

Oscar Clinical Guideline: Bariatric Surgery (Adults) (CG008, Ver. 10)

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 intaking 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 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 (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/m² 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.

"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.

"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.
 - o "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.
 - o "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 in a sequential 2-stage procedure or 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%.
- "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).

Clinical Indications

Procedures & Length of Stay

The Plan considers the following procedures and settings for the treatment of morbid obesity in adults (age \geq 18) medically necessary when criteria are met:

- Roux-en-Y gastric bypass (<150cm)
 - Open 2 days inpatient admission
 - Laparoscopic Ambulatory, which may include an overnight stay
 - An inpatient admission for a higher level of care with a laparoscopic approach may be considered medically necessary when the member meets MCG Ambulatory Surgery Exception Criteria (CG-AEC)
- Adjustable gastric banding
 - Laparoscopic Ambulatory, which may include an overnight stay
 - An inpatient admission for a higher level of care with a laparoscopic approach may be considered medically necessary when the member meets MCG Ambulatory Surgery Exception Criteria (CG-AEC)
- Sleeve gastrectomy
 - Open 1 day inpatient admission
 - Laparoscopic Ambulatory, which may include an overnight stay

- An inpatient admission for a higher level of care with a laparoscopic approach may be considered medically necessary when the member meets MCG Ambulatory Surgery Exception Criteria (CG-AEC)
- Biliopancreatic diversion with duodenal switch
 - Open 2 days inpatient admission
 - Laparoscopic Ambulatory, which may include an overnight stay
 - An inpatient admission for a higher level of care with a laparoscopic approach may be considered medically necessary when the member meets MCG Ambulatory Surgery Exception Criteria (CG-AEC)

Length of Stay (LOS) Extensions

Subject to medical necessity review, the Plan may consider extensions for hospital admission under the following circumstances:

- Patients >65 years old
- In the presence of complex comorbidities (COPD, renal disease, heart failure, etc.,)
- Conversion from laparoscopic to open procedure
- 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
- Clear liquid diet not tolerated during the postoperative phase

Criteria for Medically Necessary Procedures

Please refer to the member's plan documents for benefits

Procedures are 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. Nonalcoholic fatty liver disease or nonalcoholic steatohepatitis; or
 - vii. Osteoarthritis of the knee or hip or improving outcomes of knees or hip replacement; *or*
 - viii. Urinary stress incontinence; or
 - c. BMI ≥30-34.9, see section below; 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:
 - 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
- 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.
 - a. No current substance abuse has been identified; and
 - b. Members who have any of the following conditions MUST have formal, documented preoperative psychological clearance:
 - i. A history of schizophrenia, borderline personality disorder, suicidal ideation, severe depression
 - ii. Who are currently under the care of a psychologist/psychiatrist
 - iii. Who are on psychotropic medications, as necessary in order to exclude members who are unable to provide informed consent or who are unable to comply with the pre- and postoperative regimen

Members with a BMI 30-34.9

Please review member plan coverage documents (e.g., Evidence of Coverage) as coverage indications may vary. In the *Standards of Medical Care in Diabetes – 2021 Obesity Management for the Treatment of Type 2 Diabetes*, American Diabetes Association recommends that metabolic surgery may be considered to treat type 2 diabetes in adults with BMI 30.0–34.9 kg/m2 who do not achieve durable weight loss and improvement in comorbidities (including hyperglycemia) with nonsurgical methods (level A). Furthermore, in Asian Americans the BMI may be as low as 27.5 kg/m2 to consider metabolic

surgery. In 2019 clinical practice guideline cosponsored by The American Society for Metabolic & Bariatric Surgery with other national societies, recommended Grade B for "patients with BMI 30 to 34.9 kg/m2 and T2D with inadequate glycemic control despite optimal lifestyle and medical therapy should be considered for a bariatric procedure; current evidence is insufficient to support recommending a bariatric procedure in the absence of obesity." A recent joint statement by international diabetes organizations concluded that the current scientific evidence supports a benefit to metabolic surgery in some patients with Class I obesity (BMI 30 - 34.9) who have poorly controlled type 2 diabetes despite optimal medical therapy. However, they also acknowledge continued knowledge limitations related to this population, in particular (a) the relatively modest number of these patients represented in randomized controlled trials to date, (b) the absence of head to head trials comparing the effectiveness of different types of procedures in this population, and (c) the lack of clear definition of what constitutes failure of optimal medical therapy. As a result, the Plan will consider the medical necessity of bariatric surgery in members with a BMI of 30 - 34.9 (same inclusion for the Asian American population), who continue to have poorly controlled type 2 diabetes despite adherence to optimal medical therapy on a case-by-case basis.

Repair, Replacement, Removal, Revision, or Conversion Procedures

Please refer to the member's plan documents for benefits

- 1. Repair is considered medically necessary when there is documentation of a surgical complication related to the original surgery, including:
 - a. Fistula
 - b. Erosion
 - c. Leakage of suture/staple line
 - d. Herniated band
 - e. Obstruction
 - f. Enlargement of the pouch due to complications of vomiting
 - 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.
- 2. Replacement of an adjustable gastric band is considered medically necessary only if there are complications (e.g., port leakage, slippage) that cannot be corrected with band manipulation or adjustments.
- 3. Removal of an adjustable gastric band may be considered medically necessary when recommended by the member's physician.
- 4. Revision of a primary bariatric surgery is considered medically necessary when ALL of the following criteria are met:
 - a. The procedure has failed due to dilated gastrojejunal stoma, dilation of the anastomosis site, or dilation of the gastric pouch; *and*
 - b. The initial surgery successfully resulted in weight loss; and
 - c. The member has been compliant with the postoperative plan of diet, exercise, and behavioral modification.

- 5. Conversion surgery is performed in cases of inadequate weight loss when unrelated to surgical complications.
 - a. The Plan considers conversion of an adjustable gastric band to a sleeve gastrectomy, RYGB or BPD/DS medically necessary if there are complications that cannot be corrected with band manipulation or adjustments; *or*
 - b. The Plan considers conversion to a sleeve gastrectomy, RYGB or BPD/DS medically necessary when ALL of the following criteria are met:
 - i. Meets all medical necessity criteria for bariatric surgery as defined above; and
 - ii. Documented compliance with postoperative plan of diet, exercise, and behavioral modification; *and*
 - iii. A minimum of 2 years following original surgery with:
 - 1. Weight loss of less than 50% of preoperative excess body weight; and
 - 2. Remains >30% over ideal body weight; or
- 6. If the member is requesting conversion surgery from a sleeve gastrectomy to a Roux-en-Y gastric bypass for the indications of Proton Pump Inhibitor (PPI) Refractory Gastroesophageal Reflux Disease (GERD), Barrett's esophagus, or biopsy proven dysplasia, then the following criteria must be met:
 - a. A biopsy documented Barrett's esophagus with high grade dysplasia (cancer risk 7% per year) confirmed by two separate pathologists refractory to maximal medical and endoscopic therapy; *or*
 - b. 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:
 - i. At least 3 months of prescription strength anti-secretory agents (e.g., omeprazole, pantoprazole, esomeprazole, etc.,); and
 - ii. At least 3 months of one of the following (unless contraindicated):
 - 1. Aspirin, nonsteroidal anti-inflammatory agents, or statins (HMG-CoA reductase inhibitors); *and*
 - iii. Failure of endoscopic therapy; or
 - c. 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*
 - d. PPI Refractory Gastroesophageal Reflux Disease (GERD) by meeting the following indications:
 - i. Failure of at least 1 year of single dose prescription strength (not over the counter) anti-secretory treatment (e.g., PPI); and
 - ii. At least 8 weeks of dual prescription strength anti-secretory treatment (2 different PPIs taken together); and
 - iii. 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

- iv. One of the following:
 - 1. Failure of endoscopic therapy; or
 - 2. Failure of prior surgical therapy (e.g., surgical fundoplication, hiatal hernia repair, vagotomy).

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:

- >150cm long limb gastric bypass (except for BPD with DS)
- Air-filled intragastric balloon or liquid-filled intragastric balloons (e.g., Orbera, ReShape)
- Aspiration therapy procedures
- Biliopancreatic Diversion without duodenal switch
- Conversion of Gastric Sleeve to Roux-en-Y Gastric Bypass for Gastroparesis
- Endoscopic sleeve gastroplasty / endoluminal vertical gastroplasty
- Gastric plication (Laparoscopic)
- Gastroplasty (stomach stapling)
- Jejunoileal bypass
- Mini gastric bypass/one anastomosis gastric bypass/ Billroth II
- Natural orifice transoral surgery (NOTES)
- Open adjustable gastric banding
- Prophylactic mesh placement to prevent incisional hernia after open bariatric surgery
- Silastic ring (Fobi pouch)
- Vagal blockade (Vagus Nerve Blocking Therapy)
- Vertical Banded Gastroplasty (VBG)

Skin Removal Surgery

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

Relative Contraindications

General

- Medically correctable cause of obesity
- Severe or unstable cardiovascular disease
- Severe coagulopathy
- Severe pulmonary disease
- Cirrhosis with portal hypertension
- Ongoing substance abuse or substance abuse in preceding 12 months
- Severe or poorly controlled psychiatric disorder or mental illness

- Medical, psychological, psychosocial, or cognitive condition that prevents adherence to post-op dietary and medical requirements or impairs decision capacity
- Non-compliance with dietary restrictions
- Bulimia nervosa
- Current or planned pregnancy within 12-18 months
- Advanced stage neoplastic disease

Laparoscopic Adjustable Gastric Banding

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

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

- Inflammatory bowel disease
- 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 (HCPCS & CPT Codes)

Codes considered medically necessary if clinical 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
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
47564	Laparoscopy, surgical; cholecystectomy with exploration of common duct
47570	Laparoscopy, surgical; cholecystoenterostomy
47579	 Unlisted laparoscopy procedure, biliary tract <u>Due to the broad nature of this code and lack of specificity in certain scenarios, clarification is provided below:</u> 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
ICD-10 codes cor	nsidered medically necessary 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
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
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For requests related to conversion surgery from a sleeve gastrectomy to a Roux-en-Y gastric bypass, the following codes may apply as medically necessary:

Code	Description
43644	Laparoscopy, surgical, gastric restrictive procedure; with gastric bypass and Roux-en-Y gastroenterostomy (roux limb 150 cm or less)

For requests related to conversion surgery from a sleeve gastrectomy to a Roux-en-Y gastric bypass, the following codes would NOT be medically necessary:

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

The following codes are <u>not</u> indicated / outside the applicable category of the procedures described 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
43632	Gastrectomy, partial distal; with gastrojejunostomy (Billroth II) [when specified as bariatric surgery]
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

The following codes are considered experimental or investigational for bariatric surgery or metabolic surgery for weight loss:

Code	Description
0813T	Esophagogastroduodenoscopy, flexible, transoral, with volume adjustment of intragastric bariatric balloon
43290	Esophagogastroduodenoscopy, flexible, transoral; with deployment of intragastric bariatric balloon
43659	 Unlisted laparoscopy procedure, stomach <u>Due to the broad nature of this code and lack of specificity in certain scenarios, clarification is provided below:</u> 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
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

43999	 Unlisted procedure, stomach <u>Due to the broad nature of this code and lack of specificity in certain scenarios, clarification is provided below</u>: When this code is billed for endoluminal gastric restrictive procedures or placement of intragastric balloon device, it is considered experimental or investigational
64999	 Unlisted procedure, nervous system <u>Due to the broad nature of this code and lack of specificity in certain scenarios, clarification is provided below:</u> 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 AH, Esfandiari NH, Oral EA, Kraftson AT. Bariatric Surgery in the Treatment of Type 2 Diabetes. Curr Diab Rep. 2019 Dec 4;19(12):156.
- 2. Al-Mazrou AM, Cruz MV, Dakin G, Bellorin-Marin OE, Pomp A, Afaneh C. Robotic Duodenal Switch Is Associated with Outcomes Comparable to those of Laparoscopic Approach. Obes Surg. 2021 May;31(5):2019-2029.
- American Diabetes Association. Obesity Management for the Treatment of Type 2 Diabetes: Standards of Medical Care in Diabetes—2021. *Diabetes Care*. 2021;44(Supplement_1):S100-S110. Doi: https://doi.org/10.2337/dc21-S008
- 4. American Medical Association. (June 2023). AMA: Use of BMI alone is an imperfect clinical measure. Retrieved from: https://www.ama-assn.org/delivering-care/public-health/ama-use-bmi-alone-imperfect-clinical-measure
- 5. American Society for Bariatric Surgery. 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. 2020;16:175-247.
- Aminian A, Chang J, Brethauer SA, Kim JJ; American Society for Metabolic and Bariatric Surgery Clinical Issues Committee. ASMBS updated position statement on bariatric surgery in class I obesity (BMI 30-35 kg/m2). Surg Obes Relat Dis. 2018 Aug;14(8):1071-1087. doi: 10.1016/j.soard.2018.05.025. Epub 2018 Jun 9
- 7. Angrisani L, Santonicola A, Iovino P, Ramos A, Shikora S, Kow L. Bariatric Surgery Survey 2018: Similarities and Disparities Among the 5 IFSO Chapters. Obes Surg. 2021 May;31(5):1937-1948. doi: 10.1007/s11695-020-05207-7. Epub 2021 Jan 12.

- 8. Bennett MC, Badillo R, Sullivan S. Endoscopic Management. Gastroenterol Clin North Am. 2016 Dec;45(4):673-688. doi: 10.1016/j.gtc.2016.07.005. Erratum in: Gastroenterol Clin North Am. 2017 Jun;46(2):xvii.
- 9. 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.
- 10. 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.
- 11. 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.
- 12. 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/
- 13. 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.
- 14. Courcoulas AP, Gallagher JW, Neiberg RH, Eagleton EB, DeLany JP, Lang W, Punchai S, Gourash W, Jakicic JM. Bariatric Surgery vs Lifestyle Intervention for Diabetes Treatment: 5-Year Outcomes From a Randomized Trial. J Clin Endocrinol Metab. 2020 Mar 1;105(3):866–76.
- 15. Cummings DE, Arterburn DE, Westbrook EO, Kuzma JN, Stewart SD, Chan CP, Bock SN, Landers JT, Kratz M, Foster-Schubert KE, Flum DR. Gastric bypass surgery vs intensive lifestyle and medical intervention for type 2 diabetes: the CROSSROADS randomised controlled trial. Diabetologia. 2016 May;59(5):945-53.
- 16. Cummings DE, Rubino F. Metabolic surgery for the treatment of type 2 diabetes in obese individuals. Diabetologia. 2018 Feb;61(2):257-264.
- 17. 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.
- 18. 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.
- Ding SA, Simonson DC, Wewalka M, Halperin F, Foster K, Goebel-Fabbri A, Hamdy O, Clancy K, Lautz D, Vernon A, Goldfine AB. Adjustable Gastric Band Surgery or Medical Management in Patients With Type 2 Diabetes: A Randomized Clinical Trial. J Clin Endocrinol Metab. 2015 Jul;100(7):2546-56.
- 20. 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.
- 21. 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.
- 22. 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.
- 23. Edwards-Hampton SA, Wedin S. Preoperative psychological assessment of patients seeking weight-loss surgery: identifying challenges and solutions. Psychol Res Behav Manag. 2015 Nov 3;8:263-72.
- 24. Eisenberg D, Shikora SA, Aarts E, Aminian A, Angrisani L, Cohen RV, de Luca M, Faria SL, Goodpaster KPS, Haddad A, Himpens JM, Kow L, Kurian M, Loi K, Mahawar K, Nimeri A, O'Kane M, Papasavas PK, Ponce J, Pratt JSA, Rogers AM, Steele KE, Suter M, Kothari SN. 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. Obes Surg. 2023 Jan;33(1):3-14.
- 25. Erridge S, Sodergren MH, Darzi A, Purkayastha S. Natural Orifice Translumenal Endoscopic Surgery: Review of Its Applications in Bariatric Procedures. Obes Surg. 2016 Feb;26(2):422-8.
- 26. 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
- 27. 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.
- 28. 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.
- 29. Frantzides CT, Alexander B, Frantzides AT. Laparoscopic Revision of Failed Bariatric Procedures. JSLS. 2019 Jan-Mar;23(1):e2018.00074.
- 30. Frantzides CT, Alexander B, Frantzides AT. Laparoscopic Revision of Failed Bariatric Procedures. JSLS. 2019 Jan-Mar;23(1):e2018.00074.
- 31. Froylich D, Corcelles R, Daigle C, Effect of Roux-en-Y gastric bypass and sleeve gastrectomy on nonalcoholic fatty liver disease: a comparative study. Surg Obes Relat Dis. 2016 Jan;12(1):127-31
- 32. 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.
- 33. Gadde KM, Martin CK, Berthoud HR, Heymsfield SB. Obesity: Pathophysiology and Management. J Am Coll Cardiol. 2018 Jan 2;71(1):69-84.

- 34. Giordano S. Laparoscopic Roux-en-Y gastric bypass versus laparoscopic adjustable gastric banding in the super-obese: peri-operative and early outcomes. Scandinavian Journal of Surgery. 2015; 104(1):5-9
- 35. 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.
- 36. 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.
- 37. Hayes, Inc. Evidence Analysis Research Brief. *Laparoscopic Surgery for Gastroesophageal Reflux Disease Refractory to Medical Therapy.* Lansdale, PA: Hayes, Inc.; April 21, 2023.
- 38. 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.; May 30, 2019. Annual Review: Nov 18, 2021.
- 39. Hayes, Inc. Evolving Evidence Review. *OverStitch Endoscopic Suturing System (Apollo Endosurgery Inc.)* for Endoscopic Sleeve Gastroplasty. Lansdale, PA: Hayes, Inc.; May 9, 2022.
- 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. Hsu WC, Araneta MRG, Kanaya AM, Chiang JL, Fujimoto W. BMI Cut Points to Identify At-Risk Asian Americans for Type 2 Diabetes Screening. Diabetes Care. 2015;38(1):150-158. doi:10.2337/dc14-2391
- 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. Jamal MH, Corcelles R, Shimizu H, et al. Thromboembolic events in bariatric surgery: a large multi-institutional referral center experience. Surgical Endoscopy. 2015; 29(2):376-380
- 44. Jammu GS1, Sharma R2. A 7-Year Clinical Audit of 1107 Cases Comparing Sleeve Gastrectomy, Roux-En-Y Gastric Bypass, and Mini-Gastric Bypass, to Determine an Effective and Safe Bariatric and Metabolic Procedure. Obes Surg. 2016 May;26(5):926-32
- 45. 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.
- 46. 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.
- 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. Lee JH, Nguyen QN, Le QA. Comparative effectiveness of 3 bariatric surgery procedures: Roux-en-Y gastric bypass, laparoscopic adjustable gastric band, and sleeve gastrectomy. Surg Obes Relat Dis. 2016 Jun;12(5):997-1002. doi: 10.1016/j.soard.2016.01.020. Epub 2016 Jan 21.

- 49. Li Z, Daniel S, Fujioka K, Umashanker D. Obesity among Asian American people in the United States: A review. Obesity (Silver Spring). 2023 Feb;31(2):316-328.
- 50. 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)
- 51. Lim, RB. Bariatric procedures for the management of severe obesity: Descriptions. In: UpToDate, Jones D (Ed), UpToDate, Waltham, MA. (Last updated: Aug 17, 2022)
- 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., ... & 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.
- 55. 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.
- 56. CGS Administrators LLC. Available at:
 http://www.cms.gov/mcd/index_local_alpha.asp?from=alphalmrp&letter=P&num_on_page=25&
 page_num=1. Accessed on January 18, 2016. National Coverage Determination (NCD) for
 Bariatric Surgery for Treatment of Morbid Obesity (100.1)
- 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. Patti MG. An Evidence-Based Approach to the Treatment of Gastroesophageal Reflux Disease. JAMA Surg. 2016 Jan;151(1):73-8.
- 63. Payab M, Hasani-Ranjbar Sh. Ileal interposition surgery for treatment of type 2 diabetes mellitus-pros and cons. J Diabetes Metab Disord. 2015 Oct 7;14:77.
- 64. 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.
- 65. 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.
- 66. Quan Y, Huang A, Ye M, Xu M, Zhuang B, Zhang P, Yu B, Min Z. Efficacy of Laparoscopic Mini Gastric Bypass for Obesity and Type 2 Diabetes Mellitus: A Systematic Review and Meta-Analysis. Gastroenterol Res Pract. 2015;2015:152852.
- 67. 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
- 68. Risstad H, Søvik TT, Engström M, Aasheim ET, Fagerland MW, Olsén MF, Kristinsson JA, le Roux CW, Bøhmer T, Birkeland KI, Mala T, Olbers T. Five-year outcomes after laparoscopic gastric bypass and laparoscopic duodenal switch in patients with body mass index of 50 to 60: a randomized clinical trial. JAMA Surg. 2015 Apr;150(4):352-61
- 69. 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.
- 70. 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.
- 71. Saltzman E, Anderson W, Apovian CM, et al. Criteria for patient selection and multidisciplinary evaluation and treatment of the weight loss surgery patient. Obes Res. 2005;13 (2):234-243
- 72. Schauer PR, Ikramuddin S, Gourash W, et al. Outcomes after laparoscopic Roux-en-Y gastric bypass for morbid obesity. Ann Surg. 2000; 232(4):515-529
- 73. Schmidt AM. Diabetes Mellitus and Cardiovascular Disease. Arterioscler Thromb Vasc Biol. 2019 Apr;39(4):558-568.
- 74. Schwaitzberg SD. Surgical management of gastroesophageal reflux in adults. UpToDate.com. Waltham, MA. Last updated: Oct 5, 2021. Retrieved from: https://www.uptodate.com/contents/surgical-management-of-gastroesophageal-reflux-in-adults? search=anti-reflux%20mucosectomy&source=search_result&selectedTitle=1~41&usage_type=d efault&display_rank=1

- 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 NJ, Falk GW, Iyer PG, Gerson LB. American College of Gastroenterology. ACG Clinical Guideline: Diagnosis and Management of Barrett's Esophagus. Am J Gastroenterol. 2016

 Jan;111(1):30-50; quiz 51. doi: 10.1038/ajg.2015.322. Epub 2015 Nov 3. Erratum in: Am J

 Gastroenterol. 2016 Jul;111(7):1077.
- 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. Sherman WE, Lane AE, Mangieri CW, Choi YU, Faler BJ. Does Preoperative Weight Change Predict Postoperative Weight Loss After Laparoscopic Sleeve Gastrectomy? Bariatr Surg Pract Patient Care. 2015 Sep 1;10(3):126-129
- 79. Shikora SA, Wolfe BM, Apovian CM, Anvari M, Sarwer DB, Gibbons RD, Ikramuddin S, Miller CJ, Knudson MB, Tweden KS, Sarr MG, Billington CJ. Sustained Weight Loss with Vagal Nerve Blockade but Not with Sham: 18-Month Results of the ReCharge Trial. J Obes. 2015
- 80. Sodergren MH, et al. Natural orifice transluminal endoscopic surgery: Critical appraisal of applications in clinical practice. Surgical Endoscopy, January 2009.
- 81. Song S, Lauretti J, West-Smith L. ASMBS Guidelines/Statements Recommendations for the presurgical psychosocial evaluation of bariatric surgery patients. Surgery for Obesity and Related Diseases. 2016; 12(4): P731-749. Doi: https://doi.org/10.1016/j.soard.2016.02.008
- 82. 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.
- 83. Sultan S, Parikh M, Youn H, et al: Early U.S. outcomes after laparoscopic adjustable gastric banding in patients with a body mass index less than 35 kg/m2. Surg Endosc 23:1569-73, 2009
- 84. 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.
- 85. 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.
- 86. 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.
- 87. The U.S. Food & Drug Administration. (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

- 88. 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.
- 89. 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.
- 90. Kim JJ, Rogers AM, Ballem N, Schirmer B. American Society for Metabolic and Bariatric Surgery Clinical Issues Committee. ASMBS updated position statement on insurance mandated preoperative weight loss requirements. Surg Obes Relat Dis. 2016 April;12(5) 955-959. doi:10.1016/j.soard.2016.04.019. PMID: 27523728. Available at: https://asmbs.org/resources/preoperative-supervised-weight-loss-requirements.
- 91. Ali M, et al. American Society for Metabolic and Bariatric Surgery updated position statement on sleeve gastrectomy as a bariatric procedure. Surgery for Obesity and Related Disease, (2017) 13:10 1652-57.
- 92. 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
- 93. Shah K, et al. Long-Term effects of laparoscopic roux en Y gastric bypass on metabolic syndrome in patients with morbid obesity. Surg Obes Relat Dis 12 (2016) 1449-1456.
- 94. Shaheen, Nicholas J. MD, MPH1; Falk, Gary W. MD, MS2; Iyer, Prasad G. MD, MS3; Souza, Rhonda F. MD4; Yadlapati, Rena H. MD, MHS (GRADE Methodologist)5; Sauer, Bryan G. MD, MSc (GRADE Methodologist)6; Wani, Sachin MD7. Diagnosis and Management of Barrett's Esophagus: An Updated ACG Guideline. The American Journal of Gastroenterology 117(4):p 559-587, April 2022. | DOI: 10.14309/ajg.0000000000001680
- 95. Surgical Treatment of Skin Redundancy for Obese and Massive Weight Loss Patients. American Society of Plastic Surgeons (ASPS). ASPS Recommended Insurance Coverage Criteria for Third-Party Payers. Approved by the ASPS® Executive Committee: June 2017. Available at: https://www.plasticsurgery.org/for-medical-professionals/health-policy/recommended-insurance-coverage-criteria.
- 96. 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
- 97. 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.
- 98. 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.
- 99. 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.
- 100. 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.
- 101. 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.

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