre-operatively.

### Post-operative Management

All post-surgical patients need long-term management by an obesity medicine specialist, regardless of where surgery is obtained. Care may be provided virtually as appropriate.

Post-operative management includes:

- **Adherence to behavioural modifications:** Encourage patients to adhere to the new post-operative eating and drinking requirements, physical activity, and vitamin supplementation recommended by the bariatric program.
- **Medication pharmacokinetics may be altered** after bariatric surgery. Medication doses should be adjusted as appropriate. Vitamin supplementation is required. NSAIDs (other than ASA 81mg for cardiovascular prevention) are contraindicated post bariatric surgery unless otherwise advised by the bariatric surgeon.
- **Fertility rates significantly improve** post bariatric surgery. Patients are advised not to become pregnant for at least 18-24 months post-surgery, to allow for metabolic adaptation and to avoid significant maternal and fetal complications. Patients who become pregnant at any time post bariatric surgery should be referred to maternal-fetal medicine.
- **Management of associated comorbidities:** Note that post-bariatric surgery, obesity-related complications will improve at different rates. As such, continued monitoring and therapeutic adjustments will be required in both the short and long term.
- **Ongoing management of the underlying chronic disease of obesity (weight regain) and of the new post-operative metabolic state.**
  - Patients typically lose the most weight 12 to 18 months after surgery.<sup>49</sup>
  - To mitigate weight regain, consider pharmacotherapeutic intervention at any time during the post-operative course.
  - Weight regain of 5-10% of the loss is expected; beyond that is of concern.

- **Addressing complications of bariatric surgery.**
  - Urgent consultation from a bariatric surgeon is required for patients with any of the following red flags: acute or chronic upper abdominal pain, hematemesis, melena, and inability to tolerate intake/supplements.
  - Rapid referral to an obesity medicine specialist or a bariatric surgeon is required for patients with any of the following concerns: upper GI symptoms, such as progressive dysphagia, odynophagia, emesis, progressive reflux/heartburn, passive reflux, and/or water brash.
- **Revisional bariatric surgery is only an option in highly selected cases.**

For detailed information regarding post-bariatric surgery nutrition and exercise, vitamin supplementation and monitoring for prevention of complications, refer to [Canadian Adult Obesity Clinical Practice Guidelines Bariatric Surgery: Postoperative Management](#).

## Bariatric Surgery Outside Canada

**Seeking surgery outside Canada is strongly discouraged.** It is associated with significant, well-documented increased short and long-term risks, lack of follow-up care and increased cost to the healthcare system when there are complications.<sup>50,51</sup>

If a patient has had surgery outside BC, refer them to an obesity medicine specialist in BC for long-term follow-up. If a complication is suspected (abdominal pain, refractory nausea, excessive weight loss), **refer immediately to a bariatric surgical center.**

## Considerations for Specific Populations

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- **Geriatric:** Underestimation of body fat in older patients is common, as lean body mass declines with age. Weight loss in the elderly needs to be carefully considered against potential risks.<sup>52</sup>
- **Mental Health:** Co-existing conditions and medication side effects may complicate a patient's care and impact their eligibility for surgery. See [Canadian Adult Obesity Clinical Practice Guidelines: The Role of Mental Health in Obesity Management](#) for more detailed guidance.
- **Pregnancy:** Special considerations for preconception, pregnancy, and postpartum are addressed in [Canadian Adult Obesity Clinical Practice Guidelines: Weight Management Over the Reproductive Years for Adult Women with Obesity](#).
- **Indigenous Peoples:** Structural inequities, experience of racism and colonialism, and intergenerational trauma add additional layers of complexity to care. See [Canadian Adult Obesity Clinical Practice Guidelines: Obesity Management with Indigenous Peoples](#).

## Controversies in Care

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### BMI

Currently, BMI is the criteria used to diagnose obesity and overweight (see Table 1). This guideline recognizes that BMI alone **has significant limitations for diagnosing obesity or overweight.** BMI was developed in the 1800's by a Belgian mathematician, based on measurements from Scottish and French soldiers at the time.<sup>53</sup> BMI does not account for gender, race, age, or distribution of fat tissue. It cannot distinguish between different tissue types. It is a measurement of mass, and not of metabolic risk. BMI alone is insufficient to predict health risk. There is a lack of comprehensive data and inadequate guidance to assess BMI in most ethnicities. BMI data is only available for European and South Asian, Southeast Asian, and East Asian populations. In general, metabolic complications of obesity accrue at a lower BMI in non-white ethnicities.

### Edmonton Obesity Staging System (EOSS)

The [EOSS](#) is a five-stage obesity classification system, based on metabolic, physical, and psychological parameters. At the population level, the EOSS predicts all-cause mortality better than either BMI or waist circumference.<sup>54,55</sup> While EOSS is not currently used for diagnosis, it is an emerging tool.

## Resources

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### Abbreviations

BMI	Body mass index
BPD-DS	Biliopancreatic diversion with duodenal switch
GERD	Gastroesophageal reflux disease
GLP-1	Glucagon-like peptide 1
IUD	Intrauterine device
IUS	Intrauterine system (i.e. hormonal IUD)
LARC	Long-acting reversible contraceptive (i.e. IUD, IUS, implant)
MBS	Metabolic and bariatric surgery
OSA	Obstructive sleep apnea
SADI-S	Single anastomosis duodenoileostomy with sleeve gastrectomy

### Practitioner Resources

- **RACE Line:** Rapid Access to Consultative Expertise Program: [raceconnect.ca](http://raceconnect.ca). Phone consultation for physicians, nurse practitioners and medical residents. Select General Internal Medicine – Obesity.
- **Pathways:** An online resource that allows primary care practitioners and their office staff to quickly access current and accurate referral information, including wait times and areas of expertise, for specialists and specialty clinics. See: [pathwaysbc.ca](http://pathwaysbc.ca)
- **Balanced View BC:** An online learning resource designed to raise awareness about weight bias and stigma in health care and help health care professionals reduce weight bias and stigma in practice: [balancedviewbc.ca](http://balancedviewbc.ca)
- **Canadian Obesity Peer Support Program:** An online and in-person peer support educational program for clinicians who want to learn about obesity: [canadaobesitypeersupport.com](http://canadaobesitypeersupport.com)
- Prescriptions for Physical Activity:
  - **American College of Sports Medicine:** [exerciseismedicine.org](http://exerciseismedicine.org)
  - **Rx Files:** [rxfiles.ca](http://rxfiles.ca)
- Metabolic and bariatric surgery referral forms, program information and patient orientation materials:
  - **Island Health (Level 2 Surgical Centre):** [islandhealth.ca/our-services/surgical-services/bariatric-program](http://islandhealth.ca/our-services/surgical-services/bariatric-program)
  - **Richmond Hospital (Level 1 Surgical Centre):** [vch.ca/en/location-service/metabolic-bariatric-surgery-richmond-hospital](http://vch.ca/en/location-service/metabolic-bariatric-surgery-richmond-hospital)

### Patient, Family and Caregiver Resources

- **HealthLinkBC:** You may call HealthLinkBC at 8-1-1 toll-free in B.C., or for the deaf and the hard of hearing, call 7-1-1. You will be connected with an English-speaking health-service navigator, who can provide health and health-service information and connect you with a registered dietitian, exercise physiologist, nurse, or pharmacist. Access is free of charge and does not require a referral from a health professional. See: [healthlinkbc.ca](http://healthlinkbc.ca)
  - **Physical Activity Services:** Qualified exercise professionals are available between 9:00

AM and 5:00 PM Pacific Time, Monday to Friday.

- **Dietitian Services:** Registered dietitians are available between 9:00 AM and 5:00 PM Pacific Time, Monday to Friday.
- **BC Farmers' Market Nutrition Coupon Program:** Available for lower-income families, pregnant people and seniors participating in food literacy programs. Coupons can be spent at participating farmers' markets to purchase vegetables, fruits, nuts, eggs, dairy, herbs, vegetable & fruit plants, honey, meat, and fish. Households may receive \$27/week in coupons for up to 16 weeks: [bcfarmersmarket.org/coupon-program](https://bcfarmersmarket.org/coupon-program)
- **Walk BC:** Provides a variety of resources about benefits of walking, walking programs, and an interactive map of walks throughout BC. The Walking Handbook includes a progressive walking program and worksheets on staying motivated and addressing barriers to being active: [walkbc.ca](https://walkbc.ca)
- **23 and ½ Hours (Educational Video):** A Doctor-Professor answers the old question "What is the single best thing we can do for our health" in a completely new way: [youtube.com](https://www.youtube.com)
- **No Fat Shame:** A multilevel educational and advocacy program that addresses weight bias in medicine: [nofatshame.com](https://nofatshame.com)

## Diagnostic Codes

**278** - Overweight, obesity and other hyperalimentation

## Appendices

- **Appendix A:** Medications that Promote Weight Gain and Alternatives
- **Appendix B:** How to Make an Office Weight-Friendly
- **Appendix C:** Taking an Obesity or Overweight Medical History
- **Appendix D:** Medications for Treatment of Obesity and Overweight
- **Appendix E:** Types of Bariatric Surgery

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## Appendix A: Medications that Promote Weight Gain and Alternatives

The following supports are available for complex medication reviews:

- Consultation with an obesity medicine specialist via the Provincial RACE Line
- Referral to obesity medicine specialist or obesity medicine clinic
- Referral to appropriate specialist

Medications (Amount of weight gain) <sup>§§§</sup>	Alternatives
<b>Antihyperglycemics</b>	
Insulin (++) Thiazolidinediones: pioglitazone (++) Sulfonylureas: glyburide (++) , glimepiride (++) , gliclazide (++)	Metformin DPP4i: alogliptin, linagliptin, sitagliptin, saxagliptin AGI: acarbose SGLT2 inhibitors: canagliflozin, dapagliflozin, empagliflozin
<b>Antidepressants</b>	
Tricyclics: amitriptyline (+++), doxepin (+++), imipramine (++) , nortriptyline (++) Atypical: mirtazapine (++) MAOIs: phenelzine (+++), tranylcypromine (+++) SSRIs: citalopram, escitalopram, paroxetine (however, studies show variable weight effects associated with each SSRI, especially in fluoxetine, sertraline and fluvoxamine).	Bupropion, desvenlafaxine, duloxetine, levomilnacipran, trazodone, venlafaxine, vilazodone, vortioxetine
<b>Antipsychotics</b>	
Chlorpromazine (++) , clozapine (++) , fluphenazine (++) , haloperidol (++) , lithium (++) , loxapine (++) , olanzapine (++) , risperidone (+) , quetiapine (++)	Aripiprazole, lurasidone, ziprasidone
<b>Anticonvulsants</b>	
Carbamazepine (+++), gabapentin (+++), valproic acid (+++)	Lamotrigine, topiramate, zonisamide
<b>Corticosteroids</b>	
Oral steroids: cortisone (+++), prednisolone (+++), prednisone (+++) Inhaled steroids: ciclesonide (+), fluticasone (+)	Consider steroid sparing therapies where appropriate
<b>Hormones</b>	
Estrogens (++) , progestogens (+)	

Medications are listed in alphabetical order. **Abbreviations:** **DPP4i:** inhibitors of dipeptidyl peptidase 4; **GLP-1:** glucagon-like peptide-1 receptor agonists, **NSAIDs:** nonsteroidal anti-inflammatory drugs; **SGLT-2:** sodium glucose co-transporter 2; **SSRIs:** selective serotonin reuptake inhibitors. Adapted from: Rueda-Clausen C, Pollardar M, Lear S, Poirier P, Sharma A. Table 8: Summary of Weight Promoting Medications and Alternate Therapies. Canadian Adult Obesity Clinical Practice Guidelines Chapter 6: Obesity Assessment [Internet]. [cited 2024 Aug 22]. Available from: [https://obesitycanada.ca/wp-content/uploads/2020/08/6-Obesity-Assessment-Table-8-with-links\\_FINAL.pdf](https://obesitycanada.ca/wp-content/uploads/2020/08/6-Obesity-Assessment-Table-8-with-links_FINAL.pdf)

§§§ +: up to 5 kg weight gain; ++: 5 to 10 kg weight gain; +++: more than 10 kg weight gain



## Appendix B: How to Make an Office Weight-Friendly

Weight bias can be both conscious and unconscious. One of the ways weight bias may unconsciously present is in the furnishing and equipment of the medical office.<sup>18</sup> Fear of bias prevents some patients from seeking care.<sup>19</sup> The following are suggestions for addressing bias by creating a weight friendly office.

### Language:

- Use person-centered language, such as “person living with obesity” or “person with overweight” rather than “obese person” or “overweight person”.<sup>5</sup>
- Although obesity is the medical term in use today, the name stems from the Latin “to eat [oneself] fat”, which does not reflect current understanding of the disease. Consider using the term “adiposity”.

### In the waiting room:

- Include chairs wide enough to comfortably accommodate all patients, such as benches or armless chairs, and;
- Remove magazines and posters that promote weight bias (e.g., magazines with dieting tips).

### Office equipment:

- Weigh scale able to accommodate all your patients (e.g., max limit 600 lbs) and kept in a private location;
- Blood pressure cuffs in a range of appropriate sizes, and;
- Patient gowns in a range of appropriate sizes.
- Speculums of varied sizes (both width and length).



## Appendix C: Taking an Obesity or Overweight Medical History

- **Ask permission to discuss weight**
- **Take a weight history**
  - Onset and trajectory of weight gain
  - Highest weight
  - Lowest adult weight
  - Life events associated with weight gain (e.g. pregnancy, medications)
- **Ask about family history of obesity**
- **Ask about previous treatments attempted:**
  - Self-managed attempts
  - Supervised weight-loss programs, e.g., hospital-based programs
  - Pharmacotherapy
  - Bariatric surgery
- **Screen for disordered eating**
  - [Eating Disorders Screen for Primary Care \(ESP\)](#)
- **Nutrition**
  - Are you currently following any specific dietary pattern or strategy (e.g., keto, intermittent fasting)?
  - How many times in a typical week do you have sugar-sweetened beverages such as juice or pop?
  - Within the past 12 months, did you worry that your food would run out before you got money to buy more?
- **Ask about physical activity**
  - Ask about the patient's current level of physical activity, including both aerobic exercise and resistance training.
  - "Is your weight impacting your physical activity?"/"Has your physical activity been impaired?"
- **Medication review**
  - Review the patient's current medications, considering whether any may contribute to weight gain.
- **Complications/comorbidities:**
  - Inquire about conditions such as depression, anxiety, dyslipidemia, obstructive sleep apnea, type 2 diabetes, metabolic-associated fatty liver disease, hypertension, etc., which may impact the approach to management.



## Appendix D: Medications for Treatment of Obesity and Overweight

Certain medications for weight loss also have alternative dosage forms intended for other medical indications. These additional forms are included in the table for clarity.

Generic Name <i>Trade name</i> Dosage form and strengths	Recommended Adult Dose <sup>A</sup>	Approx. Cost Per Month <sup>B</sup>	PharmaCare Coverage <sup>C</sup>	Adverse Effects <sup>D</sup> and Therapeutic Considerations
Glucagon-like peptide (GLP-1) agonist				
<b>Semaglutide</b> <i>Wegovy</i> Single-use pre-filled pens: 0.25mg/0.5mL 0.5mg/0.5mL 1mg/0.5mL 1.7mg/0.75mL 2.4mg/0.75mL  Multi-use pre-filled pens: 1 mg/1.5mL 4mg/3mL 6.8mg/3mL 9.6mg/3mL  <i>Ozempic (diabetes)<sup>E</sup></i> Multi-dose pre-filled pens: 2mg/1.5mL 4mg/3mL	<b>Initial:</b> 0.25 mg subcut once weekly x 4 weeks  Increase dose every 4 weeks (0.5, 1, 1.7, 2.4 mg) until target 2.4 mg weekly. If poorly tolerated, delay dose escalation by 4 weeks.  <b>Maintenance:</b> 2.4 mg subcut once weekly (or 1.7 mg subcut once weekly if weight loss acceptable and 2.4 mg not tolerated)  <b>Concurrent diabetes, consider:</b> 2 mg subcut once weekly	<i>Wegovy:</i> \$420  <i>Ozempic:</i> \$570	<i>Wegovy:</i> Non-benefit  <i>Ozempic:</i> Limited coverage for diabetes	Nausea, vomiting, diarrhea, constipation  Rare: Pancreatitis, bowel obstruction, cholelithiasis  Monitor: Hypoglycemia in those with diabetes (consider dose reduction of insulin and sulfonylureas), depressive symptoms and suicidal thoughts, diabetic retinopathy progression, heart rate, blood pressure  Contraindications: <ul style="list-style-type: none"> <li>• Personal or family history of MTC or MEN 2</li> <li>• Pregnancy, attempting conception, breastfeeding</li> <li>• Type 1 diabetes</li> </ul> Caution: <ul style="list-style-type: none"> <li>• Heart rhythm disturbances</li> <li>• Hepatic insufficiency</li> <li>• Severe renal impairment</li> </ul> Other: <ul style="list-style-type: none"> <li>• Slower dose titration for patients with diabetic retinopathy</li> <li>• Hold semaglutide for at least 7 days before surgery and liraglutide at least on the day of surgery due to risk of regurgitation and aspiration</li> </ul>
<b>Liraglutide</b> <i>Saxenda</i> Multi-use pre-filled pen: 18mg/3mL  <i>Victoza (diabetes)<sup>E</sup></i> Multi-use pre-filled pen: 18mg/3mL	<b>Initial:</b> 0.6mg subcut daily x 1 week  Increase dose weekly by 0.6 mg (1.2, 1.8, 2.4, 3 mg) to target 3mg daily. If poorly tolerated, titrate slower.  <b>Maintenance:</b> 3 mg subcut daily (or continue at max tolerated dose if ≥ 4% weight loss achieved by 16 weeks)	<i>Saxenda:</i> \$450  <i>Victoza:</i> \$560	Non-benefit	Other: <ul style="list-style-type: none"> <li>• Slower dose titration for patients with diabetic retinopathy</li> <li>• Hold semaglutide for at least 7 days before surgery and liraglutide at least on the day of surgery due to risk of regurgitation and aspiration</li> </ul>

<b>Generic Name</b> <i>Trade name</i> Dosage form and strengths	<b>Recommended Adult Dose<sup>A</sup></b>	<b>Approx. Cost Per Month<sup>B</sup></b>	<b>PharmaCare Coverage<sup>C</sup></b>	<b>Adverse Effects<sup>D</sup> and Therapeutic Considerations</b>
Glucose-dependent insulinotropic polypeptide (GIP) and Glucagon-like peptide (GLP-1) agonist				
<b>Tirzepatide</b> <i>Mounjaro (diabetes)<sup>E</sup></i> Vials: 2.5mg/0.5mL 5mg/0.5mL 7.5mg/0.5mL 10mg/0.5mL 12.5mg/0.5mL 15mg/0.5mL	<b>Initial:</b> 2.5 mg subcut once weekly x 4 weeks  Increase dose by 2.5 mg at minimum 4-week intervals to max 15 mg weekly. If poorly tolerated, titrate slower.  <b>Maintenance:</b> 5-15 mg once weekly	\$330-450	Non-benefit	Nausea, vomiting, diarrhea, constipation, increased heart rate  Rare: pancreatitis, gallbladder disease, acute kidney injury, hypotension  <b>Monitor:</b> Hypoglycemia in those with diabetes (consider dose reduction of insulin and sulfonylureas), depressive symptoms and suicidal thoughts, diabetic retinopathy progression, heart rate, blood pressure  <b>Contraindications:</b> <ul style="list-style-type: none"> <li>• Personal or family history of medullary thyroid cancer</li> <li>• Personal or family history of MEN2 syndrome</li> <li>• Pregnancy, attempting conception, breastfeeding</li> </ul> <b>Caution:</b> <ul style="list-style-type: none"> <li>• Heart rhythm disturbances</li> <li>• Hepatic insufficiency</li> <li>• Severe renal impairment</li> </ul> <b>Other:</b> <ul style="list-style-type: none"> <li>• Slower dose titration for patients with diabetic retinopathy</li> <li>• Reduces oral contraceptive efficacy transiently; switch to non-oral contraceptive method, or to add a barrier method for 4 weeks after initiation and 4 weeks after each dose increase</li> </ul> Hold for at least 7 days before surgery due to risk of regurgitation and aspiration



Generic Name <i>Trade name</i> Dosage form and strengths	Recommended Adult Dose <sup>A</sup>	Approx. Cost Per Month <sup>B</sup>	PharmaCare Coverage <sup>C</sup>	Adverse Effects <sup>D</sup> and Therapeutic Considerations
Opioid antagonist / Dopamine reuptake inhibitor				
<b>Naltrexone/ bupropion</b> <i>Contrave</i> ER tab: 8/90 mg	<b>Initial:</b> 8/90 mg PO daily x 1 week  Increase dose weekly by 8/90mg to target 16/180 mg BID.  <b>Maintenance:</b> 16/180 mg PO BID (total daily dose: 32/360 mg)	\$305	Non-benefit	Nausea, headache, constipation, insomnia, vomiting, dizziness, dry mouth (GI side effects typically transient)  <b>Monitor:</b> Suicidal thoughts and behaviours, heart rate, blood pressure  <b>Contraindications / interactions:</b> <ul style="list-style-type: none"> <li>• Seizure disorder</li> <li>• Concurrent opioid use (within 7 days)</li> <li>• Concurrent MAOI use (within 14 days)</li> <li>• Pregnancy, attempting conception, breastfeeding</li> <li>• Bulimia and anorexia nervosa</li> <li>• Abrupt alcohol or sedative discontinuation</li> <li>• Uncontrolled hypertension</li> <li>• Severe hepatic impairment</li> <li>• End-stage renal failure</li> </ul> Avoid: administration with high-fat meals
GI lipase inhibitor				
<b>Orlistat</b> <i>Xenical</i> Cap: 120 mg	<b>Initial:</b> 120 mg PO daily with meal that contains fat (or up to 1 hr after)  <b>Maintenance:</b> Up to 120 mg PO TID taken during or up to 1 hr after meals that contain fat	\$185	Non-benefit	Often poorly tolerated  Oil spotting and loose stools, flatus with discharge, fecal urgency, increased defecation  Some patients may develop increased urinary oxalate; oxalate nephropathy with renal failure have been reported.  Rare: severe liver injury or acute liver failure  <b>Contraindications:</b> <ul style="list-style-type: none"> <li>• Chronic malabsorption syndrome</li> <li>• Cholestasis</li> <li>• Pregnancy, attempting conception, breastfeeding</li> </ul> <b>Interactions:</b> <ul style="list-style-type: none"> <li>• Decreases absorption of fat-soluble vitamins (A, D, E, K); take multivitamins ≥</li> </ul>

<b>Generic Name</b> <i>Trade name</i> Dosage form and strengths	<b>Recommended Adult Dose<sup>A</sup></b>	<b>Approx. Cost Per Month<sup>B</sup></b>	<b>PharmaCare Coverage<sup>C</sup></b>	<b>Adverse Effects<sup>D</sup> and Therapeutic Considerations</b>
				2 hours before or after. <ul style="list-style-type: none"> <li>• Decreases vitamin K absorption; monitor INR with concurrent vitamin K antagonist use.</li> <li>• Decreases absorption of levothyroxine/iodine salts; monitor changes in thyroid function.</li> <li>• Decreases absorption of anticonvulsants; monitor frequency of convulsions.</li> <li>• Separate from cyclosporine use by minimum 2 hours.</li> </ul> Other: <ul style="list-style-type: none"> <li>• Omit dose if no meal, or no fat in meal</li> <li>• May start on weekend to avoid embarrassing adverse events</li> </ul>

**Abbreviations:** **AE** adverse events; **BID** twice daily; **CAP** capsules; **ER** extended release; **GI** gastrointestinal; **INR** international normalized ratio; **MEN2** multiple endocrine neoplasia syndrome type 2; **MTC** medullary thyroid cancer; **PO** per os (by mouth); **SSRI** selective serotonin reuptake inhibitor; **subcut** subcutaneous; **Tab** tablets; **TID** three time daily.

<sup>A</sup> For normal renal and hepatic function. Consult product monograph for detailed dosing instructions and dose adjustments for unique patient populations.

<sup>B</sup> Drug costs are approximated retail cost of the generic, when available, rounded up to the nearest \$5. Current as of April 2024 and does not include retail markups or pharmacy fees.

<sup>C</sup> PharmaCare coverage as of April 2024 (subject to revision). Regular Benefit: Eligible for full reimbursement\*. Limited Coverage: Requires Special Authority to be eligible for reimbursement\*. Non-benefit: Not eligible for reimbursement.

\*Reimbursement is subject to the rules of a patient's PharmaCare plan, including any deductibles. In all cases, coverage is subject to drug price limits set by PharmaCare. See: [gov.bc.ca/pharmacare](http://gov.bc.ca/pharmacare) and [gov.bc.ca/pharmacarepolicy](http://gov.bc.ca/pharmacarepolicy) for further information.

<sup>D</sup> Not an exhaustive list. Check the product monograph ([health-products.canada.ca/dpd-bdpp/index-eng.jsp](http://health-products.canada.ca/dpd-bdpp/index-eng.jsp)) or an interaction checker (e.g., Lexicomp<sup>®</sup>) before prescribing

<sup>E</sup> Medications are used off-label.

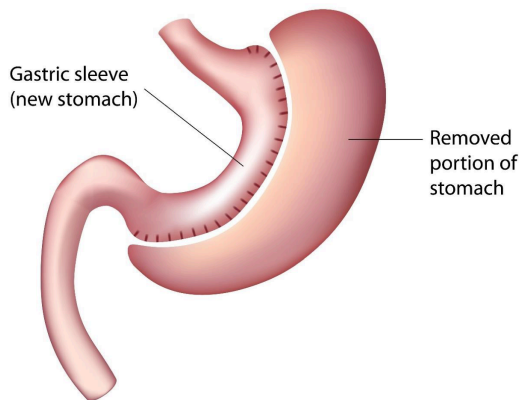
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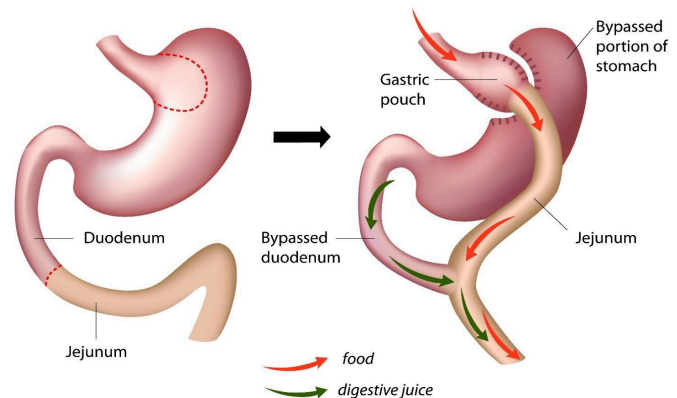


## Appendix E: Bariatric Surgery Procedure Types

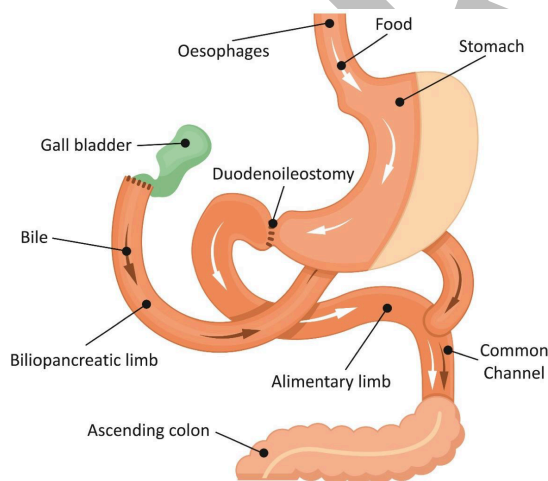
**Figure 1. Vertical sleeve gastrectomy:** Most of the stomach is removed, leaving a tube-shaped sleeve.



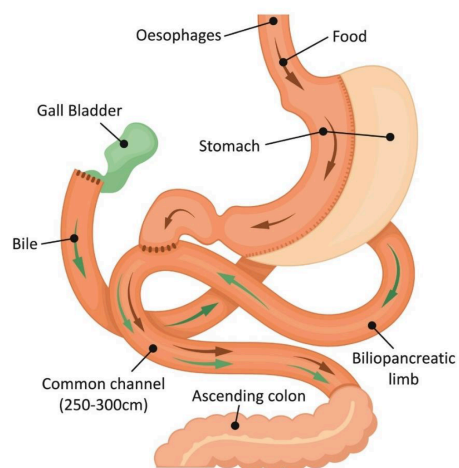
**Figure 2. Roux-en-Y gastric bypass (RNY):** A small pouch is created out of the top of the stomach. The small intestine is divided to create a new route from the pouch directly to the jejunum. Food enters the pouch and bypasses the duodenum and proximal jejunum.



**Figure 3. Biliopancreatic diversion with duodenal switch (BPD-DS):** Vertical sleeve gastrectomy is performed; then the intestine is bypassed from below the pylorus to the ileum.



**Figure 4. Single anastomosis duodenoileostomy with sleeve gastrectomy (SADI-S):** Vertical sleeve gastrectomy is performed; then the duodenum is detached below the stomach and reattached about 3 metres from the ileocecal valve.



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