SAGES guidelines for the use of laparoscopy during pregnancy

# **KEY QUESTION 1**

Should appendectomy vs. medical management be used for appendicitis during pregnancy (any trimester)?							
POPULATION:	appendicitis during pregnancy (any trimester)						
INTERVENTION:	KQ1 Appendectomy						
COMPARISON:	medical management						
MAIN OUTCOMES:	C-Section; Delivery; Pregnancy loss (total, any gestation); Preterm Birth; Readmission; Sepsis;						
SETTING:							
PERSPECTIVE:							
BACKGROUND:							
CONFLICT OF INTERESTS:							

### ASSESSMENT

Problem Is the problem a priority?							
JUDGEMENT	RESEARCH EVII	DENCE					ADDITIONAL CONSIDERATIONS
o No o Probably no o Probably yes • Yes o Varies o Don't know							
<b>Desirable Effects</b> How substantial are the desir	able anticipated	effects?					
JUDGEMENT	RESEARCH EVII	DENCE					ADDITIONAL CONSIDERATIONS
o Trivial • Small o Moderate	Other limitations – international papers with variable baseline rate c-section						
o Varies o Don't know	Outcomes	№ of participants (studies) Follow-up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects* (95% CI)		Small 6/7, moderate 1/7
					Risk with medical management	Risk difference with KQ1 Appendectomy	
	C-Section 54 (1 observational study)	54	000	OR 0.69	Study population		
		Very low <sup>a,b</sup>	(0.18 to 2.64)	265 per 1,000	<b>66 fewer per</b> <b>1,000</b> (204 fewer to 223 more)		
	Readmission	54	000	OR 0.22	Study populati	on	
		observational study)	Very low <sup>a,b</sup>	(0.01 to 4.48)	88 per 1,000	<b>67 fewer per</b> <b>1,000</b> (87 fewer to 214 more)	
	Sepsis	7114	000	OR 0.15	Study population		
	(1 observational study)	Very low <sup>b,c</sup>	(0.05 to 0.49)	10 per 1,000	8 fewer per 1,000		

Undesirable Effec	a. TI Si re b. TI c. TI Si re	his study had cale due to un throspective n his outcome h vent size whic his study had cale due to co porting of ou	an unclear ri ncertainty arc lature. nad a very sm ch increases i a high risk or oncerns aroun tcomes.	sk of bia: bund the tall samp ts fragilit f bias on the co	s on the New selection of p le size and an y. the Newcastl mparability o	(9 fewer to 5 fewer) castle-Ottawa patients and its n even smaller le-Ottawa f groups and	
How substantial are the unde	estrable anticip	ated effects?					
	KESEAKCH EV	IDENCE					AUDITIONAL CONSIDERATIONS
<ul> <li>o Large</li> <li>o Moderate</li> <li>o Small</li> <li>Trivial</li> <li>o Verice</li> </ul>	Outcomes	Outcomes № of Certainty of Relative Anticipated absolute effect (95% CI)					these papers (Nakashima surgical mgmt. group with much higher rate of complicated appendicits, Joo surgical management group already failed
o Don't know		Follow-up	(GRADE)	(95% CI)	Risk with medical management	Risk difference with KQ1 Appendectomy	medical management) Trivial 7/7
	Pregnancy	243	0000	OR 1.32	Study populati	on	
	any observation gestation) studies)	(3 observational studies)	Very low <sup>a,b</sup>	(0.36 to 4.85)	37 per 1,000	<b>11 more per</b> <b>1,000</b> (23 fewer to 119 more)	
	Preterm	74	000	OR 1.15	Study populati	on	
	Birth (2 observational studies)		Very low <sup>a,b</sup>	7.53)	59 per 1,000	8 more per 1,000 (48 fewer to 261 more)	
	<ul> <li>a. This study had a high risk of bias on the Newcastle-Ottawa Scale due to concerns around the comparability of groups and reporting of outcomes.</li> <li>b. This outcome had a very small sample size and an even smaller event size which increases its fragility.</li> </ul>						
Certainty of evidence What is the overall certainty of the evidence of effects?							
JUDGEMENT	RESEARCH EVIDENCE						ADDITIONAL CONSIDERATIONS
• Very low • Low • Moderate • High • No included studies							

Values Is there important uncertaint	y about or variability in how much people value the main outcomes?	
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul> <li>Important uncertainty or variability</li> <li>Possibly important uncertainty or variability</li> <li>Probably no important uncertainty or variability</li> <li>No important uncertainty or variability or variability</li> </ul>		
Balance of effects Does the balance between de	sirable and undesirable effects favor the intervention or the comparison?	
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul> <li>o Favors the comparison</li> <li>o Probably favors the comparison</li> <li>o Does not favor either the intervention or the comparison</li> <li>Probably favors the intervention</li> <li>o Favors the intervention</li> <li>o Varies</li> <li>o Don't know</li> </ul>		Probably favors intervention 6/7 Does not favor either the intervention or the comparison 1/7 Low quality data with some biases against the surgically managed group but still fairly comparable outcomes
Acceptability Is the intervention acceptable	e to key stakeholders?	
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
o No o Probably no • <b>Probably yes</b> o Yes o Varies o Don't know		Probably yes 6/6
Feasibility Is the intervention feasible to	implement?	
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
o No o Probably no • Probably yes o Yes o Varies o Don't know		Depending on availability of Obstetrics support probably yes 6/7 Yes 1/7

# SUMMARY OF JUDGEMENTS

	JUDGEMENT								
PROBLEM	No	Probably no	Probably yes	Yes		Varies	Don't know		
DESIRABLE EFFECTS	Trivial	Small	Moderate	Large		Varies	Don't know		
UNDESIRABLE EFFECTS	Large	Moderate	Small	Trivial		Varies	Don't know		

	JUDGEMENT									
CERTAINTY OF EVIDENCE	Very low	Low	Moderate	High			No included studies			
VALUES	Important uncertainty or variability	Possibly important uncertainty or variability	Probably no important uncertainty or variability	No important uncertainty or variability						
BALANCE OF EFFECTS	Favors the comparison	Probably favors the comparison	Does not favor either the intervention or the comparison	Probably favors the intervention	Favors the intervention	Varies	Don't know			
ACCEPTABILITY	No	Probably no	Probably yes	Yes		Varies	Don't know			
FEASIBILITY	No	Probably no	Probably yes	Yes		Varies	Don't know			

### **TYPE OF RECOMMENDATION**

Strong recommendation against the intervention	Conditional recommendation against the intervention	Conditional recommendation for either the intervention or the comparison	Conditional recommendation for the intervention	Strong recommendation for the intervention
0	0	0	•	0

### CONCLUSIONS

#### Recommendation

The panel suggests that appendectomy rather than nonoperative treatment be used for acute appendicitis during pregnancy (conditional recommendation, very low certainty of evidence).

#### Justification

#### Subgroup considerations

Trimester considerations – greater safety concerns depending on trimester? 1<sup>st</sup> trimester – preg loss? Baseline rate of miscarriage ~25%. Teratogenic effects of anesthesia? No great data. 3<sup>rd</sup> trimester – inc risk of preterm delivery and uterine injury? Particularly risk on entry.

Variability and need for steroids / monitoring

Complicated vs uncomplicated appendicitis

**Implementation considerations** 

Neuroaxial anesthesia rather than general?

Considerations re need for intraoperative monitoring

## Monitoring and evaluation

## **Research priorities**

CODA trial - can non op mgmt. work in the pregnant pop? They are also at greater risk for more severe disease.

complicated vs uncomplicated appendicitis

Breakdown demographics by trimester

Ideally RCTs, at least prospective studies

# **KEY QUESTION 2**

Should Laparoscopic appendectomy vs. open appendectomy be used for appendicitis during pregnancy (any trimester)?						
POPULATION:	appendicitis during pregnancy (any trimester)					
INTERVENTION:	KQ2 Laparoscopic appendectomy					
COMPARISON:	open appendectomy					
MAIN OUTCOMES:	C-Section; Delivery; Neonatal death; NICU; Preg loss - all; Preg loss - <20; Preg loss - >20; Preterm; Readmit; Sepsis;					
SETTING:						
PERSPECTIVE:						
BACKGROUND:						
CONFLICT OF INTERESTS:						

### ASSESSMENT

Problem Is the problem a priority?							
JUDGEMENT	RESEARCH EV	VIDENCE					ADDITIONAL CONSIDERATIONS
o No o Probably no o Probably yes • Yes o Varies o Don't know							
<b>Desirable Effects</b> How substantial are the desira	ble anticipated	d effects?					
JUDGEMENT	RESEARCH EV	VIDENCE					ADDITIONAL CONSIDERATIONS
o Trivial • Small							small 100%
o Moderate o Large	Outcomes № of participar (studies) Follow-up	Nº of participants	Certainty of the evidence (GRADE)	Relative effect	Anticipated absolute effects <sup>*</sup> (95% CI)		
o Varies o Don't know		(studies) Follow-up		(95% CI)	Risk with open appendectomy	Risk difference with KQ2 Laparoscopic appendectomy	
	Delivery 52	52	$\oplus \bigcirc \bigcirc \bigcirc$	OR 0.94	Study population		
		(2 observational studies)	(0.03 to 26.65)	34 per 1,000	<b>2 fewer per</b> <b>1,000</b> (33 fewer to 453 more)		
	Preterm	5983 (21	000	OR 0.86	Study population	n	
	(21 observational studies)	(0.55 to 1.35)	90 per 1,000	<b>12 fewer per</b> <b>1,000</b> (38 fewer to 28 more)			
	Readmit	1094	000	OR 0.79	Study population		
	(3 observational studies) Very low <sup>c</sup> (0.42 1.51	1.51)	39 per 1,000	8 fewer per 1,000 (23 fewer to 19 more)			

		(2		OR 0.58 Study populatio			
		observational studies)	Very low <sup>b</sup> (0.20 to 1.69)		8 per 1,000	<b>3 fewer per</b> <b>1,000</b> (6 fewer to 5 more)	
	a. Ir O aı b. Ir O c. Ir g	ncluded studi ttawa scale o nd comparab ncluded studi ttawa scale o ncluded studi ttawa scale o roups.	es with an ur due to potent ility of group es with a hig due to compa es with an ur due to potent	nclear ris ial biase s. h risk of trability c nclear ris ial biase	k of bias on tl s in the select bias on the N of the groups. k of bias on tl s in the comp:	he Newcastle- ion of patients ewcastle- he Newcastle- arability of	
Undesirable Effe How substantial are the un	<b>Cts</b> desirable anticipa	ted effects?					
JUDGEMENT	RESEARCH E	VIDENCE					ADDITIONAL CONSIDERATIONS
o Large o Moderate o Small	Outcomes	Nº of	Certainty of	Relative	Anticipated abs	solute effects*	trivial 100%
• Trivial • Varies		participants (studies)	the evidence (GRADE)	effect (95%	(95% CI)		
o Don't know		Follow-up		ĊI)	Risk with open appendectomy	Risk difference with KQ2 Laparoscopic appendectomy	
	C-Section 22	2266	⊕000	OR 1.10	Study population		
		observational studies)	Very low <sup>a</sup>	1.33)	385 per 1,000	<b>23 more per</b> <b>1,000</b> (22 fewer to 69 more)	
	NICU 31 (1 observational study)	31	000	OR 2.31	Study population		
		Very low⁵	(0.09 to 61.41)	0 per 1,000	<b>0 fewer per</b> <b>1,000</b> (0 fewer to 0 fewer)		
	Preg loss - 6188	6188	$\oplus \bigcirc \bigcirc \bigcirc$	OR 1.93	Study population	on	
	all	(27 observational studies)	Very low <sup>a</sup>	(1.39 to 2.70)	31 per 1,000	<b>27 more per</b> <b>1,000</b> (11 more to 48 more)	
	Preg loss -	525	⊕000	OR 3.20	Study population	on	
	<20	(11 observational studies)	Very low <sup>a</sup>	(0.91 to 11.22)	7 per 1,000	<b>16 more per</b> <b>1,000</b> (1 fewer to 69 more)	
	Preg loss -	429	⊕000	OR 1.47	Study population	on	
	>20	observational studies)	Very low <sup>a</sup>	(0.15 to 14.52)	4 per 1,000	<b>2 more per</b> <b>1,000</b> (4 fewer to 57 more)	

	Ottawa scale due to potential biases in the selection of patients.	
Certainty of evider What is the overall certainty o	nce f the evidence of effects?	
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
• Very low • Low • Moderate • High • No included studies		
Values Is there important uncertainty	about or variability in how much people value the main outcomes?	
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul> <li>Important uncertainty or variability</li> <li>Possibly important uncertainty or variability</li> <li>Probably no important</li> </ul>		Probably no important uncertainty or variability 100%
uncertainty or variability O No important uncertainty or variability		
Balance of effects Does the balance between des	sirable and undesirable effects favor the intervention or the comparison?	
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul> <li>Favors the comparison</li> <li>Probably favors the comparison</li> <li>Does not favor either the intervention or the</li> </ul>		Does not favor either the intervention or the comparison 80% Probably favors the intervention 20%
comparison o Probably favors the intervention o Favors the intervention o Varies o Don't know		
Acceptability Is the intervention acceptable	to key stakeholders?	
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
o No o Probably no		Yes 100%

<ul> <li>O Probably yes</li> <li>Yes</li> <li>O Varies</li> <li>O Don't know</li> </ul>							
Feasibility Is the intervention feasible to implement?							
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS					
o No o Probably no o Probably yes		Yes 100%					
• Yes o Varies o Don't know							

### SUMMARY OF JUDGEMENTS

	JUDGEMENT							
PROBLEM	No	Probably no	Probably yes	Yes		Varies	Don't know	
DESIRABLE EFFECTS	Trivial	Small	Moderate	Large		Varies	Don't know	
UNDESIRABLE EFFECTS	Large	Moderate	Small	Trivial		Varies	Don't know	
CERTAINTY OF EVIDENCE	Very low	Low	Moderate	High			No included studies	
VALUES	Important uncertainty or variability	Possibly important uncertainty or variability	Probably no important uncertainty or variability	No important uncertainty or variability				
BALANCE OF EFFECTS	Favors the comparison	Probably favors the comparison	Does not favor either the intervention or the comparison	Probably favors the intervention	Favors the intervention	Varies	Don't know	
ACCEPTABILITY	No	Probably no	Probably yes	Yes		Varies	Don't know	
FEASIBILITY	No	Probably no	Probably yes	Yes		Varies	Don't know	

# **TYPE OF RECOMMENDATION**

Strong recommendation against the intervention	Conditional recommendation against the intervention	Conditional recommendation for either the intervention or the	Conditional recommendation for the intervention	Strong recommendation for the intervention
0	0	O	0	0

# CONCLUSIONS

Recommendation

#### Justification

In light of a very limited and low quality evidence base, the panel agreed on basing the final recommendation on expert opinion.

#### Subgroup considerations

By trimester, how complex the appendicitis is/severity of disease, how sick/stable the patient is, prior surgical history With multiple gestations, uterine size may be greater and cause increased difficulty with the laparoscopic approach

#### Implementation considerations

Decubitus positioning,

#### Monitoring and evaluation

Conversion rates. Tracking maternal/fetal outcomes including past delivery

#### **Research priorities**

RCT lap vs open appendectomy in third trimester.

Evaluating the utility of intraoperative fetal monitoring by gestational age.

Multi-institutional collaborations or utilization of databases eg NSQIP that have more granular clinical data could be used to evaluate appendicitis in the pregnant population.

# **KEY QUESTION 3**

Should Cholecystectomy vs. Medical Treatment be used for biliary disease in pregnancy?							
POPULATION:	biliary disease in pregnancy						
INTERVENTION:	Cholecystectomy						
COMPARISON:	Medical Treatment						
MAIN OUTCOMES:	Bile leak; C-Section; C-Section - Cholecystitis only; C-Section - Others; Delivery during admission; IUGR; IUGR - Cholecystitis only; IUGR - Others; Neonatal death; NICU; Pre-eclampsia; Pre-eclampsia - Cholecystitis only; Pre-eclampsia - Others; Preg loss - all; Preg loss - all - Cholecystitis only; Preg loss - all - Others; Preg loss - 20; Preg loss - >20; Preterm; Preterm - Cholecystitis only; Preterm - Others; Readmit; Readmit - Cholecystitis only; Readmit - Others; Sepsis; Sepsis - Cholecystitis only; Sepsis - Others;						
SETTING:							
PERSPECTIVE:							
BACKGROUND:							
CONFLICT OF INTERESTS:							

### ASSESSMENT

Problem Is the problem a priority?								
JUDGEMENT	RESEARCH EVIDENCE						ADDITIONAL CONSIDERATIONS	
o No o Probably no o Probably yes • <b>Yes</b> o Varies o Don't know								
<b>Desirable Effects</b> How substantial are the desiral	ble anticipated e	effects?						
JUDGEMENT	RESEARCH EVI	DENCE					ADDITIONAL CONSIDERATIONS	
o Trivial o Small o Moderate o Large o Varies o Don't know	Outcomes№ of particip (studies Follow-tC-Section31616 (9 observa studies)	Nº of participants	Certainty of the evidence	nty of Relative idence effect E) (95% CI)	Anticipated absolute effects <sup>*</sup> (95% CI)			
		(studies) Follow-up	(GRADE)		Risk with Medical Treatment	Risk difference with Cholecystectomy	Overall 80% moderate, 20% small Cholecystitis only 80% large, 20%	
		31616	ational ) $\bigoplus_{\text{Very low}^{a,b}}$	OR 0.87 (0.36 to 2.10)	Study population		moderate	
		(9 observational studies)			377 per 1,000	<b>32 fewer per</b> <b>1,000</b> (198 fewer to 183 more)	Preterm birth, c-section noted to be especially important in this vote.	
	C-Section -	6390	$\oplus \oplus \bigcirc \bigcirc$	OR 0.19	Study population			
	cnolecystitis (1 Lc only observational study)	Low	0.23)	249 per 1,000	<b>190 fewer per</b> <b>1,000</b> (199 fewer to 178 fewer)			
	Delivery	180	$\oplus \cap \cap \cap$	OR 0.60	Study popul	ation		

during admission	(3 observational studies)	Very low <sup>a,b</sup>	(0.22 to 1.67)	226 per 1,000	<b>77 fewer per</b> <b>1,000</b> (165 fewer to 102 more)	
IUGR -	6390	$\oplus \oplus \bigcirc \bigcirc$	OR 0.21	Study popul	ation	
Cholecystitis only	ecystitis (1 observational study)		(0.12 to 0.37)	26 per 1,000	<b>21 fewer per</b> <b>1,000</b> (23 fewer to 16 fewer)	
Neonatal	227	000	OR 0.94	Study popul	ation	
death	(3 observational studies)	Very low <sup>a,b</sup>	(0.04 to 20.73)	14 per 1,000	<b>1 fewer per</b> <b>1,000</b> (14 fewer to 216 more)	
NICU	120	⊕000	OR 0.20	Study popul	ation	
	(2 observational studies)	Very low <sup>a,b</sup>	(0.02 to 1.74)	182 per 1,000	<b>139 fewer per</b> <b>1,000</b> (177 fewer to 97 more)	
Pre-	6390	$\Theta \Theta O O$	OR 0.56	Study popul	ation	
Cholecystitis only	(1 observational study)	Low	(0.48 to 0.66)	153 per 1,000	<b>61 fewer per</b> <b>1,000</b> (73 fewer to 46 fewer)	
Pregnancy	gnancy 6756 (7 observational studies)	000	OR 0.70	Study population		
Ioss - all		Very low <sup>a,b</sup>	(0.39 to 1.25)	9 per 1,000	<b>3 fewer per</b> <b>1,000</b> (6 fewer to 2 more)	
Preg loss -	6390	⊕⊖⊖⊖ Very low <sup>b</sup>	<b>OR 0.61</b> (0.33 to 1.13)	Study population		
all - Cholecystitis only	(1 stitis observational study)			9 per 1,000	<b>4 fewer per</b> <b>1,000</b> (6 fewer to 1 more)	
Preterm -	6390	$\Theta \Theta O O$	OR 0.35	Study popul	ation	
Cholecystitis only	(1 observational study)	Low	(0.27 to 0.44)	101 per 1,000	<b>63 fewer per</b> <b>1,000</b> (71 fewer to 54 fewer)	
Readmit	31446	000	OR 0.39	Study population		
	(/ observational studies)	Very low <sup>a</sup>	(0.15 to 0.98)	70 per 1,000	<b>42 fewer per</b> <b>1,000</b> (59 fewer to 1 fewer)	
Readmit -	6390	$\oplus \oplus \bigcirc \bigcirc$	OR 0.52	Study population		
only	observational study)	Low	(0.45 to 0.61)	187 per 1,000	<b>80 fewer per</b> <b>1,000</b> (93 fewer to 64 fewer)	
a. So the on b. Thu rel c. Thu	me of the inc overall effec the Newcastl ere was a wic evant thresho ere was serio	luded studies tt size were d e-Ottawa sca le range of ef olds. us inconsiste	which controls which controls which controls are as which controls are as which are	ontributed b be at a h b comparat t crosses s een some	significantly to igh risk of bias pility. several clinically of the included	

studies, with non-overlapping confidence intervals. **Undesirable Effects** How substantial are the undesirable anticipated effects? JUDGEMENT **RESEARCH EVIDENCE** ADDITIONAL CONSIDERATIONS O Large Moderate Overall 100% small o Small Cholecystitis only 100% small Outcomes Nº of Certainty of Relative Anticipated absolute effects\* O Trivial participants the evidence effect (95% CI) o Varies (GRADE) (95% (studies) o Don't know **Risk with Risk difference** Follow-up CI) Medical with Treatment Cholecystectomy Bile leak 23301 OR 1.06 Study population  $\oplus OOO$ (0.17 to (6 Very low<sup>a,b</sup> 1 more per 1,000 13 per observational 6.53) 1,000 (11 fewer to 66 studies) more) IUGR 6587 OR 1.28 Study population  $\oplus \bigcirc \bigcirc \bigcirc \bigcirc$ (4 (0.12 to Very low<sup>a,b,c</sup> 7 more per 1,000 26 per observational 13.29) 1,000 (23 fewer to 239 studies) more) 29447 Pre-OR 1.94 Study population  $\oplus OOO$ (0.47 to eclampsia (4 Very low<sup>a,c</sup> 30 per 26 more per observational 8.04) 1,000 1,000 studies) (16 fewer to 168 more) Study population Pregnancy 340 OR 2.30  $\oplus OOO$ loss - <20 (4 (0.33 to  $Very \ low^{a,b}$ 9 per 11 more per observational 16.18) 1,000 1,000 studies) (6 fewer to 118 more) Pregnancy 287 OR 3.87 Study population  $\oplus O O O$ loss - >20 (4 (0.39 to Very low<sup>a,b</sup> 15 more per 5 per observational 38.66) studies) 1,000 1,000 (3 fewer to 167 more) Preterm 39108 OR 1.77 Study population  $\oplus OOO$ (10 (0.73 to Very low<sup>a,b,c</sup> observational 4.30) 89 per 58 more per 1,000 1.000 studies) (22 fewer to 207 more) 7677 OR 1.66 Study population Sepsis  $\oplus OOO$ (3 (1.11 to Very low<sup>a,b</sup> 18 per 11 more per observational 2.47) 1,000 1,000 studies) (2 more to 25 more) 6390 OR 1.83 Sepsis -Study population  $\oplus \oplus \bigcirc \bigcirc$ (1.32 to Cholecystitis (1 Low 17 per 14 more per only observational 2.55) 1,000 1,000 study) (5 more to 26 more)

a. Some of the included studies which contributed significantly to

	<ul> <li>the overall effect size were deemed to be at a high risk of bias on the Newcastle-Ottawa scale due to comparability.</li> <li>b. There was a wide range of effects that crosses several clinically relevant thresholds.</li> <li>c. There was serious inconsistency between some of the included studies, with non-overlapping confidence intervals.</li> </ul>	
Certainty of evider What is the overall certainty of	<b>1CE</b> f the evidence of effects?	
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
o Very low o Low o Moderate o High o No included studies		Overall 100% very low Cholecystitis only 100% low
Values Is there important uncertainty	about or variability in how much people value the main outcomes?	
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul> <li>Important uncertainty or variability</li> <li>Possibly important uncertainty or variability</li> <li>Probably no important uncertainty or variability</li> <li>No important uncertainty or variability</li> </ul>		Overall 100% Probably no important uncertainty or variability Cholecystitis only 100% Probably no important uncertainty or variability
Balance of effects Does the balance between des	irable and undesirable effects favor the intervention or the comparison?	
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
<ul> <li>o Favors the comparison</li> <li>o Probably favors the comparison</li> <li>o Does not favor either the intervention or the comparison</li> <li>o Probably favors the intervention</li> <li>o Favors the intervention</li> <li>o Varies</li> <li>o Don't know</li> </ul>		Overall 100% Probably favors the intervention Cholecystitis only 80% Favors the intervention, 20% probably favors the intervention
Acceptability Is the intervention acceptable	to key stakeholders?	
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
⊙ No ⊙ Probably no ⊙ Probably yes		Overall 100% probably yes Cholecystitis only 100% probably yes

o Yes o Varies o Don't know		
Feasibility Is the intervention feasible to in	mplement?	
JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
o No o Probably no o Probably yes o Yes o Varies o Don't know		Overall 100% Yes Cholecystitis only 100% yes

### SUMMARY OF JUDGEMENTS

	JUDGEMENT								
PROBLEM	No	Probably no	Probably yes	Yes		Varies	Don't know		
DESIRABLE EFFECTS	Trivial	Small	Moderate	Large		Varies	Don't know		
UNDESIRABLE EFFECTS	Large	Moderate	Small	Trivial		Varies	Don't know		
CERTAINTY OF EVIDENCE	Very low	Low	Moderate	High			No included studies		
VALUES	Important uncertainty or variability	Possibly important uncertainty or variability	Probably no important uncertainty or variability	No important uncertainty or variability					
BALANCE OF EFFECTS	Favors the comparison	Probably favors the comparison	Does not favor either the intervention or the comparison	Probably favors the intervention	Favors the intervention	Varies	Don't know		
ACCEPTABILITY	No	Probably no	Probably yes	Yes		Varies	Don't know		
FEASIBILITY	No	Probably no	Probably yes	Yes		Varies	Don't know		

# **TYPE OF RECOMMENDATION**

Strong recommendation against the intervention	Conditional recommendation against the intervention	Conditional recommendation for either the intervention or the comparison	Conditional recommendation for the intervention	Strong recommendation for the intervention
0	0	0	•	0

# CONCLUSIONS

#### Recommendation

Overall and cholecystitis only – conditional recommendation for the intervention.

### Subgroup considerations

 $\mathbf{3}^{rd}$  trimester medical treatment may have a role in patients with biliary colic.

Implementation considerations

Monitoring and evaluation

**Research priorities** 

Impact of trimester on maternal/fetal outcomes.

Underlying disease severity (sepsis) and how intervention changes outcomes.