Bariatric Surgery and Revision of Bariatric Surgery (Adults)

Disclaimer

Clinical guidelines are developed and adopted to establish evidence-based clinical criteria for utilization management decisions. Clinical guidelines are applicable according to policy and plan type. The Plan may delegate utilization management decisions of certain services to third parties who may develop and adopt their own clinical criteria.

Coverage of services is subject to the terms, conditions, and limitations of a member's policy, as well as applicable state and federal law. Clinical guidelines are also subject to in-force criteria such as the Centers for Medicare & Medicaid Services (CMS) national coverage determination (NCD) or local coverage determination (LCD) for Medicare Advantage plans. Please refer to the member's policy documents (e.g., Certificate/Evidence of Coverage, Schedule of Benefits, Plan Formulary) or contact the Plan to confirm coverage.

Summary

Morbid (clinically severe) obesity is a condition in which body fat accumulates to a level that can cause or inhibit the treatment of life-threatening medical comorbidities. Initial treatment steps include a regimented plan of diet and lifestyle changes, often designed and supervised by a team of healthcare professionals. Morbidly obese patients who have failed traditional treatment methods and are being treated for associated high-risk conditions, including diabetes, hypertension, or obstructive sleep apnea, may be candidates for bariatric surgery. Bariatric surgery procedures attempt to reduce fat tissue accumulation through restrictive or malabsorptive approaches and can often be performed as open or laparoscopic surgery. Restrictive surgeries function by decreasing the effective size of the stomach, creating a sensation of early satiety and preventing the patient from consuming large meals. Malabsorptive procedures function by rearranging the flow of food through the digestive system to decrease overall digestion/absorption of calories. Some procedures combine restrictive and malabsorptive approaches. Additionally, a comprehensive post-operative plan of diet, exercise, and behavioral modification is critical in achieving durable weight loss outcomes, where success is defined as a reduction in excess body weight by 50% and returning to within 30% of a patient's ideal body weight. Treatment plans and surgical options differ for adults and adolescents [see CG009: Bariatric Surgery and Revision of Bariatric Surgery (Adolescents)]. Bariatric surgery always requires prior authorization.

Definitions

"Body mass index (BMI)" relates body weight to height, defined as body mass divided by body height squared in units of kg/m^2 and is used to risk-stratify members.

"Class I obesity" is defined as a BMI of 30 - 34.9.

"Class II obesity" is defined as a BMI 35 - 39.9.

"Class III obesity" is defined as a BMI ≥40.

"Bariatric" is a term referring to the treatment of obesity.

"Open surgery" refers to a procedure where a large incision allows for direct visualization and access to intra-abdominal organs.

"Endoscopic surgery" is a procedure performed with special cameras and equipment inserted through the mouth and performed inside the stomach or small intestine.

"Laparoscopic surgery" or minimally invasive surgery refers to a procedure often consisting of multiple small incisions allowing the use of a small camera (laparoscope) and several thin instruments.

"Robotic-assisted laparoscopic surgery" is another minimally invasive procedure performed through small incisions. However, a robotic device is used to control the equipment used by the surgeon, who is not at the operating table. Rather, the surgeon sits at a separate console in the same room to perform the surgery inside the body. This type of minimally invasive surgery lets the surgeon see the organs and equipment inside the body in three dimensions (3D). There are other advantages to both the surgeon and the patient.

"Bariatric surgery" is surgery on the stomach and/or intestines to assist with weight loss in patients with severe or extreme obesity (Classes II and III). Bariatric surgery can be done via restrictive procedures, malabsorptive procedures, or a combination of the two.

- "Restrictive procedures" decrease digestive capacity, promote early satiety, and decrease the speed at which food moves through the digestive system.
    - "Adjustable gastric banding (AGB)" is where an adjustable band is placed around the outside of the stomach and can be tightened or loosened to achieve the desired effect. It functions by decreasing the stomach capacity and limiting the speed at which food can enter the lower part of the stomach. This procedure is often performed laparoscopically. A unique feature of the procedure is that it is reversible through removal of the band. Risks include developing band slippage and/or erosion through the stomach wall in 2-5% of cases. Positioning is important and, if incorrect, can be ineffective and cause vomiting. The Lap-Band™ is an example AGB device.
    - "Endoscopic sleeve gastroplasty (ESG)" is a procedure that uses an endoscope (camera and suturing device inserted through the mouth) to suture the inside of the stomach, reducing its size. This limits the amount of food the stomach can hold.
    - "Sleeve gastrectomy (SG)" is where the greater curvature of the stomach is resected, resulting in a tube or sleeve-like shape to restrict capacity. This can be performed via open incision or laparoscopically. It can also be combined with malabsorptive surgery at the same time, or in a sequential 2-stage procedure at a later date if adequate weight loss is not obtained.
- "Malabsorptive procedures" reduce digestion and absorption of calories through re-arrangement of the digestive system:
    - "Gastric bypass (Roux-en-Y gastric bypass [RYGB])" combines restrictive and malabsorptive features. The stomach is divided into either a horizontal or vertical plane similar to banded gastropathy (restrictive). The Roux-en-Y procedure then takes the small intestine and creates a "Y" shape, where the two legs of the "Y" allow a portion of food to pass through undigested while retaining a limited digestive capacity for the remaining food (malabsorptive). A gastric bypass can be performed via open incision or laparoscopically. Expected weight loss at two years is approximately 70%.

- "One anastomosis gastric bypass surgery (OAGB)," also known as "single anastomosis gastric bypass" or "mini-gastric bypass," combines a sleeve gastrectomy (which reduces stomach size) with a Roux-en Y gastric bypass. In addition to removing excess stomach tissue, this procedure adds a connection to drain the stomach directly into a loop of small intestine that adds a malabsorptive component to the sleeve gastrectomy similar to the Roux-en-Y limb of a gastric bypass. There is only one anastomosis (hook up) between the stomach and the small intestine. This is typically performed as a minimally invasive surgery (laparoscopy or robotic-assisted surgery).
- "Biliopancreatic diversion (BPD [Scopinaro surgery])" was originally proposed to alleviate the metabolic concerns of original bypass procedures. It consists of a subtotal gastrectomy (similar to sleeve gastrectomy) and diversion of the biliopancreatic secretions. There is a high incidence of vitamin/nutrient deficiency and gallstones, and a prophylactic cholecystectomy is routinely performed at the time of procedure. Duodenal switch is also often performed, which preserves the pylorus, resulting in less metabolic complications. The BPD can be performed via open incision or laparoscopically.

"Repair" refers to a procedure or operation performed to correct and/or treat a complication of a prior surgery.

"Conversion" is when a prior procedure is converted to a new one—such as when there are complications or inadequate weight loss with the primary surgery, or severe gastrointestinal reflux disease (GERD). An example of conversion is a sleeve gastrectomy conversion to Roux-en-Y gastric bypass.

"Revision" refers to a procedure or operation performed due to failure of a desired outcome of the same prior surgery (e.g., the Roux limb is not long enough for weight loss, or a stricture (narrowing) of a prior anastomosis (hook up).

Medical Necessity Criteria for Clinical Review

General Medical Necessity Criteria

(Please refer to the member's plan documents for benefits)

Bariatric surgery for adults is considered medically necessary when ALL of the following criteria are met:

1. Informed consent with appropriate explanation of risks, benefits, and alternatives; *and*
2. Adult aged 18 years or older with documentation of:
    a. Body mass index (BMI) ≥40; *or*
    b. BMI greater ≥35 with ONE of the following severe obesity-related comorbidities:
        i. Clinically significant cardio-pulmonary disease (e.g. severe obstructive sleep apnea (OSA), obesity-hypoventilation syndrome (OHS)); *or*
        ii. Coronary artery disease, objectively documented via stress test, echocardiography, angiography, prior myocardial infarction, or similar; *or*
        iii. Objectively documented cardiomyopathy; *or*

iv. Medically refractory hypertension (defined as > 140 mmHg systolic and/or 90 mmHg diastolic despite concurrent use of 3 antihypertensive agents); *or*
v. Type 2 diabetes mellitus; *or*
vi. Non-alcoholic fatty liver disease (NAFLD) or non-alcoholic steatohepatitis (NASH); *or*
vii. Osteoarthritis of the knee or hip with a planned surgery for knee or hip replacement; *or*
viii. As part of or prior to abdominal wall hernia repair for class II and III obesity; *or*

c. BMI ≥30-34.9; *and*
    i. Type 2 diabetes with poorly controlled hyperglycemia despite optimal lifestyle and medical therapy by either oral or injectable medications, including insulin; *and*

3. Failure to achieve and maintain successful long-term weight loss via non-surgical therapy; *and*
4. The proposed bariatric surgery includes a comprehensive pre- and post-operative plan to evaluate nutritional status, overall health, and any specific surgical risks:
    a. Preoperative evaluation to rule out and treat any other reversible causes of weight gain/obesity, may include routine lab testing, screenings, and risk evaluations such as:
        i. Fasting blood glucose, fasting lipid panel, complete blood count (CBC), lipid/kidney function testing (complete metabolic panel), blood typing, coagulation studies (PT/PTT/INR)
        ii. Nutrient deficiency screening (vitamin B12, iron, folate) and formal nutrition evaluation by a registered dietician or nutritionist
        iii. Cardiopulmonary risk evaluation - to assess as part of standard pre-operative clearance with EKG, Chest X-Ray, and echocardiogram as appropriate based on medical comorbidities
        iv. GI evaluation - H. pylori screening in high-risk populations and assessment for necessity of cholecystectomy concurrent with surgery, if indicated
        v. Endocrine evaluation - Hemoglobin A1c if diabetic, serum TSH if indicated at risk, and appropriate workup of endocrine abnormalities such as Cushing's disease for suspected reversible causes of obesity as part of history and physical
        vi. Age appropriate cancer screening verified complete and up to date
        vii. Smoking cessation counseling, if applicable; *and*
5. Psycho-social behavioral evaluation to determine ability to succeed and adhere to postoperative recommendations and long-term follow up and to identify any major mental health disorders that would contraindicate surgery and/or negatively impact patient compliance with postoperative follow-up care and adherence to nutrition guidelines, including BOTH of the following:
    a. No current substance abuse has been identified; *and*
    b. If applicable, members who have any ONE of the following conditions MUST have formal, documented preoperative psychological clearance:

i. A history of schizophrenia, borderline personality disorder, suicidal ideation, or severe depression; *or*
ii. Currently under the care of a psychologist or psychiatrist; *or*
iii. Currently on psychotropic medications, in order to exclude members who are unable to provide informed consent or who are unable to comply with the pre- and postoperative regimen.

Indication-Specific Criteria

Repair of Primary Bariatric Surgery

(Please refer to the member's plan documents for benefits)

The Plan considers repair of a primary bariatric surgery medically necessary when there is documentation of ONE of the following surgical complications related to the original surgery:

1. Fistula; *or*
2. Erosion; *or*
3. Leakage of suture/staple line; *or*
4. Herniated band; *or*
5. Obstruction; *or*
6. Enlargement of the pouch due to complications of vomiting.
    a. Note: Enlargement of pouch (stretching) is NOT covered if due to overeating, as this is not a surgical complication and is therefore not considered medically necessary.

Replacement of Adjustable Gastric Band

(Please refer to the member's plan documents for benefits)

The Plan considers replacement of an adjustable gastric band medically necessary when ONE of the following criteria is met:

1. There are complications (e.g., port leakage, slippage) that cannot be corrected with band manipulation or adjustments.

Removal of Adjustable Gastric Band

(Please refer to the member's plan documents for benefits)

The Plan may consider removal of an adjustable gastric band medically necessary when ONE of the following criteria is met:

1. Recommended by the member's physician.

Revision of Primary Bariatric Surgery

(Please refer to the member's plan documents for benefits)

The Plan considers revision of a primary bariatric surgery medically necessary when ALL of the following criteria are met:

1. The procedure has failed due to dilated gastrojejunal stoma, dilation of the anastomosis site, or dilation of the gastric pouch; *and*
2. The initial surgery successfully resulted in weight loss; *and*

3. The member has been compliant with the postoperative plan of diet, exercise, and behavioral modification.

Conversion Procedures for Inadequate Weight Loss

(Please refer to the member's plan documents for benefits)

The Plan considers conversion surgery medically necessary when performed for *inadequate weight loss* that is unrelated to surgical complications and ONE of the following criteria is met:

1. Conversion of an adjustable gastric band to a sleeve gastrectomy, Roux-en-Y gastric bypass (RYGB), or BPD/DS if there are complications that cannot be corrected with band manipulation or adjustments; *or*
2. Conversion to a sleeve gastrectomy, RYGB, or BPD/DS when ALL of the following criteria are met:
    a. General Medical Necessity Criteria are met; *and*
    b. Documented compliance with postoperative plan of diet, exercise, and behavioral modification; *and*
    c. A minimum of 2 years following original surgery with documentation of inadequate weight loss, defined as BOTH of the following:
        i. Weight loss of less than 50% of preoperative *excess* body weight; *and*
        ii. Remains >30% over ideal body weight.

Conversion Procedures for Non-Weight Loss Indications

(Please refer to the member's plan documents for benefits)

The Plan considers conversion surgery from a sleeve gastrectomy to a Roux-en-Y gastric bypass (RYGB) medically necessary for *proton pump inhibitor (PPI)-refractory gastroesophageal reflux disease (GERD), Barrett's esophagus, or biopsy-proven dysplasia*, when ONE of the following criteria is met:

1. A biopsy documented Barrett's esophagus with high grade dysplasia (cancer risk 7% per year) confirmed by two separate pathologists, and refractory to maximal medical and endoscopic therapy; *or*
2. A biopsy documented Barrett's esophagus with low grade dysplasia (cancer risk 0.7% per year) confirmed by two separate pathologists refractory to maximal medical therapy, including ALL of the following:
    a. At least 3 months of prescription strength anti-secretory agents (e.g., omeprazole, pantoprazole, esomeprazole, etc.); *and*
    b. At least 3 months of ONE of the following (unless contraindicated):
        i. Aspirin, nonsteroidal anti-inflammatory agents, or statins (HMG-CoA reductase inhibitors); *and*
    c. Failure of endoscopic therapy; *or*
3. A biopsy-proven non-dysplastic or indefinite grade dysplasia confirmed by two separate pathologists that has progressed to biopsy-proven dysplasia despite at least 1 year of maximal medical therapy as described above; *or*
4. PPI-refractory gastroesophageal reflux disease (GERD) meeting ALL of the followings:

a. Failure of at least 1 year of single dose prescription strength (not over the counter) anti-secretory treatment (e.g., PPI); *and*
b. At least 8 weeks of dual prescription strength anti-secretory treatment (2 different PPIs taken together); *and*
c. Biopsy-proven erosive disease confirmed by two separate pathologists (e.g., esophagitis Los Angeles (LA) Grade C or D, peptic stricture requiring dilatation, Barrett's esophagus as described above); *and*
d. ONE of the following:
    i. Failure of endoscopic therapy; *or*
    ii. Failure of prior surgical therapy (e.g., surgical fundoplication, hiatal hernia repair, vagotomy).

Length of Stay

Length of Stay Initial Clinical Review

The Plan considers the following procedures, settings, and goal lengths of stay for the treatment of morbid obesity in adults (age ≥18) medically necessary when ONE of the following criteria is met:

1. Roux-en-Y gastric bypass (<150cm), when ONE of the following is met:
    a. Open - 2-day inpatient admission; *or*
    b. Laparoscopic - Ambulatory, which may include an overnight stay; *or*
    c. Laparoscopic - Inpatient admission, when MCG Ambulatory Surgery Exception Criteria (CG-AEC) are met; *or*
2. Adjustable gastric banding, when ONE of the following is met:
    a. Laparoscopic - Ambulatory, which may include an overnight stay; *or*
    b. Laparoscopic - Inpatient admission, when MCG Ambulatory Surgery Exception Criteria (CG-AEC) are met; *or*
3. Sleeve gastrectomy, when ONE of the following is met:
    a. Open - 1-day inpatient admission; *or*
    b. Laparoscopic - Ambulatory, which may include an overnight stay; *or*
    c. Laparoscopic - Inpatient admission when the member meets MCG Ambulatory Surgery Exception Criteria (CG-AEC); *or*
4. Biliopancreatic diversion with duodenal switch, when ONE of the following is met:
    a. Open - 2-day inpatient admission; *or*
    b. Laparoscopic - Ambulatory, which may include an overnight stay; *or*
    c. Laparoscopic - Inpatient admission, when MCG Ambulatory Surgery Exception Criteria (CG-AEC) are met.

Length of Stay Subsequent Clinical Review

Subject to medical necessity review, the Plan may consider extensions for hospital admission when ONE of the following criteria is met:

1. Patients >65 years old; *or*

2. In the presence of complex comorbidities (COPD, renal disease, heart failure, etc.); *or*
3. Conversion from laparoscopic to open procedure; *or*
4. Complications in the peri- or postoperative phases, such as anastomotic leak, thromboembolic disease (DVT or pulmonary embolism), wound infection, bleeding, pneumonia, respiratory failure, evisceration, or splenic injury; *or*
5. Clear liquid diet not tolerated during the postoperative phase.

Experimental or Investigational / Not Medically Necessary

Procedures

The Plan considers the following procedures to be experimental, investigational, or unproven as they have either not demonstrated long-term benefit, have unnecessary risks, or have demonstrated inferior outcomes to safer, more appropriate techniques:

1. >150cm long limb gastric bypass (except for BPD with DS)
2. Air-filled intragastric balloon or liquid-filled intragastric balloons (e.g., Orbera, ReShape)
3. Aspiration therapy procedures
4. Biliopancreatic diversion without duodenal switch
5. Conversion of gastric sleeve to Roux-en-Y gastric bypass for gastroparesis
6. Endoscopic sleeve gastroplasty (ESG)
7. Endoluminal vertical gastroplasty
8. Gastric plication (laparoscopic)
9. Gastroplasty (stomach stapling)
10. Jejunoileal bypass
11. Mini gastric bypass/one anastomosis gastric bypass/ Billroth II
12. Natural orifice transoral surgery (NOTES)
13. Open adjustable gastric banding
14. Prophylactic mesh placement to prevent incisional hernia after open bariatric surgery
15. Silastic ring (Fobi pouch)
16. Vagal blockade (vagus nerve blocking therapy)
17. Vertical banded gastroplasty (VBG)

Skin Removal Surgery

Excess skin is common after a successful bariatric surgery. Unless MCG criteria are met, the Plan considers skin removal by abdominoplasty and/or panniculectomy a cosmetic and elective procedure that is not medically necessary.

Relative Contraindications

General

1. Medically correctable cause of obesity
2. Severe or unstable cardiovascular disease
3. Severe coagulopathy
4. Severe pulmonary disease

5. Cirrhosis with portal hypertension
6. Ongoing substance abuse or substance abuse in preceding 12 months
7. Severe or poorly controlled psychiatric disorder or mental illness
8. Medical, psychological, psychosocial, or cognitive condition that prevents adherence to post-op dietary and medical requirements or impairs decision capacity
9. Non-compliance with dietary restrictions
10. Bulimia nervosa
11. Current or planned pregnancy within 12-18 months
12. Advanced stage neoplastic disease

Laparoscopic Adjustable Gastric Banding

1. Inflammatory bowel disease
2. Potential upper GI bleeding such as esophageal or gastric varices
3. Congenital or acquired malformations of the GI tract such as stenoses or atresias
4. Intra-operative gastric injury during the implantation procedure
5. Chronic pancreatitis
6. Cirrhosis
7. Portal hypertension
8. Any infection, bacteremia, or sepsis
9. Chronic, long-term use of steroids
10. Systemic inflammatory or autoimmune condition such as scleroderma and systemic lupus erythematosus

Malabsorptive Procedures (Roux-en-Y and Biliopancreatic Bypass with Duodenal Switch)

1. Inflammatory bowel disease
2. Critical need to maintain drug levels, such as in seizure or psychiatric illness, where malabsorption or changes in drug metabolism may result in serious consequences

Applicable Billing Codes

Table 1	
CPT/HCPCS codes considered medically necessary if criteria are met:	
Code	*Description*
43644	Laparoscopy, surgical, gastric restrictive procedure; with gastric bypass and Roux-en-Y gastroenterostomy (roux limb 150 cm or less)
43645	Laparoscopy, surgical, gastric restrictive procedure; with gastric bypass and small intestine reconstruction to limit absorption

Table 1	
CPT/HCPCS codes considered medically necessary if criteria are met:	
Code	*Description*
43770	Laparoscopy, surgical, gastric restrictive procedure; placement of adjustable gastric restrictive device (eg, gastric band and subcutaneous port components)
43771	Laparoscopy, surgical, gastric restrictive procedure; revision of adjustable gastric restrictive device component only
43772	Laparoscopy, surgical, gastric restrictive procedure; removal of adjustable gastric restrictive device component only
43773	Laparoscopy, surgical, gastric restrictive procedure; removal and replacement of adjustable gastric restrictive device component only
43774	Laparoscopy, surgical, gastric restrictive procedure; removal of adjustable gastric restrictive device and subcutaneous port components
43775	Laparoscopy, surgical, gastric restrictive procedure; longitudinal gastrectomy (ie, sleeve gastrectomy)
43845	Gastric restrictive procedure with partial gastrectomy, pylorus-preserving duodenoileostomy and ileoileostomy (50 to 100 cm common channel) to limit absorption (biliopancreatic diversion with duodenal switch)
43846	Gastric restrictive procedure, with gastric bypass for morbid obesity; with short limb (150 cm or less) Roux-en-Y gastroenterostomy
43847	Gastric restrictive procedure, with gastric bypass for morbid obesity; with small intestine reconstruction to limit absorption
43848	Revision, open, of gastric restrictive procedure for morbid obesity, other than adjustable gastric restrictive device (separate procedure)
43860	Revision of gastrojejunal anastomosis (gastrojejunostomy) with reconstruction, with or without partial gastrectomy or intestine resection; without vagotomy
43886	Gastric restrictive procedure, open; revision of subcutaneous port component only
43887	Gastric restrictive procedure, open; removal of subcutaneous port component only
43888	Gastric restrictive procedure, open; removal and replacement of subcutaneous port component only
47562	Laparoscopy, surgical; cholecystectomy
47563	Laparoscopy, surgical; cholecystectomy with cholangiography

Table 1	
CPT/HCPCS codes considered medically necessary if criteria are met:	
Code	*Description*
47564	Laparoscopy, surgical; cholecystectomy with exploration of common duct
47570	Laparoscopy, surgical; cholecystoenterostomy
47579	Unlisted laparoscopy procedure, biliary tract ● Due to the broad nature of this code and lack of specificity in certain scenarios, clarification is provided below: ● When this code is billed in conjunction with an approved primary procedure for weight loss, then it is considered medically necessary if no other more specific biliary tract CPT is appropriate.
47600	Cholecystectomy
47605	Cholecystectomy; with cholangiography
47610	Cholecystectomy with exploration of common duct
47612	Cholecystectomy with exploration of common duct; with choledochoenterostomy
47620	Cholecystectomy with exploration of common duct; with transduodenal sphincterotomy or sphincteroplasty, with or without cholangiography
S2083	Adjustment of gastric band diameter via subcutaneous port by injection or aspiration of saline
S9449	Weight management classes, non-physician provider, per session
S9451	Exercise classes, non-physician provider, per session
S9452	Nutrition classes, non-physician provider, per session

Table 2	
ICD-10 codes considered medically necessary with Table 1 codes if criteria are met:	
Code	*Description*
E66.01	Morbid (severe) obesity due to excess calories
E66.2	Morbid (severe) obesity with alveolar hypoventilation
Z68.30	Body mass index [BMI]30.0-30.9, adult

Table 2	
ICD-10 codes considered medically necessary with Table 1 codes if criteria are met:	
Code	*Description*
Z68.31	Body mass index [BMI] 31.0-31.9, adult
Z68.32	Body mass index [BMI] 32.0-32.9, adult
Z68.33	Body mass index [BMI] 33.0-33.9, adult
Z68.34	Body mass index [BMI] 34.0-34.9, adult
Z68.35	Body mass index (BMI) 35.0-35.9, adult
Z68.36	Body mass index (BMI) 36.0-36.9, adult
Z68.37	Body mass index (BMI) 37.0-37.9, adult
Z68.38	Body mass index (BMI) 38.0-38.9, adult
Z68.39	Body mass index (BMI) 39.0-39.9, adult
Z68.41	Body mass index (BMI) 40.0-44.9, adult
Z68.42	Body mass index (BMI) 45.0-49.9, adult
Z68.43	Body mass index (BMI) 50.0-59.9, adult
Z68.44	Body mass index (BMI) 60.0-69.9, adult
Z68.45	Body mass index (BMI) 70 or greater, adult

Table 3	
CPT/HCPCS codes that may be considered medically necessary for requests related to conversion surgery from a sleeve gastrectomy to a Roux-en-Y gastric bypass:	
Code	*Description*
43644	Laparoscopy, surgical, gastric restrictive procedure; with gastric bypass and Roux-en-Y gastroenterostomy (roux limb 150 cm or less)

Table 4	
CPT/HCPCS codes not considered medically necessary for requests related to conversion surgery from a sleeve gastrectomy to a Roux-en-Y gastric bypass:	
Code	*Description*
43281	Laparoscopy, surgical, repair of paraesophageal hernia, includes fundoplasty, when performed; without implantation of mesh
43282	Laparoscopy, surgical, repair of paraesophageal hernia, includes fundoplasty, when performed; with implantation of mesh
43620	Gastrectomy, total; with esophagoenterostomy
43621	Gastrectomy, total; with Roux-en-Y reconstruction
43632	Gastrectomy, partial, distal; with gastrojejunostomy
43633	Gastrectomy, partial, distal; with Roux-en-Y reconstruction
43634	Gastrectomy, partial, distal; with formation of intestinal pouch
43820	Gastrojejunostomy; without vagotomy
43825	Gastrojejunostomy; with vagotomy, any type

Table 5	
CPT/HCPCS codes not applicable to the bariatric surgery criteria in this guideline:	
Code	*Description*
15876	Suction assisted lipectomy; head and neck
15877	Suction assisted lipectomy; trunk
15878	Suction assisted lipectomy; upper extremity
15879	Suction assisted lipectomy; lower extremity
43620	Gastrectomy, total; with esophagoenterostomy
43621	Gastrectomy, total; with Roux-en-Y reconstruction
43622	Gastrectomy, total; with formation of intestinal pouch, any type
43631	Gastrectomy, partial, distal; with gastroduodenostomy

Table 5	
CPT/HCPCS codes not applicable to the bariatric surgery criteria in this guideline:	
Code	*Description*
43632	Gastrectomy, partial distal; with gastrojejunostomy
43633	Gastrectomy, partial, distal; with Roux-en-Y reconstruction
43634	Gastrectomy, partial, distal; with formation of intestinal pouch
43635	Vagotomy when performed with partial distal gastrectomy (List separately in addition to code(s) for primary procedure)
43647	Laparoscopy, surgical; implantation or replacement of gastric neurostimulator electrodes, antrum
43865	Revision of gastrojejunal anastomosis (gastrojejunostomy) with reconstruction, with or without partial gastrectomy or intestine resection; with vagotomy
43881	Implantation or replacement of gastric neurostimulator electrodes, antrum, open

Table 6	
CPT/HCPCS codes considered experimental, investigational, or unproven for indications in this guideline:	
Code	*Description*
0813T	Esophagogastroduodenoscopy, flexible, transoral, with volume adjustment of intragastric bariatric balloon
43290	Esophagogastroduodenoscopy, flexible, transoral; with deployment of intragastric bariatric balloon
43291	Esophagogastroduodenoscopy, flexible, transoral; with removal of intragastric bariatric balloon(s)
43659	Unlisted laparoscopy procedure, stomach ● Due to the broad nature of this code and lack of specificity in certain scenarios, clarification is provided below: ● When this code is billed for gastric plication (laparoscopic greater curvature plication [LGCP]) with or without gastric banding, or mini-gastric bypass procedure), it is considered experimental or investigational

Table 6	
CPT/HCPCS codes considered experimental, investigational, or unproven for indications in this guideline:	
Code	*Description*
43842	Gastric restrictive procedure, without gastric bypass, for morbid obesity; vertical-banded gastroplasty
43843	Gastric restrictive procedure, without gastric bypass, for morbid obesity; other than vertical-banded gastroplasty
43889	Gastric restrictive procedure, transoral, endoscopic sleeve gastroplasty (ESG), including argon plasma coagulation, when performed
43999	Unlisted procedure, stomach ● Due to the broad nature of this code and lack of specificity in certain scenarios, clarification is provided below: ● When this code is billed for endoscopic or endoluminal gastric restrictive procedures, or placement of an intragastric balloon device, it is considered experimental or investigational
64999	Unlisted procedure, nervous system ● Due to the broad nature of this code and lack of specificity in certain scenarios, clarification is provided below: ● When this code is billed for vagus nerve blocking therapy for the purpose of weight loss, it is considered experimental or investigational

References

1. Affinati, A. H., Esfandiari, N. H., Oral, E. A., & Kraftson, A. T. (2019). Bariatric surgery in the treatment of type 2 diabetes. *Current Diabetes Reports*, 19(12), 156. https://doi.org/10.1007/s11892-019-1269-4
2. Al-Mazrou, A. M., Cruz, M. V., Dakin, G., Bellorin-Marin, O. E., Pomp, A., & Afaneh, C. (2021). Robotic duodenal switch is associated with outcomes comparable to those of laparoscopic approach. *Obesity Surgery*, 31(5), 2019–2029. https://doi.org/10.1007/s11695-020-05198-5
3. Ali, M., El Chaar, M., Ghiassi, S., Rogers, A. M., & American Society for Metabolic and Bariatric Surgery Clinical Issues Committee (2017). American Society for Metabolic and Bariatric Surgery updated position statement on sleeve gastrectomy as a bariatric procedure. *Surgery for Obesity and Related Diseases*, 13(10), 1652–1657. https://doi.org/10.1016/j.soard.2017.08.007
4. American Diabetes Association. (2021). Obesity management for the treatment of type 2 diabetes: Standards of Medical Care in Diabetes—2021. *Diabetes Care*, 44(Supplement_1), S100–S110. https://doi.org/10.2337/dc21-s008
5. American Society of Plastic Surgeons (ASPS). (2017). *ASPS recommended insurance coverage criteria for third-party payers: Surgical treatment of skin redundancy for obese and massive*

weight loss patients. https://www.plasticsurgery.org/for-medical-professionals/health-policy/recommended-insurance-coverage-criteria

6. Aminian, A., Chang, J., Brethauer, S. A., & Kim, J. J. (2018). ASMBS updated position statement on bariatric surgery in class I obesity (BMI 30–35 kg/m2). *Surgery for Obesity and Related Diseases*, 14(8), 1071–1087. https://doi.org/10.1016/j.soard.2018.05.025
7. Angrisani, L., Santonicola, A., Iovino, P., Ramos, A., Shikora, S., & Kow, L. (2021). Bariatric surgery survey 2018: Similarities and disparities among the 5 IFSO chapters. *Obesity Surgery*, 31(5), 1937–1948. https://doi.org/10.1007/s11695-020-05207-7
8. Ataya, K., Al Jaafreh, A. M., El Bourji, H., Bsat, A., Nassar, H., Al Ayoubi, A., & Abi Saad, G. (2023). Roux-en-Y gastric bypass versus one anastomosis gastric bypass as revisional surgery after failed sleeve gastrectomy: A systematic review and meta-analysis. *Journal of Metabolic and Bariatric Surgery*, 12(2), 57–66. https://doi.org/10.17476/jmbs.2023.12.2.57
9. Berg, S. (2023, June 14). *AMA: Use of BMI alone is an imperfect clinical measure*. American Medical Association. https://www.ama-assn.org/public-health/chronic-diseases/ama-use-bmi-alone-imperfect-clinical-measure
10. Bou Daher H, Sharara AI. Gastroesophageal reflux disease, obesity and laparoscopic sleeve gastrectomy: The burning questions. World J Gastroenterol. 2019 Sep 7;25(33):4805-4813.
11. Camilleri M, Kuo B, Nguyen L, Vaughn VM, Petrey J, Greer K, Yadlapati R, Abell TL. ACG Clinical Guideline: Gastroparesis. Am J Gastroenterol. 2022 Aug 1;117(8):1197-1220.
12. Carlsson LMS, Sjöholm K, Jacobson P, Andersson-Assarsson JC, Svensson PA, Taube M, Carlsson B, Peltonen M. Life Expectancy after Bariatric Surgery in the Swedish Obese Subjects Study. N Engl J Med. 2020 Oct 15;383(16):1535-1543.
13. Centers for Medicare & Medicaid Services (CMS). *National Coverage Determination (NCD): Bariatric surgery for treatment of co-morbid conditions related to morbid obesity (100.1)*. https://www.cms.gov/medicare-coverage-database/search.aspx
14. Chalklin CG, Ryan Harper EG, Beamish AJ. Metabolic and Bariatric Surgery in Adolescents. Curr Obes Rep. 2021 Jun;10(2):61-69. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8159783/
15. Clark JM, Garvey WT, Niswender KD, Schmidt AM, Ahima RS, Aleman JO, Battarbee AN, Beckman J, Bennett WL, Brown NJ, Chandler-Laney P, Cox N, Goldberg IJ, Habegger KM, Harper LM, Hasty AH, Hidalgo BA, Kim SF, Locher JL, Luther JM, Maruthur NM, Miller ER, Sevick MA, Wells Q. Obesity and Overweight: Probing Causes, Consequences, and Novel Therapeutic Approaches Through the American Heart Association's Strategically Focused Research Network. J Am Heart Assoc. 2023 Feb 21;12(4):e027693. doi: 10.1161/JAHA.122.027693. Epub 2023 Feb 8.
16. Conner J, Nottingham JM. Biliopancreatic Diversion With Duodenal Switch. 2022 Sep 19. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; Available from https://www.ncbi.nlm.nih.gov/books/NBK563193/
17. Courcoulas, A. P., Patti, M. E., Hu, B., Arterburn, D. E., Simonson, D. C., Gourash, W. F., Jakicic, J. M., Vernon, A. H., Beck, G. J., Schauer, P. R., Kashyap, S. R., Aminian, A., Cummings, D. E., &

Kirwan, J. P. (2024). Long-term outcomes of medical management vs bariatric surgery in type 2 diabetes. *JAMA*, 331(8), 654–664. https://doi.org/10.1001/jama.2024.0318

18. Cummings DE, Rubino F. Metabolic surgery for the treatment of type 2 diabetes in obese individuals. Diabetologia. 2018 Feb;61(2):257-264.
19. Current Surgical Therapy, 12th ed., Cameron & Cameron Eds. Elsevier Saunders Pub 2017, Chapters on Management of Gastroesophageal Reflux Disease, pp10-18, The Management of Morbid Obesity, pp 105-108 and Laparoscopic Surgery for Morbid Obesity, pp 1597-1607.
20. Dang JT, Switzer NJ, Sun WYL, Raghavji F, Birch DW, Karmali S. Evaluating the safety of intragastric balloon: An analysis of the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program. Surg Obes Relat Dis. 2018 Sep;14(9):1340-1347.
21. Deghan Manshadi S, Dehghan K, Robertson DI, Reimer C, Zevin B. Safety and outcomes of performing laparoscopic Roux-en-Y gastric bypass and sleeve gastrectomy at an ambulatory site of a tertiary care hospital in Ontario. Can J Surg. 2022 Jan 18;65(1):E38-E44.
22. Diaz Del Gobbo G, Mahmoud N, Barajas-Gamboa JS, Klingler M, Barrios P, Abril C, Raza J, Aminian A, Rosenthal RJ, Corcelles R, Kroh MD. Conversion of Sleeve Gastrectomy to Roux-en-Y Gastric Bypass to Enhance Weight Loss: Single Enterprise Mid-Term Outcomes and Literature Review. Bariatr Surg Pract Patient Care. 2022 Dec 1;17(4):197-205. doi: 10.1089/bari.2021.0096. Epub 2022 Dec 14.
23. Dong Z, Islam SMS, Yu AM, Qu R, Guan B, Zhang J, Hong Z, Wang C. Laparoscopic metabolic surgery for the treatment of type 2 diabetes in Asia: a scoping review and evidence-based analysis. BMC Surg. 2018 Sep 17;18(1):73.
24. Douros JD, Tong J, D'Alessio DA. The Effects of Bariatric Surgery on Islet Function, Insulin Secretion, and Glucose Control. Endocr Rev. 2019 Oct 1;40(5):1394-1423.
25. Dreifuss NH, Xie J, Schlottmann F, Cubisino A, Baz C, Vanetta C, Mangano A, Bianco FM, Gangemi A, Masrur MA. Risk Factors for Readmission After Same-Day Discharge Sleeve Gastrectomy: a Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program Database Analysis. Obes Surg. 2022 Apr;32(4):962-969. doi: 10.1007/s11695-022-05919-y. Epub 2022 Jan 20.
26. Eisenberg, D., Shikora, S. A., Aarts, E., Aminian, A., Angrisani, L., Cohen, R. V., De Luca, M., Faria, S. L., Goodpaster, K. P., Haddad, A., Himpens, J. M., Kow, L., Kurian, M., Loi, K., Mahawar, K., Nimeri, A., O'Kane, M., Papasavas, P. K., Ponce, J., . . . Kothari, S. N. (2022b). 2022 American Society of Metabolic and Bariatric Surgery (ASMBS) and International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO) indications for metabolic and bariatric surgery. *Obesity Surgery*, 33(1), 3–14. https://doi.org/10.1007/s11695-022-06332-1.
27. Fehervari M, Banh S, Varma P, Das B, Al-Yaqout K, Al-Sabah S, Khwaja H, Efthimiou E, Ashrafian H. Weight loss specific to indication, remission of diabetes, and short-term complications after sleeve gastrectomy conversion to Roux-en-Y gastric bypass: a systematic review and meta-analysis. Surg Obes Relat Dis. 2022 Nov 11:S1550-7289(22)00757-2

28. Felsenreich DM, Steinlechner K, Langer FB, Vock N, Eichelter J, Bichler C, Jedamzik J, Mairinger M, Kristo I, Prager G. Outcome of Sleeve Gastrectomy Converted to Roux-en-Y Gastric Bypass and One-Anastomosis Gastric Bypass. Obes Surg. 2022 Mar;32(3):643-651.
29. Felinski MM, Abbas D, Walker PA, Primomo JA, Kajese TM, Kar B, Gregoric ID, Banjac I, Janowiak L, Nathan S, Hussain R, Mehta SS, Bajwa KS, Shah SK, Akkanti B. Extracorporeal Membrane Oxygenation Rescue for Severe Aspiration Pneumonitis in Two Patients after Roux-en-y Gastric Bypass Procedure. J Extra Corpor Technol. 2021 Sep;53(3):199-203.
30. Frantzides CT, Alexander B, Frantzides AT. Laparoscopic Revision of Failed Bariatric Procedures. JSLS. 2019 Jan-Mar;23(1):e2018.00074.
31. Furbetta N, Cervelli R, Furbetta F. Laparoscopic adjustable gastric banding, the past, the present and the future. Ann Transl Med. 2020 Mar;8(Suppl 1):S4.
32. Gadde KM, Martin CK, Berthoud HR, Heymsfield SB. Obesity: Pathophysiology and Management. J Am Coll Cardiol. 2018 Jan 2;71(1):69-84.
33. Grover M, Farrugia G, Stanghellini V. Gastroparesis: a turning point in understanding and treatment. Gut. 2019 Dec;68(12):2238-2250. doi: 10.1136/gutjnl-2019-318712. Epub 2019 Sep 28.
34. Han Y, Jia Y, Wang H, Cao L, Zhao Y. Comparative analysis of weight loss and resolution of comorbidities between laparoscopic sleeve gastrectomy and Roux-en-Y gastric bypass: A systematic review and meta-analysis based on 18 studies. Int J Surg. 2020 Apr;76:101-110. doi: 10.1016/j.ijsu.2020.02.035. Epub 2020 Mar 6.
35. Haseeb, M., Chhatwal, J., Xiao, J., Jirapinyo, P., & Thompson, C. C. (2024). Semaglutide vs Endoscopic Sleeve Gastroplasty for Weight Loss. *JAMA Network Open*, 7(4), e246221. https://doi.org/10.1001/jamanetworkopen.2024.6221.
36. Hayes, Inc. Evidence Analysis Research Brief. *Laparoscopic Surgery for Gastroesophageal Reflux Disease Refractory to Medical Therapy*. Lansdale, PA: Hayes, Inc.; April 2023.
37. Hayes, Inc. Hayes Medical Technology Directory. *Comparative Effectiveness Review Mini Gastric Bypass–One Anastomosis Gastric Bypass for the Treatment of Obesity: A Review of Reviews.* Lansdale, PA: Hayes, Inc.; November 2021.
38. Hayes, Inc. Evolving Evidence Review. *OverStitch Endoscopic Suturing System (Apollo Endosurgery Inc.) for Endoscopic Sleeve Gastroplasty.* Lansdale, PA: Hayes, Inc.; May 2022.
39. Holmberg, D., Santoni, G., Xie, S., & Lagergren, J. (2019). Gastric bypass surgery in the treatment of gastro-oesophageal reflux symptoms. *Alimentary Pharmacology & Therapeutics*, 50(2), 159–166. https://doi.org/10.1111/apt.15274
40. Horber FF, Steffen R. Reversal of Long-Term Weight Regain After Roux-en-Y Gastric Bypass Using Liraglutide or Surgical Revision. A Prospective Study. Obes Surg. 2021 Jan;31(1):93-100.
41. Fadel MG, Fehervari M, Das B, Soleimani-Nouri P, Ashrafian H. Vagal Nerve Therapy in the Management of Obesity: A Systematic Review and Meta-Analysis. *Eur Surg Res*. 2023;64(4):365-375.
42. Ibrahim AM, Ghaferi AA, Thumma JR, Dimick JB. Variation in Outcomes at Bariatric Surgery Centers of Excellence. JAMA Surg. 2017 Jul 1;152(7):629-636.

43. Katz, P. O., Dunbar, K. B., Schnoll-Sussman, F. H., Greer, K. B., Yadlapati, R., & Spechler, S. J. (2022). ACG clinical guideline for the diagnosis and management of gastroesophageal reflux disease. *American Journal of Gastroenterology*, 117(1), 27–56.
44. Khaitan L, Shea BJ. Laparoscopic vertical sleeve gastrectomy, long and short-term impact on weight loss and associated co-morbidities. Ann Transl Med. 2020 Mar;8(Suppl 1):S5.
45. Koh CY, Inaba CS, Sujatha-Bhaskar S, Hohmann S, Ponce J, Nguyen NT. Laparoscopic Adjustable Gastric Band Explantation and Implantation at Academic Centers. J Am Coll Surg. 2017 Oct;225(4):532-537.
46. Kröll D, Nett PC, Rommers N, Borbély Y, Deichsel F, Nocito A, Zehetner J, Kessler U, Fringeli Y, Alberio L, Candinas D, Stirnimann G. Efficacy and Safety of Rivaroxaban for Postoperative Thromboprophylaxis in Patients After Bariatric Surgery: A Randomized Clinical Trial. *JAMA Netw Open*. 2023 May 1;6(5):e2315241.
47. Landreneau JP, Strong AT, Rodriguez JH, Aleassa EM, Aminian A, Brethauer S, Schauer PR, Kroh MD. Conversion of Sleeve Gastrectomy to Roux-en-Y Gastric Bypass. Obes Surg. 2018 Dec;28(12):3843-3850.
48. Leca BM, Khan U, Abraham J, Halder L, Shuttlewood E, Shah N, Ellis HL, Aylwin SJB, Barber TM, Menon V, Randeva HS, Dimitriadis GK. Laparoscopic Adjustable Gastric Banding-Should a Second Chance Be Given? Obes Surg. 2020 Aug;30(8):2913-2919.
49. Lim, RB. Bariatric operations for management of obesity: indications and preoperative preparation. In: UpToDate, Jones D (Ed), UpToDate, Waltham, MA. (Accessed on January 19, 2017)
50. Lim, RB. Bariatric procedures for the management of severe obesity: Descriptions. In: UpToDate, Jones D (Ed), UpToDate, Waltham, MA. (Last updated: Aug 17, 2022)
51. Lingvay, I., Cohen, R. V., Roux, C. W. L., & Sumithran, P. (2024). Obesity in adults. *Lancet (London, England)*, 404(10456), 972–987. https://doi.org/10.1016/S0140-6736(24)01210-8
52. Małczak P, Pisarska M, Piotr M, Wysocki M, Budzyński A, Pędziwiatr M. Enhanced Recovery after Bariatric Surgery: Systematic Review and Meta-Analysis. Obes Surg. 2017 Jan;27(1):226-235.
53. Matar R, Monzer N, Jaruvongvanich V, Abusaleh R, Vargas EJ, Maselli DB, Beran A, Kellogg T, Ghanem O, Abu Dayyeh BK. Indications and Outcomes of Conversion of Sleeve Gastrectomy to Roux-en-Y Gastric Bypass: a Systematic Review and a Meta-analysis. Obes Surg. 2021 Sep;31(9):3936-3946. doi: 10.1007/s11695-021-05463-1.
54. Mechanick, J. I., Apovian, C., Brethauer, S., Garvey, W. T., Joffe, A. M., Kim, J., Kushner, R. F., Lindquist, R., Pessah-Pollack, R., Seger, J., Urman, R. D., Adams, S., Cleek, J. B., Correa, R., Figaro, M. K., Flanders, K., Grams, J., Hurley, D. L., Kothari, S., Seger, M. V., … Still, C. D. (2020). Clinical practice guidelines for the perioperative nutrition, metabolic, and nonsurgical support of patients undergoing bariatric procedures - 2019 update: cosponsored by American Association of Clinical Endocrinologists/American College of Endocrinology, The Obesity Society, American Society for Metabolic & Bariatric Surgery, Obesity Medicine Association, and American Society of Anesthesiologists. *Surgery for Obesity and Related Diseases*, 16(2), 175–247. https://doi.org/10.1016/j.soard.2019.10.025

55. Menzo EL, Hinojosa M, Carbonell A, et al. American Society for Metabolic and Bariatric Surgery and American Hernia Society consensus guideline on bariatric surgery and hernia surgery. *American Society for Bariatric Surgery*. 2018;(14) 1221-1232. https://doi.org/10.1016/j.soard.2018.07.005
56. Mizera M, Wysocki M, Bartosiak K, Franczak P, Hady HR, Kalinowski P, Myśliwiec P, Orłowski M, Paluszkiewicz R, Piecuch J, Szeliga J, Walędziak M, Major P, Pędziwiatr M. Type 2 Diabetes Remission 5 Years After Laparoscopic Sleeve Gastrectomy: Multicenter Cohort Study. Obes Surg. 2021 Mar;31(3):980-986.
57. Naik RD, Meyers MH, Vaezi MF. Treatment of Refractory Gastroesophageal Reflux Disease. Gastroenterol Hepatol (N Y). 2020 Apr;16(4):196-205.
58. Nasri BN, Trainor L, Jones DB. Laparoscopic adjustable gastric band remains a safe, effective, and durable option for surgical weight loss. Surg Endosc. 2022 Oct;36(10):7781-7788. doi: 10.1007/s00464-022-09278-8. Epub 2022 May 9.
59. National Heart, Lung, and Blood Institute. Body Mass Index Table 1. https://www.nhlbi.nih.gov/health/educational/lose_wt/BMI/bmi_tbl.htm (Accessed on March 5, 2017).
60. Nijland LMG, de Castro SMM, Vogel M, Coumou JF, van Rutte PWJ, van Veen RN. Feasibility of Same-Day Discharge After Laparoscopic Roux-en-Y Gastric Bypass Using Remote Monitoring. Obes Surg. 2021 Jul;31(7):2851-2858. doi: 10.1007/s11695-021-05384-z. Epub 2021 Apr 6.
61. O'Brien PE, Hindle A, Brennan L, Skinner S, Burton P, Smith A, Crosthwaite G, Brown W. Long-Term Outcomes After Bariatric Surgery: a Systematic Review and Meta-analysis of Weight Loss at 10 or More Years for All Bariatric Procedures and a Single-Centre Review of 20-Year Outcomes After Adjustable Gastric Banding. Obes Surg. 2019 Jan;29(1):3-14. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6320354/
62. Peterli R, Wölnerhanssen BK, Peters T, Vetter D, Kröll D, Borbély Y, Schultes B, Beglinger C, Drewe J, Schiesser M, Nett P, Bueter M. Effect of Laparoscopic Sleeve Gastrectomy vs Laparoscopic Roux-en-Y Gastric Bypass on Weight Loss in Patients With Morbid Obesity: The SM-BOSS Randomized Clinical Trial. JAMA. 2018 Jan 16;319(3):255-265.
63. Pratt JSA, Browne A, Browne NT, Bruzoni M, Cohen M, Desai A, Inge T, Linden BC, Mattar SG, Michalsky M, Podkameni D, Reichard KW, Stanford FC, Zeller MH, Zitsman J. ASMBS pediatric metabolic and bariatric surgery guidelines, 2018. Surg Obes Relat Dis. 2018 Jul;14(7):882-901. doi: 10.1016/j.soard.2018.03.019. Epub 2018 Mar 23.
64. Rebecchi F, Allaix ME, Patti MG, Schlottmann F, Morino M. Gastroesophageal reflux disease and morbid obesity: To sleeve or not to sleeve? World J Gastroenterol. 2017 Apr 7;23(13):2269-2275
65. Rodríguez-Álvarez, C., Acosta-Torrecilla, A. O., González-Dávila, E., & Arias, Á. (2020). Metabolic syndrome after Roux-en-Y gastric bypass in patients with morbid obesity: Five years of follow-up, a before and after study. *International Journal of Surgery* (London, England), 74, 5–10. https://doi.org/10.1016/j.ijsu.2019.12.019
66. Rodríguez de Santiago E, Albéniz E, Estremera-Arevalo F, Teruel Sanchez-Vegazo C, Lorenzo-Zúñiga V. Endoscopic anti-reflux therapy for gastroesophageal reflux disease. World J Gastroenterol. 2021 Oct 21;27(39):6601-6614.

67. Ryan DH, Kahan S. Guideline Recommendations for Obesity Management. Med Clin North Am. 2018 Jan;102(1):49-63. doi: 10.1016/j.mcna.2017.08.006. PMID: 29156187.
68. Sabench, F., Rusu, E. C., Clavero-Mestres, H., Arredondo-Prats, V., Veciana-Molins, M., Muñiz-Piera, S., Vives, M., Aguilar, C., Bartra, E., París-Sans, M., Alibalic, A., & Quintillà, M. T. A. (2024). Metabolic-associated fatty liver disease and weight loss after bariatric surgery: A systematic review and meta-analysis. *Obesity Surgery*, 34(12), 4459–4471. https://doi.org/10.1007/s11695-024-07585-8
69. Sall AR, Jones MW. Bariatric Surgery Preoperative Assessment. 2023 Jul 8. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan–.
70. Salminen P, Grönroos S, Helmiö M, Hurme S, Juuti A, Juusela R, Peromaa-Haavisto P, Leivonen M, Nuutila P, Ovaska J. Effect of Laparoscopic Sleeve Gastrectomy vs Roux-en-Y Gastric Bypass on Weight Loss, Comorbidities, and Reflux at 10 Years in Adult Patients With Obesity: The SLEEVEPASS Randomized Clinical Trial. JAMA Surg. 2022 Aug 1;157(8):656-666.
71. Salminen P, Helmiö M, Ovaska J et al. Effect of laparoscopic sleeve gastrectomy vs. laparoscopic Roux-en-Y gastric bypass on weight loss at 5 years among patients with morbid obesity. The SLEEVEPASS randomized clinical trial. JAMA. 2018;319(3):241-254.
72. Sandvik J, Hole T, Klöckner C, Kulseng B, Wibe A. The Impact of Post-bariatric Abdominoplasty on Secondary Weight Regain After Roux-en-Y Gastric Bypass. Front Endocrinol (Lausanne). 2020 Jul 30;11:45
73. Schmidt AM. Diabetes Mellitus and Cardiovascular Disease. Arterioscler Thromb Vasc Biol. 2019 Apr;39(4):558-568.
74. Schwaitzberg, S.D. (2021, October 5). *Surgical management of gastroesophageal reflux in adults*. UpToDate. https://www.uptodate.com/contents/surgical-management-of-gastroesophageal-reflux-in-adults
75. Selvendran SS, Penney NC, Aggarwal N, Darzi AW, Purkayastha S. Treatment of Obesity in Young People-a Systematic Review and Meta-analysis. Obes Surg. 2018 Aug;28(8):2537-2549.
76. Shaheen, N. J., Falk, G. W., Iyer, P. G., Souza, R. F., Yadlapati, R. H., Sauer, B. G., & Wani, S. (2022). Diagnosis and management of Barrett's esophagus: An updated ACG guideline. The American journal of gastroenterology, 117(4), 559–587. https://doi.org/10.14309/ajg.0000000000001680
77. Sheng B, Truong K, Spitler H, Zhang L, Tong X, Chen L. The Long-Term Effects of Bariatric Surgery on Type 2 Diabetes Remission, Microvascular and Macrovascular Complications, and Mortality: a Systematic Review and Meta-Analysis. Obes Surg. 2017 Oct;27(10):2724-2732.
78. Shenoy, A., & Schulman, A. R. (2024). Endoscopic management of bariatric surgery complications: Fistulas, leaks, and ulcers. *Gastrointestinal Endoscopy Clinics of North America*, 34(4), 655–669. https://doi.org/10.1016/j.giec.2024.06.001
79. Steinert RE, Feinle-Bisset C, Asarian L, Horowitz M, Beglinger C, Geary N. Ghrelin, CCK, GLP-1, and PYY(3-36): Secretory Controls and Physiological Roles in Eating and Glycemia in Health, Obesity, and After RYGB. Physiol Rev. 2017 Jan;97(1):411-463.

80. Stumpf MAM, Rodrigues MRS, Kluthcovsky ACGC, Milleo FQ. Preoperative factors correlated with post-bariatric surgery weight loss. *Rev Gastroenterol Mex (Engl Ed)*. 2022 Oct-Dec;87(4):506-508.
81. Sun Y, Liu B, Smith JK, Correia MLG, Jones DL, Zhu Z, Taiwo A, Morselli LL, Robinson K, Hart AA, Snetselaar LG, Bao W. Association of Preoperative Body Weight and Weight Loss With Risk of Death After Bariatric Surgery. JAMA Netw Open. 2020 May 1;3(5):e204803.
82. Taylor RS, Taylor RJ, Bayliss S, Hagström H, Nasr P, Schattenberg JM, Ishigami M, Toyoda H, Wai-Sun Wong V, Peleg N, Shlomai A, Sebastiani G, Seko Y, Bhala N, Younossi ZM, Anstee QM, McPherson S, Newsome PN. Association Between Fibrosis Stage and Outcomes of Patients With Nonalcoholic Fatty Liver Disease: A Systematic Review and Meta-Analysis. Gastroenterology. 2020 May;158(6):1611-1625.
83. Tewksbury C, Williams NN, Dumon KR, Sarwer DB. Preoperative Medical Weight Management in Bariatric Surgery: a Review and Reconsideration. Obes Surg. 2017 Jan;27(1):208-214.
84. U.S. Food & Drug Administration (FDA). (2020, April 27). *UPDATE: Potential risks with liquid-filled intragastric balloons - Letter to health care providers*. https://www.fda.gov/medical-devices/letters-health-care-providers/update-potential-risks-liquid-filled-intragastric-balloons-letter-health-care-providers-1
85. Wang FG, Yan WM, Yan M, Song MM. Outcomes of Mini vs Roux-en-Y gastric bypass: A meta-analysis and systematic review. Int J Surg. 2018 Aug;56:7-14.
86. Wickremasinghe AC, Johari Y, Laurie C, Shaw K, Playfair J, Beech P, Yue H, Becroft L, Hebbard G, Yap KS, Brown W, Burton P. Delayed Gastric Emptying After Sleeve Gastrectomy Is Associated with Poor Weight Loss. Obes Surg. 2022 Dec;32(12):3922-3931.
87. Yadlapati R, DeLay K. Proton Pump Inhibitor-Refractory Gastroesophageal Reflux Disease. Med Clin North Am. 2019 Jan;103(1):15-27. doi: 10.1016/j.mcna.2018.08.002. Epub 2018 Nov 1.
88. Yadlapati R, Gyawali CP, Pandolfino JE; CGIT GERD Consensus Conference Participants. AGA Clinical Practice Update on the Personalized Approach to the Evaluation and Management of GERD: Expert Review. Clin Gastroenterol Hepatol. 2022 May;20(5):984-994.e1. doi: 10.1016/j.cgh.2022.01.025. Epub 2022 Feb 2. Erratum in: Clin Gastroenterol Hepatol. 2022 Sep;20(9):2156.
89. Yoshino M, Kayser BD, Yoshino J, Stein RI, Reeds D, Eagon JC, Eckhouse SR, Watrous JD, Jain M, Knight R, Schechtman K, Patterson BW, Klein S. Effects of Diet versus Gastric Bypass on Metabolic Function in Diabetes. N Engl J Med. 2020 Aug 20;383(8):721-732.
90. Zerrweck C, Herrera A, Sepúlveda EM, Rodríguez FM, Guilbert L. Long versus short biliopancreatic limb in Roux-en-Y gastric bypass: short-term results of a randomized clinical trial. Surg Obes Relat Dis. 2021 Aug;17(8):1425-1430. doi: 10.1016/j.soard.2021.03.030. Epub 2021 Apr 9.

Clinical Guideline Revision/History Information

Original Date: 5/2/2017 Reviewed/Revised: 1/18/2018, 4/13/2018, 4/15/2019, 07/21/2020, 04/21/2021, 12/01/2021, 04/25/2022, 05/2/2023, 04/16/2024, 09/01/2025, 08/01/2026