Bariatric Surgery Procedures Performed at OSUWMC

- Laparoscopic Adjustable Gastric Banding (LAGB)
- Sleeve Gastrectomy
- Roux-en-Y Gastric Bypass (RNYGB)
- Intra-gastric Balloons

Surgical Eligibility (NIH Recommendations)

- For RNYGP and Sleeve Gastrectomy:
  - Patients with body mass index (BMI) \( \geq 40 \text{ kg/m}^2 \) or patients with BMI \( > 35 \text{ kg/m}^2 \) who also have high-risk co-morbid conditions such as life-threatening cardiopulmonary problems (e.g., severe sleep apnea, and cardiomyopathy) or diabetes mellitus.
  - Other indications include obesity-induced physical problems interfering with lifestyle (e.g., joint disease treatable or body size problems severely interfering with employment, family function, and ambulation).

- For LAGB - Patients with body mass index (BMI) \( \geq 35 \text{ kg/m}^2 \) or 30-35 kg/m\(^2\) with obesity-related comorbidities

- Intragastric balloons
  - FDA approved for BMI 30-40 kg/m\(^2\) and unable to lose weight with diet and exercise

Absolute Contraindications to Surgery

- Not a candidate for general anesthesia
- Active peptic ulcer disease
- Any non-weight-related condition that indicates an expected survival time of < 5 years
  - i.e., malignancy, cirrhosis, pulmonary hypertension, etc.
- Active substance abuse or alcoholism—need to be substance- or alcohol-free a minimum of 1 year prior to evaluation
- Active anorexia and bulimia
- Unable to obtain psychological clearance

Relative Contraindications to Surgery

- Prior malignancy without evidence of reoccurrence < 5 years (may be exceptions, i.e.-cervical cancer)
- Smoking (smoke-free 90 days pre-surgery)
- History of recent non-compliance with healthcare
- Non-ambulatory

Certain conditions may be a contraindication in certain procedures but be acceptable in others, i.e.- Barrett’s esophagus, NSAID use, steroid dependence

The Process

- Attend Patient Informational Session either in person or on-line; Info session registration by phone (614) 366-6675 or https://wexnermedical.osu.edu/weight-management/bariatric-information-sessionsMD
- Psychologist evaluation
- Medical evaluation with MD or CNP.
- Dietary evaluation with registered dietitian
- Pre-operative education and counseling (4 weeks to 6 months depending on insurance requirements, individualized recommendations and available documentation of weight loss attempts)
- Support group attendance (encouraged)
- Insurance submission and approval
- Pre-operative surgeon consultation and OPAC
- Surgery
- Lifetime follow-up with MD, CNP and RD

Preoperative Evaluation

- Must pass psychological evaluation
- Medical evaluation including history physical exam, ROS, social history and comorbidity screening Labs: complete metabolic profile, CBC, differential, platelets, TSH, B12, Vitamin D, Iron, Hba1c and lipid profile
- Obstructive sleep apnea evaluation (see OSUWMC Obstructive Sleep Apnea guideline)
- Nutritional evaluation—Dietary lifestyle modification and post-operative nutritional education.
- EKG and Cardiac and pulmonary evaluation (if indicated)
- Upper endoscopy for all patients
- OPAC evaluation for most patients

Preoperative Goals

- If has OSA must be compliant with C-PAP or Bi-PAP for 30 days prior to surgery
- Smoking cessation for at least 3 months prior to surgery (off all nicotine, including gum and patch)
- Blood pressure control of < 140/90 mg/dl
- Goal of Hba1c < 8% if diagnosed with diabetes
- 5-10% weight loss, pre-operatively for all patients with BMI >60 kg/m\(^2\) (may be more depending upon body habitus and surgical risk)
- High-protein liquid diet highly recommended for all patients 2 weeks prior to
- Treat ulcers, gastritis, H pylori, and esophagitis as needed
Medication Management

- Stop all estrogen-containing drugs 1 month prior to surgery.
- Stop NSAIDs other than aspirin 7 days prior to surgery.
- Continue aspirin in patients with intravascular stents or other cardiac risk
- Aspirin and other antiplatelet medications (e.g. clopidogrel Plavix): See OSUWMC guideline Management of Antiplatelet Therapy in Patients with Arterial Stents Around the Time of Surgeries and Procedures.
- Stop warfarin (Coumadin) 5 days, that is, 4 doses before surgery. For recommendations on “bridging” see the second page of OSUWMC Pharmacy guideline Recommendations for Managing Warfarin Anticoagulation Therapy in Patients Requiring Invasive Procedures.
- Diabetes medications: See OSUWMC guideline Perioperative / Periprocedure Glucose Management.

LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING (LAGB)

Inpatient Management

**Post-op day 0**
- NPO with ice chips then advance to bariatric post-op diet for dinner
- Sequential Compression Devices (SCDs)
- Patients to wear their own C-PAP or Bi-PAP
- Patients may be discharged post-op day 0 if they tolerate bariatric post-op diet, pain and nausea are well-controlled, along with any co-morbidities

**Post-op day 1**
- Begin oral pain medication
- Discontinue IV fluid
- Ambulate (may require physical therapy)
- Step 2 breakfast
- Begin home medications if diet tolerated
- Discharge to home

Follow-up Care LAGB

**2-week post-op appointment**
- Begin MVI
- Advance to Step 4 diet with dietitian consult
- Schedule first band adjustment in fluoroscopy at 5-6 weeks post-op

**NOTE:** It is recommended that LAGB patients follow up every 4-6 weeks for the first year, then annually, to monitor nutritional status and as needed for band adjustments.

SLEEVE GASTRECTOMY

Inpatient Management

**Post-op day 0**
- OR management includes minimizes narcotics and IV fluids, no drains or Foley’s (unless indicated), TAP blocks, and pre-operative nausea prophylaxis
- All patients on telemetry and pulse ox
- Should wear own CPAP or BiPAP
- May begin post-op sleeve diet
- Sequential Compression Devices (SCDs)
- Encourage ambulation
- MIV

**Post-op day 1**
- Labs: CBC, Chem 7,
- Ambulate (may require PT)
- Sleeve diet
- Crush pills or use liquid medications
- Prophylactic lovenox
- Care coach evaluation, goal-setting, teaching and discharge assessment
- Patient may be discharged home if without concerns and able to meet daily goals

**Follow-up Care Sleeve Gastrectomy**

**Post-discharge**
- Home days #1,4 and 7 patients receive a follow-up phone call from care coordinator to evaluate pain, nausea, emesis, PO intake, mobility and wound check.

**2-week post-op appointment**
- Continue 2 chewable children’s vitamins
- Begin Step 2 diet, see RD
- Continue liquid or crushed medications.
- Wound check
- Adjust diabetes and BP medications as indicated
- May return to work, drive and begin walking for exercise
- May stop pain and nausea medications and stool softeners if able.
- Continue PPI

**1-month post-op appointment**
- Advance to Step 3 diet, see RD
- Begin Actigall 300 mg bid if gallbladder
- Advance to chewable adult vitamin or multivitamin daily (lifelong)
- No longer needs to crush medications
- Monitor diabetes and BP medications
- Continue PPI
Follow-up Care RNYGB

Post-discharge

- Home days #1, 4 and 7 patients receive a follow-up phone call from care coordinator to evaluate pain, nausea, emesis, PO intake, mobility and wound check.

2-week post-op appointment

- Begin prenatal vitamin or 2 multivitamins daily (lifelong)
- Advance to Step 3 diet with dietitian consult
- Continue PPI or H2 blocker x 3 months
- Start Actigall 300 mg bid x 6 months to prevent gall stone formation
- Adjust diabetes and BP medications as indicated
- May return to work depending upon clinical condition and work conditions.
- May stop pain meds, nausea meds and stool softeners if still taking

6-month post-op appointment

- Monitor Labs: CBC, Chem 7, Albumin, T. protein, Lipid Panel, B12, folate, ferritin, iron, thiamine, TSH, LFTs, lipase, amylase, Vitamin A, 25-OH Vitamin, PTH, HbA1c (if diabetes)
- D/C Actigall

12-month post-op and yearly thereafter appointment

- Annual labs as listed above
- Monitor nutritional status and weight

NOTE: Upon discharge: Schedule follow-up appointment with primary care physician within 2-4 weeks. High risk patients, those with diabetes or requiring bridge therapy to warfarin, should have follow-up appointment within 1-2 weeks.

ROUX-EN-Y GASTRIC BYPASS (RNYGB)

Inpatient Management

Post-op day 0

- OR management includes minimizes narcotics and IV fluids, no drains or Foleys (unless indicated), TAP blocks, and pre-operative nausea prophylaxis
- All patients on telemetry and pulse ox
- Should wear own CPAP or BiPAP
- May begin post-op sleeve diet
- Sequential Compression Devices (SCDs)
- Encourage ambulation
- MIV

Post-op day 1

- Labs: CBC, Chem 7, PT, PTT, INR
- Ambulate (may consult physical therapy)
- Continue “sleeve” diet
- Begin home medications if diet tolerated
- DVT prophylaxis
- Begin PPI
- Care coach evaluation, goal-setting, teaching and discharge assessment
- In some circumstances patient may be discharged home if without concerns and able to meet daily goals.

Post-op day 2

- Care coach evaluation, goal-setting, teaching and discharge assessment
- Patient may be discharged home if without concerns and able to meet daily goals.
- Can remove JP if present
- DVT prophylaxis until discharge

Discharge Medications for all procedures

- Pain medication
- PPI or H2 blocker
- Nausea medication
- Stool softener
- 2 Children’s Chewable Multivitamins a day
- Stop all NSAIDs
- Consider 2 weeks of lovenox for patients at high risk for DVT/PE
- Consider stopping diuretics

NOTE: Upon discharge: Schedule follow-up appointment with primary care physician within 2-4 weeks. High risk patients, those with diabetes or requiring bridge therapy to warfarin, should have follow-
up appointment within 1-2 weeks.

**Diet Progression for Bariatric Surgery**

**Bariatric Post-op Sleeve Diet**
- Sugar-free liquids.
- Goals: 64 oz. fluids/day and 50-80 gms protein/day

**Step 2 Diet**
- Consists of blended or pureed solids and full liquids. Portions are very small to help prevent vomiting.

**Step 3 Diet**
- Consists of blended foods with one new solid food added daily. Portions are very small to help prevent vomiting. Avoid all raw fruit and vegetables, nuts, popcorn, pickles, olives, or relishes.

**Step 4 Diet**
- Includes raw fruits and vegetables but they must be added slowly. Important to eat slowly and chew well.

**NOTES**
- Patients should always drink liquids at least 30 minutes before eating and/or 30 minutes after eating. Eating and drinking at the same time may cause dumping syndrome.
- Eating > 10 grams of sugar at a time may cause dumping syndrome in setting of Roux-en-Y.

**Early Complications Following Bariatric Surgery (24 hours to 2 weeks after surgery)**
- Anastomotic leak / staple line leak
- Pulmonary embolism
- Hemorrhage
- Deep vein thrombosis
- Wound infection
- Rhabdomyolysis/AKI
- Bowel obstruction

**Late Complications Following Bariatric Surgery (> 2 weeks after surgery)**

**Laparoscopic Adjustable Gastric Banding (LAGB)**
- Band slippage
- Nausea and vomiting
- Cholelithiasis
- Pouch dilation
- Mechanical failure
- Reflux (esophagitis)
- Port complications
- Band erosion
- Depression
- Megaesophagus
- Some food intolerance – bread, white rice, meat

**Roux-en-Y Gastric Bypass (RYGB)**
- Marginal ulceration
- Small bowel obstruction
- Dumping syndrome
- Abdominal pain
- Cholelithiasis
- Pouch/stoma dilation
- Metabolic deficiencies
- Stomal stenosis
- Nausea and vomiting
- Constipation or diarrhea
- Volvulus / internal hernia
- Depression
- Some food intolerance – pasta, bread, white rice, meat, fatty-food and lactose intolerance

**Sleeve Gastrectomy – similar to RNYG except:**
- Higher rates of reflux and nausea after surgery
- Typical leaks occur at 3 weeks postoperatively

**Order Set**
- OSU IP SUR: POST OP BARIATRIC SURGERY [2062]

**References**

**Quality Measures**
- Surgical complication rates
- Hospital length of stay
- Readmissions
- Resolution of obesity-related co-morbidities in the form of type 2 diabetes, hypertension, and obstructive sleep apnea
- Patient satisfaction

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Disclaimer: Clinical practice guidelines and algorithms at The Ohio State University Wexner Medical Center (OSUWMC) are standards that are intended to provide general guidance to clinicians. Patient choice and clinician judgment must remain central to the selection of diagnostic tests and therapy. OSUWMC’s guidelines and algorithms are reviewed periodically for consistency with new evidence; however, new developments may not be represented.

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## Appendix

### Comparison of Roux-en-Y Gastric Bypass and LAGB

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<th>Sleeve</th>
<th>LAGB</th>
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<td>1 hour</td>
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<td>Reversible</td>
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