Multi-society State-of-the-Art Consensus Conference on Prevention of Bile Duct Injury During Cholecystectomy

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State of the Art Consensus Conference on Prevention of Bile Duct Injury During Cholecystectomy

Saturday, October 20, 2018 • Boston, MA

Work Group Five

- PICO #15-17

- **Group Leads**
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  - Romeo Ignacio, MD, Naval Medical Center San Diego

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PICO #15

- **PICO 15: Should CVS coaching of surgeon vs no coaching be used for mitigating the risk of BDI associated with laparoscopic cholecystectomy?**

- Primary Outcome – BDI
- Secondary Outcome – CVS Quality

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PICO #15


6 studies identified from original search
3 shortlisted for full-text analysis
2 best-evidence studies included in final data synthesis

PICO #15

Outcome	Evidence
BDI	Surgeons in a 2016 single-centre Swedish study completed 2 sessions of education and coaching. Within limits of the small sample size (n=229 cholecystectomies) there was no difference in biliary injury (2% pre intervention, 3% following 1st session, 5% following 2nd session, p=0.87).
CVS quality	In the Swedish study, there was no significant difference in the percentage of cases which were deemed to achieve CVS (68.5% pre intervention, 73.3% following 1st session, 82% following 2nd session, p=0.141). A 2017 US study[2] assessed the effects of offering coaching across multiple centres. Five surgeons completed the training and had pre- and post-intervention video assessment. Mean CVS scores improved from 1.75/6 to 3.75/6 (p<0.05).

PICO #15

- Recommendation A
  - We suggest continued education of surgeons regarding the critical view of safety during laparoscopic cholecystectomy that may include coaching. (Conditional recommendation, very low certainty of evidence)

- **References**

  - Nijssen MA, Schreinemakers JM, van der Schelling GP, Crolla RM, Rijken AM. Improving Critical View of Safety in Laparoscopic Cholecystectomy by Teaching Interventions. J Surg Educ. 2016 May-Jun;73(3):442-7.
  - Stefanidis D, Chintalapudi N, Anderson-Montoya B, Oommen B, Tobben D, Pimentel M. How often do surgeons obtain the critical view of safety during laparoscopic cholecystectomy? Surg Endosc. 2017 Jan;31(1):142-146.
  - Sanford DE, Strasberg SM. A simple effective method for generation of a permanent record of the Critical View of Safety during laparoscopic cholecystectomy by intraoperative "doublet" photography. J Am Coll Surg. 2014 Feb;218(2):170-8.

Vote on PICO 15 Recommendation

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PICO #16

- **PICO 16: Should training by simulation or video-based education vs alternative surgeon training be used for mitigating the risk of BDI associated with laparoscopic cholecystectomy?**

- Primary Outcome – BDI

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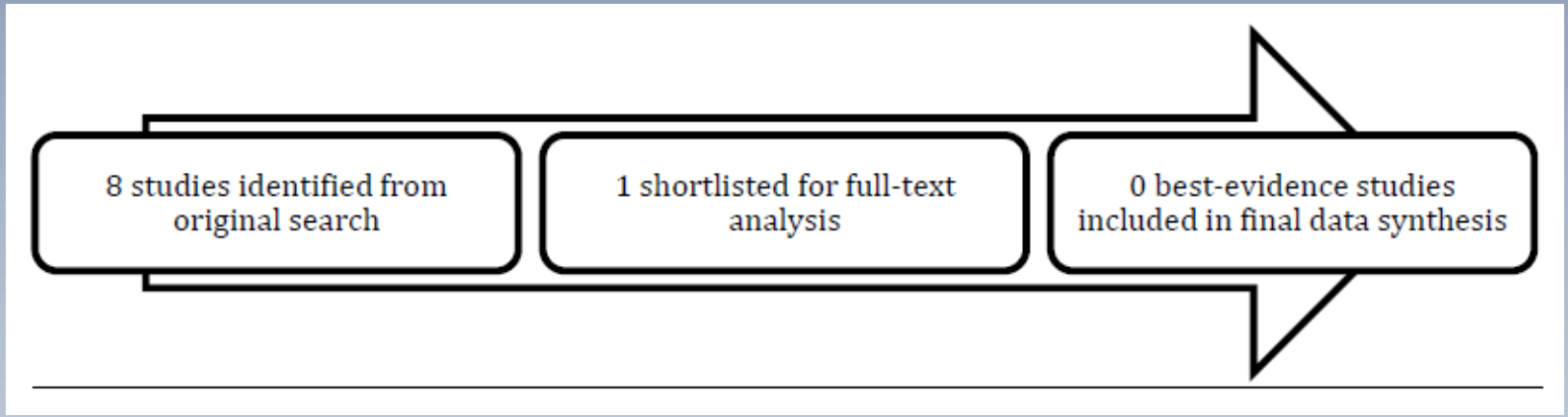
PICO #16


8 studies identified from original search
1 shortlisted for full-text analysis
0 best-evidence studies included in final data synthesis

PICO #16

- *Current evidence is insufficient to determine the benefit of simulation vs video-based vs alternative surgeon training modalities on limiting/avoiding bile duct injury.*

- Recommendations for future study/ type B:
  - We suggest the conduct of prospective large-scale multi-center studies to determine the role of simulation vs video-based vs alternative surgeon training modalities on limiting/avoiding bile duct injury.

Vote on PICO 16B Recommendation

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PICO #17

- **PICO 17: Should more vs less surgeon experience be used for mitigating the risk of BDI associated with laparoscopic cholecystectomy?**

- Primary Outcome – BDI
- Secondary Outcomes – Mortality, Morbidity, Conversion

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PICO #17


39 studies identified from original search
20 shortlisted for full-text analysis
4 best-evidence studies included in final data synthesis

PICO #17

Outcome	Evidence
Primary outcome	
BDI	Two large cohort studies were included which were assessed. A 2001 WA state database cohort study (n=30,630) reported increased risk OR 1.8 (1.1-2.8) of BDI for surgeons with <20 cases experience.[1] A 2014 study examined 53,632 LCs from a US billing database and linked surgeon codes to the Fundamentals of Laparoscopic Surgery (FLS) database.[2] Authors reported that surgeons with FLS certification had a higher (unadjusted) rate of BDI (0.47% vs. 0.14%, p=0.0013), with less experience (mean 6.1 vs 20.7 years in practice, p=0.0012).

PICO #17

Secondary outcomes	
Mortality	No data
Morbidity	Koulas et al., a 2006 moderate quality single-centre Greek cohort study (n=1370) assessed morbidity for resident (2.9%) vs. attending (3.8%) surgeons, reporting no difference in unadjusted morbidity.[3]
Conversion	A 2006 national English cohort study (n=43,821) identified significantly higher rates of conversion in less experienced surgeons (3% for >35/yr vs. 8.6% for <5/yr).[4] Koulas et al also assessed resident vs. attending surgeons and reported no difference in conversion rates (0.2% vs. 0.4%).[3]

PICO #17

- Recommendation A:
  - We suggest that surgeons have a low threshold for calling for help from another surgeon when practical in difficult cases or when there is uncertain of anatomy (conditional recommendation, low certainty of evidence).

- **References**

  - Flum DR, Koepsell T, Heagerty P, et al. Common bile duct injury during laparoscopic cholecystectomy and the use of intraoperative cholangiography: adverse outcome or preventable error? Arch Surg. 2001 Nov;136(11):1287-92.
  - Schwaitzberg SD, Scott DJ, Jones DB, McKinley SK, Castrillion J, Hunter TD, Brunt LM. Threefold increased bile duct injury rate is associated with less experience in an insurance claims database. Surg Endosc. 2014. 28:3068-3073.
  - Koulas SG. Tsimoyiannis J, Koutsourelakis I, et al. Laparoscopic cholecystectomy performed by surgical trainees. JSLS. 2006 Oct-Dec;10(4):484-7.

Vote on PICO 17A Recommendation

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PICO #17

- Recommendation for future studies/Type B Recommendation:
  - We suggest the conduct of prospective research studies to develop evidence-based guidelines for physicians who are in transition in practice/from residency/fellowship to independent practice, in order to mitigate the risk of BDI associated with laparoscopic cholecystectomy.

- **References**

  - Flum DR, Koepsell T, Heagerty P, et al. Common bile duct injury during laparoscopic cholecystectomy and the use of intraoperative cholangiography: adverse outcome or preventable error? Arch Surg. 2001 Nov;136(11):1287-92.
  - Schwaitzberg SD, Scott DJ, Jones DB, McKinley SK, Castrillion J, Hunter TD, Brunt LM. Threefold increased bile duct injury rate is associated with less experience in an insurance claims database. Surg Endosc. 2014. 28:3068-3073.
  - Koulas SG. Tsimoyiannis J, Koutsourelakis I, et al. Laparoscopic cholecystectomy performed by surgical trainees. JSLS. 2006 Oct-Dec;10(4):484-7.

Vote on PICO 17B Recommendation

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Recommendation 19

- **Additional Panel Recommendation: Type B Recommendation**
- **19.** We suggest the development of national quality improvement initiatives for the prevention of bile duct injuries following cholecystectomy. The initiatives(s) should be capable of identifying and characterizing bile duct injuries in the population under study.

Vote on PICO 19 Recommendation

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