

The SAGES University Masters Program Series

Editor-in-Chief: Brian Jacob

The SAGES Manual of Bariatric Surgery

Kevin M. Reavis
Allison M. Barrett
Matthew D. Kroh
Editors

Second Edition



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 **SAGES**
University
MASTERS
PROGRAM

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This book is dedicated to the SAGES family of surgeons committed to excellence in the care of the bariatric patient. I am most grateful to my amazing wife Kelly, to our wonderful sons Nathan and Andrew, and to my dedicated partners and professional friends whose collective support allowed this book to become a reality.

~Kevin M. Reavis, MD, FACS

For Michael, whom I love more than words can say.

~Allison M. Barrett, MD, FACS

This book is dedicated to the health-care professionals of all variety who care for our patients and, in particular, to my colleagues around the world. And a dear thanks to my wife Jean and our three children for their love and support.

~Matthew D. Kroh, MD, FACS, FASMBS,
FASGE

Preface

“If I have seen further, it is by standing on the shoulders of giants,” expressed by Isaac Newton, paid homage to the accomplishments of those before him for providing the foundation upon which his many contributions to society were able to materialize.

The SAGES Manual of Bariatric Surgery, Second Edition, likewise benefits from a solid foundation regarding the care of the bariatric patient. *The SAGES Manual: A Practical Guide to Bariatric Surgery* pioneered the SAGES offerings in this field in 2008, and, as with all surgical disciplines, tremendous advancements have prompted us to reassess, update, and bring forth a manual reflecting those changes over the past decade.

The SAGES Manual of Bariatric Surgery, Second Edition, covers each of the fundamental components of care for the bariatric patient, and we have extended the list of topics to include highly relevant but rarely published issues such as domestic and international surgical tourism, pregnancy, and innovative devices in the premarket setting, among others. This second edition also aligns with the novel SAGES Masters Program Bariatric Pathway, and, as such, the reader will appreciate an innovatively organized text reflecting this.

We are very excited to have garnered the contributions of many founding members in our field alongside those of mercurially rising stars. This manual is designed as a reference for surgeons, residents, medical students, and allied health members who provide comprehensive preoperative evaluations along with medical, endoscopic, and surgical interventions and long-term care for the bariatric patient. We would like to thank the contributing authors for their selfless efforts, along with Springer Science and SAGES for helping to make this manual a reality. We anticipate the knowledge shared will prompt the next generation to further the advancements we have enjoyed thus far.

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Rego Park, NY, USA
Cleveland, OH, USA

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Allison M. Barrett
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Part I
SAGES Masters Program

Chapter 1

Introduction: SAGES Masters Program Bariatric Pathway



Daniel B. Jones, Linda Schultz, and Brian P. Jacob

Introduction

The Masters Program organizes educational materials along clinical pathways into discrete blocks of content which could be accessed by a surgeon attending the SAGES annual meeting or by logging into the online SAGES University (Fig. 1.1) [1]. The SAGES Masters Program currently has eight pathways including acute care, biliary, bariatrics, colon, foregut, hernia, flex endoscopy, and robotic surgery (Fig. 1.2). Each pathway is divided into three levels of targeted performance: competency, proficiency, and mastery (Fig. 1.3). The levels originate from the Dreyfus model of skill acquisition [2], which has five stages: novice, advanced beginner, competency, proficiency, and expertise. The SAGES Masters Program is based on the three more advanced stages of skill acquisition: competency, proficiency, and mastery. *Competency* is defined as what a graduating general surgery chief resident or MIS fellow should be able to achieve; *proficiency* is what a surgeon approximately 3 years out from training should be able to accomplish; and *mastery* is what

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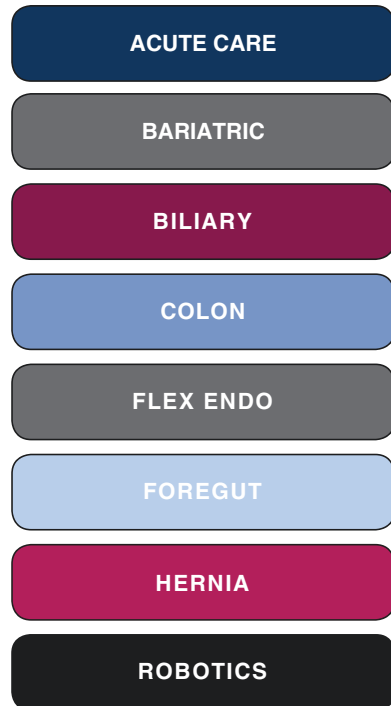
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Fig. 1.1 Masters Program logo

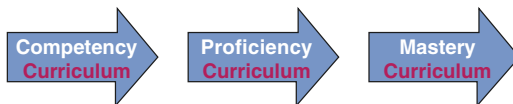


Fig. 1.2 Masters Program clinical pathways



more experienced surgeons should be able to accomplish after several years in practice. Mastery is applicable to SAGES surgeons seeking in-depth knowledge in a pathway, including the following: areas of controversy, outcomes, best practice, and ability to mentor colleagues. Over time, with the utilization of coaching and participation in SAGES courses, this level should be obtainable by the majority of SAGES members. This edition of The SAGES Manual of Bariatric Surgery aligns with the current version of the new SAGES University Masters Program bariatric surgery pathway (Table 1.1). SAGES has included the American Society of Metabolic and Bariatric Surgery Essentials (www.Essentials.ASMBS.org) in the Masters Competency Curriculum. The ASMBS Essentials outlines the preoperative assessment, intraoperative considerations, and postoperative management for the most commonly performed operations and procedures.

Fig. 1.3 Masters Program progression



Why Engage in the SAGES Masters Program?

The SAGES Masters Program is a more engaging, more valuable, more enjoyable continuing educational tool that will revolutionize postgraduate learning. Since it is often difficult for a practicing surgeon – after residency and fellowship – who has trained in one focus area to gain new expertise in another area of focus, additional options for ongoing training are needed. Traditionally, surgeons have taken post-graduate courses and industry courses and have gone online to watch and learn from videos and other peers and colleagues. The SAGES Masters Program establishes a curriculum the learner can follow that goes from simple to more complex while incorporating the many educational products of SAGES. It is hoped that this will be an inexpensive, fun, engaging, and valuable way to track progress over time. We envision that 1 day, the SAGES Masters Program will replace the ABS MOC requirements. The curriculum along each pathway is sensible and incorporates all elements of adult learning. Completion of the program will also eventually help surgeons optimize their online profiles.

Bariatric Surgery Curriculum

The key elements of the bariatric surgery curriculum include core lectures for the pathway, which provides a 45-min general overview including basic anatomy, physiology, diagnostic work-up, and surgical management. As of 2018, all lecture content of the annual SAGES meetings are labeled as follows: basic (100), intermediate (200), and advanced (300). This allows attendees to choose lectures that best fit their educational needs. Coding the content additionally facilitates online retrieval of specific educational material, with varying degrees of surgical complexity, ranging from introductory to revisional surgery.

SAGES identified the need to develop targeted, complex content for its mastery-level curriculum. The idea was that these 25-min lectures would be focused on specific topics. It assumes that the attendee already has a good understanding of diseases and management from attending/watching competency- and proficiency-level lectures. Ideally, in order to supplement a chosen topic, the mastery lectures would also identify key prerequisite articles from *Surgical Endoscopy* and other journals, in addition to SAGES University videos. Many of these lectures will be forthcoming at future SAGES annual meetings.

The Masters Program has a self-assessment, multiple-choice exam for each module to guide learner progression throughout the curriculum. Questions are submitted

Table 1.1 Masters Program bariatric curriculum outline

<i>Curriculum elements</i>	<i>Competency</i>
Anchoring procedure – competency	2
Core lecture	1
Core MCE 70%	1
Annual meeting content	3
Guidelines	1
SA CME hours (ASMBS electives, SAGES, or SAGES endorsed)	6
Sentinel articles	2
Social media	2
SAGES top 21 video	1
FLS®	12
Pearls	1
ASMBS essentials in bariatric surgery web-based application essentials. ASMBS.org	3
<i>Credits</i>	35
<i>Curriculum elements</i>	<i>Proficiency</i>
Anchoring procedure – proficiency	2
Core lecture	1
Core MCE 70%	1
Annual meeting content	5
Fuse™	12
Outcome database enrollment	2
SA CME hours (ASMBS electives, SAGES, or SAGES-endorsed)	6
Sentinel articles	2
Social media	2
SAGES top 21 video	1
Pearls	1
<i>Credits</i>	35
<i>Curriculum elements</i>	<i>Mastery</i>
Anchoring procedure – mastery	2
Core lecture	1
Core MCE 70%	1
Annual meeting content	6
Fundamentals of surgical coaching	4
Outcomes database reporting	2
SA CME credits (ASMBS electives, SAGES, or SAGES-endorsed)	6
Sentinel articles	2
Serving as video assessment reviewer and providing feedback (FSC)	4
Social media	7
SMART™ enhanced recovery	1
FEST™	9
<i>Credits</i>	45

by core lecture speakers and SAGES annual meeting faculty. The goal of the questions is to use assessment for learning, with the assessment being criterion-referenced with the percent correct set at 80%. Learners will be able to review incorrect answers, review educational content, and retake the examination until a passing score is obtained.

The Masters Program bariatric surgery curriculum taps much of the SAGES existing educational products including FLS®, FES™, FUSE™, SMART™, top 21 videos, and Pearls (Fig. 1.4a–f). The Curriculum Task Force has placed the aforementioned modules along a continuum of the curriculum pathway. For example, FLS®, in general, occurs during the competency curriculum, whereas the Fundamental Use of Surgical Energy (FUSE™) is usually required during the proficiency curriculum. The Fundamentals of Laparoscopic Surgery (FLS®) is a multiple-choice exam and a skills assessment conducted on a video box trainer. Tasks include peg transfer, cutting, intracorporeal and extracorporeal suturing, and knot tying. Since 2010, FLS® has been required of all US general surgery residents seeking to sit for the American Board of Surgery Qualifying Examinations. The Fundamentals of Endoscopic Surgery (FES™) assesses endoscopic knowledge and technical skills in a simulator. FUSE™ teaches about the safe use of energy devices in the operating room and is available at FUSE.didactic.org. After learners complete the self-paced modules, they may take the certifying examination.

The SAGES Surgical Multimodal Accelerated Recovery Trajectory (SMART™) Initiative combines minimally invasive surgical techniques with enhanced recovery pathways (ERPs) for perioperative care, with the goal of improving outcomes and patient satisfaction. Educational materials include a website with best practices, sample pathways, patient literature, and other resources such as videos, FAQs, and an implementation timeline. The materials assist surgeons and their surgical team with implementation of an ERP.

Top 21 videos are edited videos of the most commonly performed MIS operations and basic endoscopy. Cases are straightforward with quality video and clear anatomy.

Pearls are step-by-step video clips of ten operations. The authors show different variations for each step. The learner should have a fundamental understanding of the operation.

SAGES Guidelines provide evidence-based recommendations for surgeons and are developed by the SAGES Guidelines Committee following the Health and Medicine Division of the National Academies of Sciences, Engineering, and Medicine standards (formerly the Institute of Medicine) for guideline development [3]. Each clinical practice guideline has been systematically researched, reviewed, and revised by the SAGES Guidelines Committee and an appropriate multidisciplinary team. The strength of the provided recommendations is determined based on the quality of the available literature using the GRADE methodology [4]. SAGES Guidelines cover a wide range of topics relevant to the practice of SAGES surgeon members and are updated on a regular basis. Since the developed guidelines provide an appraisal of the available literature, their inclusion in the Masters Program was deemed necessary by the group.

a



b



c



d



e



SAGES Top 21
Minimally Invasive Procedures
Every Practicing Surgeon Should Know



SAGES TOP 21
Minimally Invasive
Procedures Every Practicing
Surgeon Should Know

<p>DVD 1 Upper Endoscopy... Dean Mikami, MD, FACS Colonoscopy... Jeffrey Marks, MD, FACS Cholecystectomy... Benjamin Schneider, MD Common Bile Duct Exploration... Mark Watson, MD Nissen Fundoplication... Patrick Reardon, MD, FACS</p> <p>DVD 2 Paraesophageal Hernia Repair... Dmitry Oleynikov, MD, FACS Heller Myotomy... Santiago Horgan, MD Inguinal Hernia Repair... Daniel Marcus, MD Ventral Hernia Repair... Abdelrhman Nimeri, MD Splenectomy... John Sweeney, MD, FACS</p> <p>DVD 3 Adrenalectomy... Michael Brunt, MD Right Hemicolectomy and Appendectomy... Tonia Young-Fadok, MD Sigmoid Colectomy/Low Anterior Resection... Edward Borazzo, MD, FACS Roux-en-Y Gastric Bypass... Daniel Gagne, MD Adjustable Gastric Band... Jeffrey Allen, MD Ultrasound... Eren Berber, MD Distal Pancreatectomy... Horacio Asbun MD Liver Biopsy and Resection... David Geller</p> <p>DVD 4 Esophagectomy... Ninh Nguyen, MD Gastric Resection... Alex Nagle, MD Treatment of Peptic Ulcer Disease... Istvan Gal, MD</p>	<p>TOP 21 Minimally Invasive Procedures Every Practicing Surgeon Should Know</p>	
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DVD



Editor: Kenric Murayama, MD

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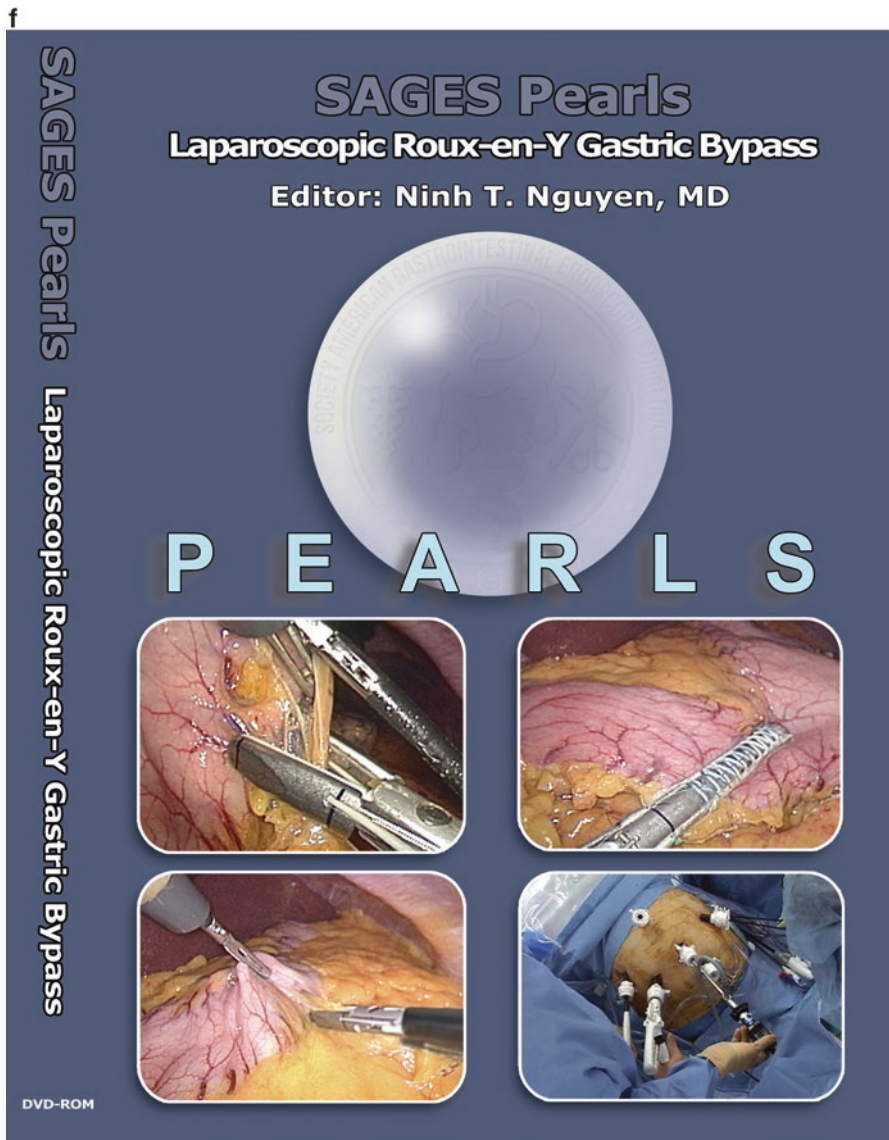


Fig. 1.4 (a–f) SAGES educational content: FLS® (a), FES™ (b), FUSE™ (c), SMART™ (d), top 21 videos (e), Pearls (f) (Trademarks and registered trademarks by SAGES)

The Curriculum Task Force identified the need to select required readings for the Masters Program based on key articles for the various curriculum procedures. Summaries of each of these articles follow the American College of Surgeons (ACS) selected reading format.



Fig. 1.5 (a, b) Bariatric Facebook™ group

Table 1.2 Bariatric surgery anchoring procedure by pathway

Anchoring procedure by pathway	Level
Bariatric surgery	
Lap sleeve gastrectomy	Competency
Lap Roux-en-Y gastric bypass	Proficiency
Lap revisional surgery	Mastery

Facebook™ Groups

While there are many great platforms available to permit online collaboration by user-generated content, Facebook™ offers a unique, highly developed mobile platform that is ideal for global professional collaboration and daily continuing surgical education one example being our newly formed SAGES Masters Program Bariatric Facebook(tm) Group (Fig. 1.5a, b). Proof of concept was demonstrated by the wide adoption of the International Hernia Collaboration closed Facebook™ group, started by Dr. Brian Jacob in 2012. Since then, the use of many different closed Facebook™ groups has allowed for video assessment, feedback, and coaching as a tool to improve practice.

Based on the anchoring procedures determined via group consensus (Table 1.2), participants in the Masters Program will submit video clips on closed Facebook™ groups, with other participants and/or SAGES members providing qualitative feedback. For example, for the bariatric surgery curriculum, surgeons would submit the critical views during a laparoscopic gastric bypass with a demonstration of a leak