

American Society for Metabolic and Bariatric Surgery: care pathway for laparoscopic sleeve gastrectomy

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Statement of purpose

Clinical care pathways are tools that integrate evidence-based healthcare into clinical practice. Pathways are intended to improve healthcare delivery and quality, while minimizing healthcare costs. The end goal of a clinical care pathway is to provide evidence-based guidelines for

routine patient care. A pathway ideally also provides structure for patient care in situations that require deviation from the routine treatment path. Such pathways have important implications as we transition to value-based healthcare [1,2].

The value of care pathways is well recognized in bariatric surgery. Current literature, while limited, does support the value of clinical care pathways in bariatric surgery. Several single institutional studies demonstrate that implementation of pathways reduces cost and decreases hospital length of stay and perioperative complications [3–7]. Maintaining and adhering to clinical care pathways are also required for accreditation by the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) [8].

In 2014, the Quality Improvement and Patient Safety (QIPS) Committee recognized this practice gap. While required for MBSAQIP accreditation, a uniform, evidence-based pathway was not available. Moreover, little was known about the content and variability of such a pathway on a national level. Addressing this key practice gap became a priority for the QIPS committee.

The QIPS committee supports the mission and values of the American Society of Metabolic and Bariatric Surgeons (ASMBS) by promoting continuous improvements in patient safety and risk reduction. These goals are achieved

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Table 1.
Preoperative Care Pathway

	Routine	Selective	Not Routinely Recommended
Lab work	Complete blood count Basic metabolic panel Liver function tests Albumin Glycosylated hemoglobin Coagulation profile Thyroid-stimulating hormone Vitamin D Micronutrients Urinalysis Urine pregnancy (female patients)	Vitamin B1 Vitamin B12 Helicobacter pylori Urine toxicology screen Urine nicotine	
Consultations	Nutrition Psychological evaluation	Anesthesia Cardiology Endocrinology Gastroenterology Hematology Infectious disease Nephrology Neurology Orthopedics Pain management Pulmonary Pharmacy Rheumatology Sleep medicine Urology	
Testing	Chest x-ray Electrocardiography (ECG)	Endoscopy Upper gastrointestinal series pH/esophageal manometry Dexa scan Sleep study Colonoscopy Mammography Ultrasound Gastric-emptying study	
Screening	Sleep apnea Functional status Smoking Substance abuse	Malignancy	
Preoperative preparation	Liquid diet (2–4 weeks)	Smoking cessation/duration	Mandatory weight loss Bowel preparation Routine IVF filter

IVF = intravenous fluid

by integrating and coordinating patient safety initiatives to reduce medical errors through process analysis and participation in quality improvement reporting. We hypothesized that collecting and sharing established successful pathways could ultimately provide a valuable resource to support new programs as well as help existing programs improve patient safety. Additionally, analyzing these pathways would demonstrate the variability in practice patterns across the country.

A study was then conducted that identified considerable national variations in clinical pathways across practicing bariatric surgeons [9]. Only 6 variables that were assessed were concordant among pathways: preoperative nutritional evaluation, preoperative psychological evaluation, mention

of intraoperative venous thromboembolism prophylaxis, mention of antiemetic utilization in the postoperative period, dedicated perioperative pain, and mention of obtaining postoperative laboratory values. Further evaluation of these pathways also demonstrated that the majority of metrics, even when mentioned, are nonspecific, without clear recommendations as to whether they should be followed routinely or selectively and for whom [9].

This study highlighted a key opportunity for the ASMBS to develop and implement an evidence-based national care pathway for sleeve gastrectomy. A task force from the QIPS committee was selected to carry out this project. The product that ensues reflects the output of this effort and represents the coalescing of over 150 manuscripts and

Table 2.
Intraoperative Care Pathway

	Routine	Selective	Not Routinely Recommended
Medications	VTE prophylaxis <ul style="list-style-type: none"> ● Mechanical ● Chemoprophylaxis Antibiotics		
Monitoring	Patient positioning guidelines		Routine invasive monitors: <ul style="list-style-type: none"> ● Central venous access ● Arterial line
Procedural	Bougie size ≥ 34 French Hiatal inspection <ul style="list-style-type: none"> ● Repair hiatal hernia if present 	Staple line reinforcement Leak test <ul style="list-style-type: none"> ● Endoscopic ● Air insufflation ● Methylene blue Protective specimen retrieval Endoscopy Hiatal inspection	Routine drain(s) <ul style="list-style-type: none"> ● Nasogastric tube ● Closed suction abdominal drain ● Foley catheter

VTE = venous thromboembolism

expert consensus. This care pathway is *dynamic* and will continually update as new evidence becomes available. We hope that this pathway will serve as a valuable resource to aid new and existing programs in an effort to provide value-based care.

Disclaimer

The Care Pathway for Sleeve Gastrectomy is issued by the ASMBS with the intent to provide a guideline derived from the scientific literature and expert opinion. It is not intended as, and should not be construed as, stating or establishing a local, regional, or national standard of care. This guideline is not intended to provide inflexible rules or requirements of practice and is not intended, nor should it be used, to state or establish the standard of care. The ASMBS further cautions against the use of this guideline in litigation in which the clinical decisions of a physician are called into question. The ultimate judgment regarding the appropriateness of any specific procedure or course of action must be made by the physician in light of all of the circumstances presented. Thus, an approach that differs from this care pathway guideline does not necessarily mean that the approach was below the standard of care. To the contrary, a conscientious physician may responsibly adopt a course of action different from that set forth in the guideline when, in the reasonable judgment of the physician, such course of action is indicated by the condition of the patient, limitations on available resources, or advances in knowledge or technology. All that should be expected is that the physician will follow a reasonable course of action based on current knowledge, available resources, and the needs of the patient to deliver effective and safe medical care. The sole purpose of this care pathway is to assist practitioners in achieving this objective.

Methodology for pathway development

Search strategy and literature review

Systematic literature reviews were identified by principal literature searches conducted utilizing Embase or PubMed to identify relevant contributions. The Medical Subject Headings (MeSH) and text words were determined by the authors. Reference lists of relevant manuscripts and gray materials were reviewed at the discretion of assigned work groups (i.e., preoperative, intraoperative, and postoperative) to identify other relevant titles. Article titles and abstracts were reviewed by work groups for inclusion or exclusion to determine the relevance of the literature to the topic area. Irrelevant studies were excluded.

Study selection and characterization of articles

Relevant manuscripts were selected by individual reviewers from manuscript titles and abstracts. Supporting evidence for each topic included randomized controlled studies, nonrandomized controlled studies, meta-analyses, systemic reviews, and reviews. Articles were characterized on the following topics related to predetermined preoperative, intraoperative, and postoperative metrics. Metrics to be included were decided upon by consensus among experts and common variables found in national pathways and MBSAQIP accreditation requirements.

Quality assessment and data analysis

The methodological quality of the studies was assessed utilizing the 2010 American Association of Clinical Endocrinologists Protocol for Production of Clinical Practice Guidelines: Evidence Rating. Evidence quality and recommendations for clinical application were evaluated according to evidence level and grading

Table 3
Postoperative Care Pathway

	Routine	Selective
Medications	VTE prophylaxis (in-house) Postoperative nausea and emesis regimen Multimodal pain control <ul style="list-style-type: none"> ● Narcotic ● Acetaminophen ● Ketorolac Multivitamin + supplements	Extended VTE prophylaxis Proton pump inhibitor
Monitoring and Consultations	Routine vital signs Pulse oximetry Strict intake and output	Blood glucose Capnography Consultations: Nutrition Pain management Cardiology Endocrinology Physical therapy Upper gastrointestinal series
Diet	Day 0: NPO or clears Day 1: Clears or fulls	Advance diet per nutrition protocol
Postoperative care	Anticipated length of stay 1–2 nights Early ambulation Follow-up: <ul style="list-style-type: none"> ● 1–3 weeks ● 6–9 weeks ● 6 months ● Annual 	

NPO = *nil per os*; VTE = venous thromboembolism

recommendations. The committee utilized a consensus process when there was a lack of supporting evidence. There are some recommendations based on consensus due to limited evidence. The recommendations are categorized as follows:

- **Routine:** indicates that the committee has confidence the evidence-based literature supports routine ordering of designated diagnostic studies, tests, and evaluations.
- **Selective:** indicated for patients with designated criteria to support additional practice, procedure, study, test, or evaluation.
- **Not recommended:** practices, procedures, studies, tests, and/or evaluations that should not be routinely conducted, but may be appropriate on a case-by-case basis.

Vetting of care pathway

The document was initially reviewed by the ASMBS Executive Committee of the Executive Council (ECEC) and the full committee membership of the QIPS and Clinical Issues committees. The pathway was revised and then made available to the membership of the ASMBS organization as a whole for public comment. Every comment from all of the above reviewers was evaluated and incorporated into the

final care pathway as deemed appropriate. Once accomplished, the ASMBS Care Pathway for Laparoscopic Sleeve Gastrectomy was submitted for rereview to the ECEC and executive council (EC). This pathway was approved by the ASMBS EC during Obesity Week 2016.

Care pathway for laparoscopic sleeve gastrectomy

Tables 1, 2, and 3 summarize the preoperative, intraoperative, and postoperative recommendations for the sleeve gastrectomy care pathway [10–150]. The entire pathway, with details and rationalizations of recommendations, is available online at www.asmb.org, in the members-only section.

Conclusion

An evidence-based clinical pathway will provide a valuable resource for new and existing programs. This pathway is a dynamic entity that will continually be updated based on best available evidence. Development of this pathway has also highlighted critical knowledge gaps impacting the care of our patients. Many diagnostic studies, tests, and evaluations remain in the “selective” category secondary to insufficient evidence to allow definitive recommendation. These clinical gaps should serve as a guide for future research and quality improvement projects.

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