

# Open operations for gallbladder removal drop 90 percent at 1 institution over 30 years

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While minimally invasive surgical techniques have made operations easier and recovery time faster, there is a downside: surgical residents today aren't acquiring certain operative skills, according to a new study appearing online on the *Journal of the American College of Surgeons* website in advance of print publication. Since laparoscopic cholecystectomy (surgical removal of the gallbladder) was first introduced 30 years ago, the number of open cholecystectomies performed by general surgery residents has declined significantly.

"The average [general surgery](#) resident completing training in 2000 had performed 15.5 open cholecystectomies, versus 90 in the pre-laparoscopic era. This figure decreased to 12.6 by 2004," said lead study author Kenneth R. Sirinek, MD, PhD, FACS, professor and vice chairman of surgery at the University of Texas Health Science Center, San Antonio. "I fear that the next decade is going to be even worse."

Each year, an estimated 700,000 cholecystectomies are performed to treat complications of gallstones (cholecystitis, biliary pancreatitis). Today, [laparoscopic cholecystectomy](#) is considered the gold standard for treating gallbladder disease, but in some complicated cases the traditional "open" approach is still required. Those situations may include gallbladder cancer and patients with cirrhosis.

The growing trend has led researchers to ask: Are general surgery residents today getting enough clinical experience with open biliary procedures to possess the technical skills necessary to perform a

traditional open cholecystectomy, either initially or as a conversion from the laparoscopic approach? Most open cholecystectomies begin as an elective or urgent laparoscopic cholecystectomy and are converted to an open procedure during the operation. The worst case scenario is that there will be a shortage of surgeons competent in this procedure in years to come.

For this study, researchers from the University of Texas Health Science Center assessed the overall impact of laparoscopy on their residency training program. They looked at the average number of open cholecystectomies performed by each chief general surgery resident over five years of clinical surgery.

Researchers analyzed data from all patients who underwent a cholecystectomy at the University of Texas Health Science Center over three decades: 1981 - 1990, which they called the pre-laparoscopic era; 1991 - 2001, the first decade of laparoscopic cholecystectomy; and 2004 - 2013, the most recent decade of laparoscopic cholecystectomy.

Researchers found that compared with the pre-laparoscopic decade, the number of patients undergoing an open cholecystectomy decreased 67 percent during the first decade of laparoscopic cholecystectomy, and by 92 percent for the most recent decade. The average number of open cholecystectomies performed per graduating chief general surgery resident dramatically decreased for both laparoscopic decades compared with the pre-laparoscopic decade (70.4 vs 22.4 vs 3.6 procedures).

"Our residents are getting a minimum amount of exposure to the open procedure, so we are concerned about whether they will have enough technical experience to do an open cholecystectomy. In particular, we are concerned about surgeons who have to convert from laparoscopy to the open procedure during an operation, because those are probably the most technically demanding procedures," Dr. Sirinek said. "This is

problematic because they will not have enough know-how to take on a very complicated patient with severe inflammation secondary to acute/gangrenous cholecystitis."

Dr. Sirinek added that while there is no rule on what number of open cholecystectomies is required to make a surgeon competent with the procedure, senior general surgeons with an extensive open cholecystectomy experience possess a major technical edge with the open procedure compared to those with little open experience trained during the laparoscopic era.

"Surgeons trained in the open cholecystectomy era alone are a dying breed," Dr. Sirinek said. "All of the instruments used laparoscopically do not substitute for an open procedure, where we have tactile feedback from our hands, and a lot of the surgical dissection is done with our hands."

To make up for the technical deficit as a result of the small number of open cholecystectomies currently being done, study authors offer several recommendations. First, junior surgeons could spend time participating in the American College of Surgeons' Transition to Practice Fellowship. Participation in this Fellowship with senior surgeon mentoring would allow them to practice and perfect the technical skills needed to perform complicated open and laparoscopic biliary cases. Similar mentoring can also occur in the private practice of General Surgery with young general surgeons identifying an experienced, more senior surgeon to help intraoperatively when they encounter an unanticipated, more complicated biliary tract disease process.

In addition, each general surgery residency program should build a video library of complicated open biliary procedures, Dr. Sirinek suggested. This way, residents could discuss instructional presentations with the faculty surgeons for additional technical input. Finally, a number of

simulation models could also be used to help train novice learners in critical surgical techniques, but only a few early models are presently available.

"These and other programs will help supplement a surgical resident's training program," Dr. Sirinek said. "They're such an important part of general surgery residents' training today."

**More information:** "Who Will Be Able to Perform Open Biliary Surgery in 2025?" *Journal of the American College of Surgeons*, 2016..

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