

FLS and FES: Comprehensive Models of Training and Assessment

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- Fundamentals of Laparoscopic Surgery
- Fundamentals of Endoscopic Surgery • GOALS • GAGES
- Simulation • Technical skills • Assessment • Competence

FLS

The Fundamentals of Laparoscopic Surgery (FLS) program was developed by surgeons, educators, and administrators, under the leadership of the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES). The impetus to create this curriculum came from the need to safely introduce laparoscopic techniques into clinical practice and from the demand to demonstrate basic competence in the application of this new technology.¹ In the early years of laparoscopy, some surgeons integrated this technique into their practices after cursory weekend courses or animal laboratories. However, an increase in bile duct injuries and other complications occurred with the first laparoscopic cholecystectomies.² This critical issue of patient safety was the initial driver for the FLS effort. Around the same time, the concept of simulation in medicine was also gaining popularity, especially in light of restricted resident work hours and limited operating-room resources. It was entirely logical to take the learning process for new procedures and technologies out of the operating room and into a safe, controlled environment.

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The vision for the FLS program was created in the late 1990s among some of the leaders in the SAGES organization. They recognized the need for the program to meet the highest educational standards, especially if the intent was to demonstrate a basic level of competence. The program was designed as a tool to teach the fundamental knowledge and technical skills considered by experts to be necessary for safe and effective laparoscopic surgery. The unique feature of FLS is the associated metrics that measure the outcome of the educational intervention and that can verify learning and establish a level of basic competency. This article describes the components of FLS and the rigorous validation process that helped it to become an important certification program for surgeons and one of the requirements to be eligible for the American Board of Surgery (ABS) examination. Because of this solid foundation, FLS has been used as the basis for educational research to improve our understanding of how best to learn and teach these essential skills. The second part of this article describes the Fundamentals of Endoscopic Surgery (FES) program, which is currently in the final stages of development, and which SAGES has modeled after FLS.

THE FLS PROGRAM

The mission of the program is stated on the FLS Web site (<http://www.flsprogram.org/>):

To provide surgical residents, fellows and practicing surgeons an opportunity to learn the fundamentals of laparoscopic surgery in a consistent, scientifically accepted format; and to test cognitive, surgical decision-making, and technical skills, all with the goal of improving the quality of patient care.

The curriculum is not procedure or discipline specific. It includes general concepts and elements of decision making that are related to the equipment, technology, and physiology of laparoscopic surgery and can be used to teach and assess gynecologists, urologists, general surgeons, and other surgical subspecialists.³⁻⁵ The objectives of the program can also be found on the FLS homepage and are shown in **Table 1**. The program is offered to practicing surgeons who use laparoscopy and to trainees in accredited surgical training programs.

Since 2005, FLS has been a joint program of SAGES and the American College of Surgeons (ACS) and it is managed by a committee of members from both

Table 1 Objectives of the FLS program
To improve the quality of care received by patients undergoing laparoscopic surgery
To set minimum standards for basic cognitive and technical skills used in performing laparoscopic procedures
To provide surgeons practicing laparoscopy with standardized didactic information on the fundamentals of laparoscopic surgery and a tool to assist in development of judgment and manual skills
To create an objective quantifiable measure to assess knowledge, judgment, and manual skills in basic laparoscopic surgery
To make available to hospitals and institutions a validated tool to measure the knowledge and skills fundamental to the performance of laparoscopic surgery
To improve the quality of care received by patients undergoing laparoscopic surgery

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