

Bariatric surgery protocols and pathways

Division of Diabetes and Metabolism

   Children’s Hospital Los Angeles

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# Types of Surgeries

## GASTRIC “SLEEVE” SURGERY

A tube-like sleeve is created by removing 80% of the stomach and stapling closed the rest.

**How does it work?**

* Makes the stomach smaller and limits how much food can eat at one time
* Changes gut hormones to feel less hungry and full for longer periods of time.

**Preoperative Assessment:**

* Comprehensive preoperative evaluation including medical history, physical examination, nutritional assessment, and psychological evaluation.
* Preoperative imaging such as upper gastrointestinal endoscopy or bariatric ultrasound may be utilized to assess gastric anatomy and rule out contraindications.
* Patients should undergo a structured weight loss program and optimize comorbidities prior to surgery.

**Surgical Technique:**

* Anesthesia: General anesthesia is administered.
* Positioning: The patient is placed in a supine or reverse Trendelenburg position.
* Port Placement: Typically, 4-6 small incisions (5-12 mm) are made in the abdominal wall.
* Insufflation: Carbon dioxide is insufflated to create a pneumoperitoneum, providing visualization and working space.
* Surgical Instruments: A laparoscope and specialized instruments are introduced via the incisions.
* Resection: Using laparoscopic stapling devices, approximately 75-85% of the stomach is resected along the greater curvature, leaving a tubular or sleeve-shaped stomach.
* Sleeve Construction: The resection is guided by the staple line, with careful attention to maintain a proper gastric sleeve (typically 1-2 cm in diameter) and avoid staple line leaks.
* Hemostasis: Adequate hemostasis is ensured throughout the procedure, with attention to potential bleeding from the staple line or surrounding structures.
* Closure: The incisions are closed with absorbable sutures or staplers. A drain may be placed if deemed necessary.

**Postoperative Care:**

* Monitoring: Postoperative monitoring in a recovery unit for signs of complications such as bleeding, leakage, or infection.
* Dietary Management: Initiation of a postoperative diet starting with clear liquids, progressing to full liquids, soft foods, and then solid foods over several weeks.
* Pain Management: Analgesia is managed with a multimodal approach, including opioids and non-opioid medications.
* Follow-Up: Regular follow-up visits to monitor weight loss, nutritional status, and identify potential complications.

**Outcomes:**

* Weight Loss: Significant weight loss is typically observed, with patients achieving an average excess weight loss of 50-70% within the first 12-18 months postoperatively.
* Resolution of Comorbidities: Improvement or resolution of obesity-related comorbidities such as type 2 diabetes mellitus, hypertension, and obstructive sleep apnea.

**Complications:**

* Short-Term: Include bleeding, infection, leak from the staple line, and deep vein thrombosis.
* Long-Term: May involve nutritional deficiencies (iron, vitamin B12, calcium), gastroesophageal reflux disease (GERD), and weight regain.

**Considerations:**

* Long-Term Follow-Up: Lifelong follow-up is essential for monitoring nutritional deficiencies, weight maintenance, and overall health.
* Patient Compliance: Adherence to dietary recommendations, supplementation, and physical activity is critical for long-term success.

## ROUX-EN-Y “GASTRIC BYPASS” SURGERY

* With gastric bypass surgery, a small pouch is created by stapling close the top portion of the stomach, separating it from the lower portion. Then the small intestine is brought up and joined to the pouch.

**How does it work?**

* The volume of food it takes to fill the pouch is very small
* It also limits the number of calories and nutrients that the small intestine can absorb
* It changes the gut hormones to make the patient feel less hungry and fuller for longer periods of time.

**Preoperative Assessment:**

* Comprehensive evaluation including medical history, physical examination, lab tests, nutritional and psychological assessments.
* Preoperative imaging such as upper gastrointestinal endoscopy may be performed.

**Surgical Technique:**

* Anesthesia: General anesthesia is used.
* Positioning: Patient is positioned supine, often with the use of the reverse Trendelenburg position.
* Port Placement: Typically, 5-6 small incisions (5-12 mm) are made for laparoscopic access.
* Insufflation: Carbon dioxide is insufflated to create pneumoperitoneum.
* Gastric Pouch Creation: The stomach is divided using a stapling device to create a small gastric pouch (about 15-30 ml) from the upper portion of the stomach.
* Roux Limb Construction: The jejunum is divided, and a portion (the Roux limb) is brought up and connected to the gastric pouch, bypassing most of the stomach and the proximal small intestine.
* Gastrojejunostomy: Anastomosis is performed between the gastric pouch and the Roux limb.
* Jejunojejunostomy: An anastomosis is created between the Roux limb and the remaining distal jejunum to maintain continuity of the digestive tract.
* Hemostasis and Closure: Ensure adequate hemostasis and close incisions with absorbable sutures or staplers. A drain may be placed if indicated.

**Postoperative Care:**

* Monitoring: Postoperative care involves monitoring for complications such as anastomotic leaks, infection, or bleeding.
* Diet: Progressive dietary advancement starting with clear liquids, moving to full liquids, then soft foods, and finally to a regular diet.
* Pain Management: Utilization of a multimodal pain management approach.
* Follow-Up: Regular follow-up visits are essential to monitor weight loss, nutritional status, and to address any postoperative complications.

**Outcomes:**

* Weight Loss: Significant weight loss is typically achieved, with an average excess weight loss of 60-80% within the first 12-18 months.
* Comorbidity Improvement: Resolution or significant improvement in obesity-related comorbidities such as type 2 diabetes, hypertension, and obstructive sleep apnea.

**Complications:**

* Short-Term: Include anastomotic leaks, deep vein thrombosis, wound infections, and pulmonary complications.
* Long-Term: Potential issues include nutritional deficiencies (iron, vitamin B12, calcium), dumping syndrome, bowel obstruction, and weight regain.

**Considerations:**

* Long-Term Follow-Up: Lifelong follow-up is crucial to monitor for nutritional deficiencies, assess weight maintenance, and manage any complications.
* Patient Education and Compliance: Ongoing patient education on dietary changes, supplementation, and physical activity is vital for long-term success.

# Eligibility Criteria

No Age Minimum

* Youth will be evaluated on an individual basis by the multi-disciplinary bariatric surgery team to determine their candidacy for bariatric surgery

### Inclusion Criteria

* Class II and Class III obesity with or without comorbidities
	+ Co-morbidities include type 2 diabetes, pre-diabetes, obstructive sleep apnea, fatty liver disease (ALT > 30), hypertension, dyslipidemia, polycystic ovarian syndrome, irregular menses, anxiety, depression, orthopedic condition related to obesity, hidradenitis suppurativa
* Willing and able to complete bariatric pathway requirements
* Consenting caregiver
* Meet criteria for screening and participation

### Exclusion Criteria

* All cases considered on individual basis
* Caregiver and parent unwilling to engage in lifestyle modification required for durable success

# Evaluations

* 1. Mandatory: Weight Management Team (Endocrinology), Bariatric Surgery, Nutrition, Psychology, Anesthesiology
	2. If indicated based on studies (see below): Gastroenterology, Pulmonology, Cardiology

### Pulmonary

* All patients will have a sleep study. Patients with *Severe* OSA will be referred to Pulmonology.
	+ Patients with *Mild-Moderate* OSA do not require Pulmonology evaluation, as OSA should improve post-operatively.
	+ Patients with Severe OSA will be evaluated by Pulmonology and initiated on CPAP
		- Patients will be instructed to bring their home CPAP device the day of surgery.
	+ There is no need to consult Pulmonology for recommendations on peri-operative management.
	+ On Home CPAP or sleep study with severe OSA with <88% for more than 5 minutes, refer to pulmonary clearance and CPAP titration prior to surgery and bed reservation for PICU

### Cardiac

* All patients will have a “Cardiac Risk Assessment” performed by Endocrinology within 6 months of surgery according to the American Academy of Pediatrics cardiac risk assessment recommendations. Patients who demonstrate cardiac risk will be referred to Cardiology by Endocrinology.
	+ Routine Echo and EKG are not required for all patients.
	+ Cardiology will determine the need for pre-operative EKG and ECHO.
* Beta Blockers should be administered up until (and including) the morning of surgery for patient with underlying hypertension on pharmacotherapy.
	+ Consultation with the clinician treating the hypertension (pediatrics, nephrology, cardiology, etc.) will be consulted prior to surgery to determine the hypertension management plan pre- and post-operatively.

### GI

* Upper GI required or all patients if not previously done in the last 2 years prior to surgery date
* If EGD is completed in last 6 months no Upper GI required

### Anesthesia

* All patients require preoperative assessment by the anesthesia team (nurse practitioner) conducted 7-14 days prior to scheduled surgery date

### Psychology

* Psychological assessment required for all patients
* Psychological follow up and maintenance treatment determined after first assessment and resources provided

### Endocrinology

* All patients will be evaluated by an endocrinologist or obesity medicine specialist prior to surgery and every three months thereafter.

### Labs

* Baseline labs required within 6 months of surgical date
	+ CBC (within 6 months of surgery)
	+ Chem 14
	+ Lipid Panel
	+ Hemoglobin A1c, fasting glucose, insulin level
	+ TSH, Free T4
	+ PTH, calcium
	+ Vitamin B1, B6, B12
	+ Iron studies
	+ Pre-albumin and transferrin
* Blood Glucose (BG) and hemoglobin A1c pre-op if patient has type 2 diabetes (within 3 months of surgery date)

### Nutrition

* Initial Intake
* Registered Dietitian visits x 6
* 2-week preoperative competency assessment and review of lean and green diet

# Pre-Op Instructions

* NPO: Clear liquids starting the day prior to surgery.
* NPO after midnight.
	+ Patients should be strictly NPO for 8 hours prior to surgery (including clear liquids)
* Oral medication(s) (except for the medications listed below) may be taken > 2 hours prior to surgery with a small sip of water.
* Instruct family to bring home CPAP machine if on CPAP, use home settings

## Medication Plan

* Patients will be instructed to hold the following medications prior to surgery:
	+ GLP-1 agonists [“\_tide”: Semaglutide (Ozempic, Wegovy), Dulaglutide, Liraglutide (Victoza, Saxenda), Exenatide] – Hold a minimum of 7 days prior to surgery
	+ Phentermine, Phentermine/Topiramate (Qsymia) – Hold a minimum of 7 days prior to surgery
	+ SGLT2 inhibitors [“-gliflozin”: Empagliflozin, Dapagliflozin, Canagliflozin] – Hold 24 hours prior to surgery
	+ Metformin – Hold 24 hours prior to surgery
	+ Topiramate, Lisdexamfetamine (Vyvanse), Naltrexone-Bupropion (Contrave) – Hold 24 hours prior to surgery
* Endocrinology will advise patients on how to manage long- and short-acting insulin therapy.
	+ Patients will be advised to continue their basal insulin the night before surgery.
* Blood glucose checks per protocol pre-operatively with sliding scale for corrections PRN as required at home prior to surgery date for blood glucose > 150. Correction with short-acting insulin: 1 unit for every 50 mg/dL over 150, day and night
* All other medications: Per standard anesthesia protocol

Peri-Op Management

Surgical Admitting:

## Pre-Op

* Scopolamine patch (1mg/72 hrs.) will be ordered by the Surgery Team and applied by the Pre-Op RN.
* Enoxaparin 40mg Subcutaneous will be ordered by the Surgery Team and administered by the Pre-Op RN.
* Sequential Compression Device (SCD)’s will be ordered by the Surgery Team and placed in Pre-op/the OR.
* All patients will have a BG checked pre-operatively.
	+ Patients with T2DM may present with hyperglycemia as GLP-1 agonists are held pre-operatively.
	+ Patients have varying degrees of insulin resistance, but one may consider correction if BG > 200 mg/dL with 1 unit short-acting insulin for every 50 mg/dL above 200 mg/dL.
* All patients must receive an IV in pre-op (i.e. mask induction is NOT an option).

## Obesity Pharmacology (for medication dosing)

* Weight scalars (physical quantity definitions to account for lean and fat mass) exist to minimize the risk of inadequate or excessive medication dosing in obese patients. Total Body Weight (TBW), Ideal Body Weight (IBW) or Lean Body Weight (LBW), and Adjusted Body Weight (AjBW) are common weight scalars. Medication dosing considerations:
* TBW: Succinylcholine, Sugammadex
* IBW or LBW: Propofol (induction dose), Rocuronium, Vecuronium
	+ Males: IBW = 50kg + 2.3 kg for each inch over 5 feet
	+ Females: IBW = 45.5kg + 2.3 kg for each inch over 5 feet

LBW is ~ 120% of IBW in obese patients, but since there is no easy way to calculate LBW, IBW is a reasonable substitute.

* AjBW: Dexmedetomidine, Ketamine, Gentamicin
	+ AjBW = IBW + 0.4(TBW – IBW)

## Operating Room Set Up

* Access: PIV x2 (consider long angiocatheters)
* Induction:
	+ The Troop Elevation Pillow (located between ORs 1 and 14) may be used to ramp the patient.
	+ Consider passive apneic oxygenation via nasal cannula if performing RSI.
* 16 French OG tube and 36 French Bougie OR ViSiGi® (depending on surgeon preference)
* Skin Prep: Chlorohexidine based prep

## Intra-Operative Anesthetic Considerations

* Standard ASA Monitors:
	+ Blood Pressure: Conical arm shape may necessitate measurement on forearm
	+ Temperature: Probe should be placed in axilla (NOT in the nasopharynx or oropharynx).
* Induction of GA
	+ Consider using the Troop Elevation Pillow to ramp the patient.
	+ Consider RSI if GLP-1 agonist use.
* Maintenance of GA Sevoflurane or Desflurane
	+ Neuromuscular blockade should be maintained throughout case
	+ Dexmedetomidine (~0.5 mcg/kg, use AjBW) in divided doses
* Antibiotics
	+ Cefazolin 2,000 mg if < 120kg or Cefazolin 3,000 mg if > 120kg
		- If allergy – Clindamycin 10 mg/kg (max 900 mg) and Gentamicin 2.5 mg/kg (use AjBW, max 160 mg)
* Nausea/Vomiting Prophylaxis
	+ Scopolamine patch applied by Pre-Op RN
	+ Dexamethasone 10 mg
	+ Ondansetron 4 mg
* Multi-Modal Analgesia
	+ IV Ketamine 0.5 mg/kg (use AjBW, max 50 mg)
	+ IV Ketorolac 30 mg
		- If liver biopsy is performed due to gross abnormality found during laparoscopy, ketorolac should be avoided.
	+ IV Acetaminophen 1,000 mg
	+ IV long-acting opioid may be used judiciously.
	+ Surgeon will perform laparoscopic-guided TAP blocks versus local anesthetic infiltration at incision sites.
* IV Fluid Management
	+ Approximately 1,000 mL of isotonic crystalloid should be administered (or more pending hemodynamics).
		- Patients will be on maintenance IV fluids in PACU (ordered by Surgery)
* Emergence and Extubation
	+ Extubate when fully awake in the “head up” or reverse Trendelenburg position.

## Intra- Operative Surgical Considerations

* The surgeon will ask us to decompress the stomach and help “size” the sleeve. Depending on surgeon preference, this can be performed using an OG tube and a 36 French Bougie OR a ViSiGi®.
	+ If using an OG tube and Bougie, an OG tube will be inserted to decompress the stomach and then removed. A 36 French Bougie will be inserted to “size” the sleeve.
	+ If using a 36 French ViSiGi®, the device serves to both decompress the stomach and “size” the sleeve. It should be inserted after intubation.

▪ After the sleeve is created, the ViSiGi® should be removed OFF of suction. However, you may apply suction at the 30 cm marking (in esophagus) to prevent the gastric contents remaining in the ViSiGi® from returning into the sleeve.

* The surgeon will request steep reverse Trendelenburg during laparoscopy.
	+ IV fluids or vasopressors may be needed to counteract hypotension due to decreased preload.

## Post-Op PACU

* All patients should be observed for 2 hours prior to transfer to 6 East with continuous cardiorespiratory monitoring.
	+ PICU Criteria: Patients with *moderate* OSA with oxygen nadir < 88% for > 5 min.
		- Patients with *severe* OSA on CPAP do not require PICU admission as CPAP compliance is demonstrated prior to surgery.
* If applicable, the patient should be placed on home CPAP device until full recovery from anesthesia.
	+ If nauseous or vomiting, do not use CPAP until resolution.
* If applicable, blood glucose should be checked in patients with T1DM, T2DM, or pre-op hyperglycemia/hypoglycemia.
	+ *Consider treatment of BG > 200 mg/dL with 1 unit of short-acting insulin for every* *50 mg/dL above* *200 mg/dL.*
* IV and PO intake are strictly regulated and recorded by RN.
	+ All patients will be placed on maintenance IV fluids as ordered by Surgery.
	+ Patients will be discouraged from taking PO if nauseous or vomiting.
	+ If the patient can tolerate PO intake, it should not exceed 1 oz (30 mL) of sugar-free clear liquid every 15 minutes.
* PONV Management and Treatment:
	+ PONV is not uncommon. However, the General Surgery resident should be notified after 2 episodes of vomiting.
	+ Treatment of PONV may include:
		- IV Ondansetron 4 mg
		- IV Ativan 0.5 or 1 mg
		- IV Metoclopramide 10 mg
		- IV Diphenhydramine 10 mg
	+ Consider bolus of IV fluids if multiple episodes of vomiting.

## PACU Disposition

* Most patients will be admitted to 6 East on Continuous Pulse Ox Monitoring under the General Surgery service. Endocrinology, Hospital Medicine, and Pain Medicine will co-follow.
* Pulmonology will be consulted as needed based on baseline OSA status and intraoperative and immediate postoperative respiratory status.
* PICU Criteria: Patients with Moderate OSA and Oxygen Nadir < 88% for >5minutes on Sleep Study will be considered for post-operative PICU admission.

# IP Management POD#0

Purpose:

This guideline outlines standard post-operative care of the patient following laparoscopic sleeve gastrectomy. Patient post-operative orders following this guideline can be found in the bariatric surgery order set.

Admit to: Pediatric Surgery Service

PICU Criteria: Anesthesia recommendation for respiratory decompensation requiring new positive pressure ventilation

Required consults: Endocrinology, Pain management

Paging Protocol:

* General Surgery for post-op surgical changes
	+ Report abnormal VS
	+ Report decreased UOP <1cc/kg/hr.
	+ Report any desaturations for treatment
* Critical BG labs to Endocrinology or surgeon on call
	+ Report abnormal BG for treatment
		- Hypoglycemic=D10W
		- Hyperglycemic=Insulin correction dose

## Fluids and Nutrition

Recommend promotion of early diet advancement upon arrival to floor:

* Take all essential meds (beta blockers, psych meds etc.) on POD-0 or POD-1 (as per site practice)
* Tailor diet to individual patient
	+ POD-0 (night of surgery):
		- Ice chips or Sips (up 60cc/hour) of stage 1 clear liquid (non-carbonated, no-sugar added) as tolerated, or unless contraindicated or PONV.
		- 4 oz/hour maximum
		- Total fluid intake 48-64 oz/day
	+ POD-1: Advance to stage-1 clear liquids ad-lib
* Immediately post-operative the bariatric patient will be NPO. Patients will remain hydrated through IV infusion of an isotonic crystalloid.
* Dietary concerns
	+ Patients should not have an NG placed during hospitalization. A sign should be posted above the patient’s bed stating “Do Not Place NG”
	+ Ondansetron can be ordered for post-operative nausea and vomiting
	+ Pills are contraindicated
	+ Straws are contraindicated
	+ Avoid carbonation and caffeine
* NS+ KCL 20 mEq/L at 150 ml/hr.
* Thiamine 100 mg IV x 1
* Cyanocobalamin 2000 mcg IM x 1

## Activity

* Recommend promotion of early mobilization upon arrival to the floor:
	+ 2 hours after arrival to floor, unless contraindicated (patient appears drowsy, unstable on feet)
	+ If unable to mobilize, reassess every 1 hour until able to mobilize
	+ Goal: ambulating in hall POD 1, recommend ambulation at least 2-3 times per nursing shift
* Head of bed should be elevated at 30°
* Out of bed to chair

## Vitals and Monitoring

* All patients will have continuous heart rate and respiratory monitoring in the post-operative phase. Monitoring must be continuous if patient is receiving narcotics for pain
* Pediatric early warning scale will be documented every 4 hours or with vital signs as per hospital standard of care.
* Strict intake and output will be measured. Nursing is to call surgery if urine output is <250mL/8 hours.
* The surgery team should be notified for abdominal distention, nausea and pain not relieved by medications

## Post-Op Pain, Nausea, and Vomiting

* Pain medication
	+ Initial pain control (0-48 hours post-operatively) will be managed with a combination of acetaminophen and Ketorolac
	+ If pain assessment exceeds 6/10 on pain scale, oxycodone may be used to obtain relief.
* Scopolamine patch- placed pre-operatively
* Ondansetron 4 mg IV Q8H PRN
* Ketorolac 30 mg IV Q8H x 5 doses
* Famotidine 20 mg IV Q12H x 4 doses
* Acetaminophen 650 mg PO Q6H RTC
* Oxycodone 5 mg PO Q6H PRN

## Respiratory

* Oxygen and suction at bedside, oxygen per protocol
* Incentive Spirometry 10 times/hour while awake
* CPAP per home settings on home device

## Cardiovascular

* Anti-hypertensives: Hold if BP well controlled. Plan to monitor BP for 12 weeks before considering restarting
* Lipid-lowering medications: Hold for 12 weeks before considering restarting

## Diabetes

* Allow mild hyperglycemia (Goal < 200 mg/dL)
* BG checks
	+ Insulin before surgery: Q4H while awake
	+ Not on insulin before surgery: BID
	+ Not DM patients: no routine BG checks
	+ PRN for signs and symptoms for hypoglycemia
* Sliding Scale for short acting insulin
	+ 1 unit for 50 mg/dL above 200 (day and night)

## DVT prophylaxis

* Purpose:
	1. The purpose of this guideline is to outline standard deep vein thrombosis prophylaxis in the post bariatric surgery patient.
* Non-Pharmacological prophylaxis
	1. Sequential Compression Devices (SCDs) will be applied in the preoperative holding area. SCDs will be on the patient and turned on when patients are in bed.
	2. Patients will ambulate post-operatively on the day of surgery.
	3. Patients are to ambulate a minimum of three times per day starting on the first post-operative day.
* Pharmacological prophylaxis
	1. Standard Lovenox dosing:
		1. BMI < 50- Lovenox 40mg sq BID start in the OR, continue throughout admission
	2. Lovenox administration may be withheld per surgeon discretion

Other Medications: contraceptives, NAFLD, Anxiety /depression, other home medications can be continued per usual

# Nutrition and Diet

### Pre-Surgery Nutrition:

* Session 1: Practicing Healthy Habits
	+ Review Current lifestyle habits and behaviors
	+ Read and discuss “Understanding Body Weight and Calories” handout
	+ Review changes in volved with Bariatric Surgery
	+ Review how to track Food and Physical Activity
	+ Review “Bariatric Nutrition Goals” Checklist
* Session 2: Meeting Nutrition and Hydration Needs
	+ Review food records and pre-surgery nutrition goals
	+ Nutritional issues after surgery
	+ Hydration
	+ Vitamin and Mineral supplementations
	+ Nutrition goals
* Session 3: Protein, Cooking, and Eating out Tips
	+ Review food records and pre-surgery goals
	+ Protein
	+ Eating out Before and After Surgery
	+ Nutrition goals
* Protein Supplements and Pre-Surgery Diet
	+ Review food records and pre-surgery goals
	+ Protein supplements
	+ Nutrition goals – Lean and Green Diet
* Session 5: What to eat after surgery
	+ Review food records and previous pre-surgery goals
	+ Education on stages of post-op diet plan
	+ Portion sizes
	+ Nutrition goals
* Session 6: Lifestyle Planning for After Surgery:
	+ Review food records and previous pre-surgery nutrition goals
	+ Review post-surgery diet
	+ 5 ways to achieve lifelong success after surgery

### Post-Operative Diet Progression

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Eating After Surgery Plan** **Stage 1**  | **Stage** **2**  | **Stage** **3**  | **Stage** **4**  | **Stage** **5**  |
| **Day 1-2**  | **Week 1**  | **Week 2**  | **Week 3**  | **Week 4**  | **Week 5**  | **Week 6**  | **Week 7**  | **Week 8**  | **Lifetime**  |
| Clear Liquid  | Full Liquids / High Protein  | Pureed / Blended Foods  | Soft Foods  | Regular/ Increase texture  |

## Discharge

* Evaluate the need for IV fluids
* Advance diet as tolerated to goal of 16 oz. in 4 hours, Goal of 48-64 oz./day

### Criteria

* Afebrile (< 38.5C) for 12 hours
* HR < 100 for last 12 hours
* RR < 20 for last 12 hours
* Oxygen requirement at baseline
* Tolerating clear liquid diet for at least 6 hours without emesis
* Urine output > 200 mL over last shift
* Able to ambulate

### Prescriptions

* ﻿﻿Acetaminophen PRN
* Ondansetron PRN
* Oxycodone PRN
* Centrum Kids 2 tablets
* Calcium-Vitamin D
* Ascorbic acid-carbonyl iron
* Cyanocobalamin
* Cholecalciferol

### Instructions

* Diet advancement per education booklet
* Follow up bariatric team in 2 weeks
* OK to return to school in 2 weeks
* Limited activity for 2 weeks - walk daily for 1 hour
* No heavy lifting for 4 weeks
* Wound care: There will be surgical glue over the wounds. This will fall off on its own in 5-10 days. Do not peel or pick at the glue. Keep the wound dry. Do not submerge under water, but it is ok to shower. Do not rub or wash wounds with soap. Pat dry with towel. Do not use ointments, creams, or lotions on or around the wound.
* Resume home CPAP/oxygen if applicable
* Glucose management per endocrinology recommendations
* Can replace CGM

## Follow Up

* Post-discharge phone calls within 24-48 hours of discharge
* Pre-discharge education or phone calls will cover the following domains:
	+ Fluid intake
	+ PONV
	+ Pain control
	+ Bowel movements
	+ Diet
	+ Medications
	+ Mobility and avoiding DVT

### Long Term Follow Up

* PURPOSE
	+ After bariatric surgery, patients can potentially have nutritional, metabolic and physical ailments related to their surgeries. Clinical postoperative guidelines are recommended for bariatric patients upon discharge from the hospital for evaluation of potential long-term consequences of surgery.
* POLICY
	+ Established guidelines will be followed for outpatient postoperative bariatric patients that enable the hospital, surgeons, and clinical personnel to evaluate, treat, and track the status of patient’s recovery. This patient population will be monitored periodically for nutritional status, surgical recovery, and lifestyle changes.
* PROCEDURE
	+ Once a patient meets discharge criteria, patients can be discharged from the hospital The patient will be provided with discharge instructions and a telephone number to contact the physician where a physician is available 24 hours a day and 7 days a week (323-660-2450).
		- The patient will also receive a phone call 24-48 hours post operation to assess how the patient is recovering.
	+ The coordinator schedules the patient's follow up appointment with the surgeon, (two and six weeks post-op visit) before the scheduled surgery. Regularly scheduled appointments with the physician and dietitian are set at 2 weeks, 6 weeks, 3 months, 6 months, 12 months and then quarterly for a minimum of 5 years after surgery. After 5 years, they will be seen annually and/ or transition to adult care.
	+ Patients are scheduled for subsequent follow-up appointments after seeing the providers in the clinic
		- If unable to contact the patient via the phone, the surgeons' offices will
			* Attempt a second phone call and/or e-mail
			* If there is still no response, a letter explaining the importance of keeping appointments with the surgeon for their follow-up care will be mailed
	+ Laboratory values are collected beginning at the 6 week visit after surgery. This will allow providers to evaluate the nutritional and metabolic status of postoperative bariatric patients.
		- Post operative labs will be collected at the 6 week, 6 months, 12 months and yearly thereafter. At the time of the visit the patients will be requested to have lab work drawn. Labs to be monitored may include, but are not limited to, a Comprehensive Metabolic Panel, Complete Blood Count, Vitamin B12, Folate, Iron, TIBC, Lipid Panel, Vitamin D 25-OH and Parathyroid Hormone Intact.
		- Upon evaluation of laboratory data, if underlying metabolic deficiencies are discovered outside the realm of typical bariatric deficiencies, patients are to be referred to appropriate consulting physicians or to primary care physicians by bariatric surgeons.
	+ After the patient sees the physician for a follow up appointment, the patients meet with the dietitian to evaluate nutritional status.

# Transfer of Care

**CHLA Metabolic and Bariatric Surgery Program has a protocol for treating the unassigned or unaffiliated metabolic and bariatric patient.**

* This includes but is not limited to:
	+ Patients needing emergent or urgent care.
	+ Patients being referred by medical providers outside of the CHLA network for urgent care or routine care.
	+ Patients within the CHLA network that need urgent or routine care.
	+ Patients that had original surgery elsewhere and are seeking revision.
	+ Patients seeking routine bariatric follow up
	+ All bariatric patients presenting to CHLA Metabolic and Bariatric Program will be provided care within program guidelines.

Initial Contact

* Patient contacts CHLA Metabolic and Bariatric Surgery Program
* If urgent care is needed the patient will be assessed by clinical staff including but not limited to RN, MD, RD, or Bariatric Coordinator.
	+ Recommendations for care will be made.
	+ If non urgent care is requested the following protocol will be followed
		- Outside surgical and medical records will be requested.
		- Once received records will be reviewed by RN or Bariatric Coordinator
		- Patients will be contacted to set up consultation.
		- Bariatric patients or medical providers seeking emergent or urgent care or routine follow up care will be treated within CHLA Metabolic and Bariatric Surgery Program guidelines.

Revisional Surgery

* Patients seeking revisional surgery.
	+ Past surgical and medical records will be requested.
	+ Records will be reviewed by RN or Bariatric Coordinator
	+ Patient will be contacted to schedule a consultation
		- Insurance benefit and criteria will be requested and reviewed.
		- Medical provider contacts CHLA Metabolic and Bariatric Surgery Program
		- If urgent, provider will be given direct contact to metabolic and bariatric surgeon.
		- Further recommendations will be made.
		- Non urgent patients will be contacted by office staff and follow protocol for non-urgent patients.

Consultation

* Outside patient records will be reviewed and further recommendations made.
	+ Additional testing will be ordered by surgeon if needed,
	+ Revisional surgery patients will follow all bariatric protocols unless otherwise stated by treating surgeon.
		- Patient will have nutritional evaluation by RD

Follow Up

* For patients seeking routine bariatric follow up care
	+ Patient's surgical and medical history are reviewed.
	+ Patients will have nutrition evaluation by RD.
	+ Laboratory evaluation will be ordered if indicated.
	+ Diagnostic studies will be ordered if indicated.
* Patients will be scheduled for routine long term follow up according to CHLA Metabolic and Bariatric Surgery Program guidelines.

# Post-Operative Obesity Pharmacotherapy Re-Initiation Protocol

* Pre-op Med Management:
	+ GLP-1 agonist, GLP-1/GIP agonist, Phentermine, and Vyvanse: Held 7 days pre-op
		- Topiramate continued
		- Metformin continued
* Post-op Med Management:
	+ Topiramate continued: re-started POD 0 P
* At week 2, obesity pharmacotherapy early initiation check list completed:
	+ Does Patient continue with Class II or Class III obesity: Yes/No
	+ Patient reports increased hunger, decreased fullness, fatigue: Yes/No
	+ Patient meeting hydration goal of 48 ounces daily: Yes/No
	+ Patient reports nausea and vomiting have resolved: Yes/No
	+ Patient reports taking MVI with B1 consistently: Yes/No
* If positive obesity pharmacotherapy screen restart obesity pharmacotherapy regimen as was taking pre-operatively.
	+ Reinforce importance of hydration goals and consistent compliance with MVI with B1 supplementation (to prevent Wernicke’s)
	+ Review that is nausea, vomiting, PO intolerance occurs must contact medical team immediately.
	+ Repeat Vitamin Levels at 3-month follow up

Date Pathway developed: 6/26/2024

Date Pathway approved: need samakar approval

Date Revised: MBS Committee Annual Review 8/20/2024

Approved by: need samakar signature