

BACKGROUND

Cholecystectomy is the most common operation performed worldwide by general surgeons with between 750,000 – 1,000,000 performed in the U.S. annually. Laparoscopic cholecystectomy (LC) was introduced into clinical practice approximately 30 years ago, and it quickly became the gold standard operation for patients with symptomatic gallstones.¹ Because the benefits of laparoscopic compared to open cholecystectomy were so dramatic and readily apparent to both surgeons and patients, a “laparoscopic revolution” ensued that changed the face of surgery. However, there was a downside to the adoption of this procedure by an entire generation of surgeons who had no training in laparoscopic surgery, namely an increase in the number of bile duct injuries (BDI).²⁻⁴

When one considers the high rate of wound, cardiac, pulmonary, and other complications, as well as pain and delayed return to work and activity that accompanied open cholecystectomy when it was the standard treatment for gallstone disease, laparoscopic cholecystectomy has been an incredible advance. Today, the vast majority of patients who undergo LC have an uneventful and rapid recovery and complete return to full activity within days of their procedure. Although with advances in instrumentation, imaging, and surgical technique the incidence of BDI with LC has decreased somewhat in recent years, this complication still occurs at a frequency higher than the 0.1%–0.2% rate reported in the open cholecystectomy era.^{5,6}

Several recent large studies that have examined BDI and cholecystectomy have found major BDI rates of 0.15-0.36% and an overall biliary complication rate of 1.5% if bile leaks are included.⁷⁻¹² In one study of the Gallriks database in Sweden, which captures >90% of all cholecystectomies in that country, the rate of major BDI that required reconstruction was 0.36% and overall biliary complications were observed in 1.5% of patients.¹³ In the U.S.A., administrative database studies have found an incidence of major BDI of 0.15-0.3%,^{7,9,10,12} but these may underestimate the actual incidence due to limitations in using coding data to capture these injuries. Regardless, a 0.3% incidence of major BDI translates to between 2300 and 3000 BDI's annually in the USA alone. Biliary injury today is not just a phenomenon of LC but also can occur after open or laparoscopic converted to open cholecystectomy.^{14,15} BDI are also a source of increased morbidity and costs to the health care system. They can result in numerous re-interventions and hospitalizations, early and late complications, increased mortality, and poorer quality of life.^{8,10,16–18} In one study, long-term mortality was >8.8 fold above the expected and age adjusted rate of death.¹⁹ BDIs also remain one of the most common causes for litigation against general surgeons.²⁰⁻²³

In this context in 2014, the Society of Gastrointestinal and Endoscopic Surgeons (SAGES) formed the Safe Cholecystectomy Task Force with the mission of creating a universal culture of safety around this operation and reducing biliary injuries. As an initial step, this group undertook a Delphi consensus process on strategies to reduce biliary injuries²⁴ and held subsequent collaborative meeting programming with other surgical societies. In 2016, planning began for a multi-society consensus conference on prevention of bile duct injury during cholecystectomy, that included SAGES, the Americas Hepato-Pancreato-Biliary