1 Appendix H: Data analysis

H.1 Review question 1: Signs, symptoms and risk factors for 3 gallstone disease

4 Insufficient information was available for data analysis.

H.2 Review question 2: Diagnosing gallstone disease

+LR Spec -LR Sens Log (95% (95% (95% (95% Likelihoo AUC CI) CI) CI) CI) d AIC BIC US 1.00 0.14 1.16 0.01 0.87 26.32 -42.64 -43.68 1 study (0.00, (1.00, (0.11, (1.13, 1.00) 0.17) 1.20) 0.02) Ahmed

2 **Results for diagnosing gallbladder stones**

3

4 Results for diagnosing cholecystitis

	Sens (95% Cl)	Spec (95% Cl)	+LR (95% Cl)	-LR (95% Cl)	AUC	Log Likeliho od	AIC	BIC
MRCP 1 study Hakanss on	0.89 (0.70, 0.96)	0.89 (0.50, 0.99)	13.10 (1.72, 56.70)	0.16 (0.04, 0.40)	0.88	4.60	0.81	-5.73
US 3 studies De Vargas, Hakanss on, Park	0.71 (0.28, 0.94)	0.88 (0.64, 0.97)	6.37 (2.07, 16.50)	0.36 (0.08, 0.79)	0.89	5.95	-1.91	-2.95
MRI 1 study Altun	0.95 (0.71, 0.99)	0.69 (0.41, 0.88)	3.41 (1.51, 7.74)	0.12 (0.01, 0.46)	0.94	4.55	0.91	-5.62
CT 1 study De Vargas	0.95 (0.53, 1.00)	0.88 (0.27, 0.99)	20.80 (1.18, 124.00)	0.14 (0.00, 0.70)	0.94	5.26	-0.52	-7.05

H.3 Results for diagnosing common bile duct stones

	Sens (95%Cl)	Spec (95%Cl)	+LR (95%Cl)	-LR (95%Cl)	AUC	Log Likelihoo d	AIC	BIC
MRCP 8 studies Chan, Regan, Soto	0.83 (0.72, 0.91)	0.90 (0.83, 0.95)	9.15 (4.64, 16.60)	0.19 (0.10, 0.32)	0.64	16.27	-22.54	-18.68

	Sens	Spec	+LR	-LR		Log Likelihoo		
(2002), Griffin, Kondo, Stiris, Sugiya ms (1998)	(95%Cl)	(95%CI)	(95%CI)	(95%Cl)	AUC	d	AIC	BIC
US 5 studies Regan, Riskes, Sugiya ma (1997), Sugiya ma (1998) Jovanov ic (2011)	0.70 (0.52, 0.83)	0.88 (0.63, 0.97)	9.80 (5.39, 16.60)	0.41 (0.32, 0.50)	0.83	9.56	-9.12	-7.61
EUS 3 studies Kondo, Polkows ki, Sugiya ma (1997)	0.94 (0.87, 0.97)	0.94 (0.41, 1.00)	51.70 (1.62, 321.00)	0.08 (0.03, 0.16)	0.95	11.32	-12.65	-13.69
CTC 4 studies Kondo, Soto (2000) Stoto (1999), Polkows ki	0.82 (0.67, 0.91)	0.84 (0.72, 0.92)	5.42 (2.78, 9.92)	0.23 (0.11, 0.40)	0.18	8.91	-7.81	-7.41
CT 3 studies Sugiya ma (1997), Tseng, Soto (2000)	0.76 (0.69, 0.81)	0.90 (0.66, 0.97)	9.32 (2.32, 28.30)	0.28 (0.22, 0.36)	0.79	7.38	-4.76	-5.80

H.4 Review question 3: Predicting which people with 2 asymptomatic gallbladder stones will develop 3 complications

4 Insufficient information was available for data analysis

H.5 Review question 4a: Managing asymptomatic gallbladder 2 stones

3 No evidence was identified for this review question

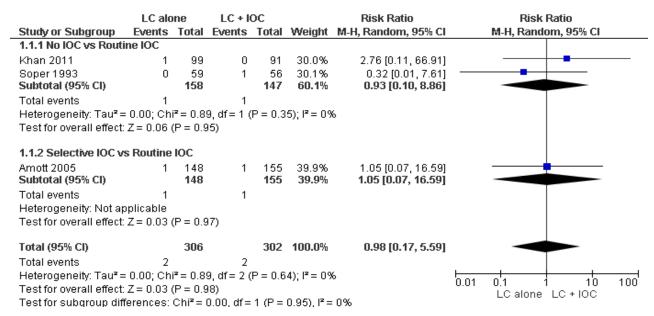
H.6 Review question 4b Managing symptomatic gallbladder 2 stones

H.631 Laparoscopic cholecystectomy vs Laparoscopic cholecystectomy plus 4 intraoperative cholangiography

5 Outcome 1: Bile leak

- 6 One study (Soper, 1993) reports that both groups had zero bile duct injuries. Unable to
- 7 analyse zero event data.

8 Outcome 2: Bile duct injury



10 Outcome 3: Length of stay

9

11 One study (Soper 1993) reports that both groups had a mean length of stay of 1 day. No

12 measures of dispersion are reported.

1 Outcome 4: Missed common bile duct stones

	LC alo	ne	LC + I	C		Risk Ratio		Risk Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% Cl		M-H, Random, 95% Cl	
1.2.1 No IOC vs Routin	ne IOC								
Khan 2011	0	99	0	91		Not estimable			
Soper 1993	0	59	1	56	16.5%	0.32 [0.01, 7.61]			
Subtotal (95% CI)		158		147	16.5%	0.32 [0.01, 7.61]			
Total events	0		1						
Heterogeneity: Not ap	plicable								
Test for overall effect: .	Z=0.71 (P = 0.4	18)						
1.2.2 Selective IOC vs	Routine	юс							
Amott 2005	3	148	5	155	83.5%	0.63 [0.15, 2.58]			
Subtotal (95% CI)		148		155	83.5%	0.63 [0.15, 2.58]			
Total events	3		5						
Heterogeneity: Not ap	plicable								
Test for overall effect:	Z=0.64 (P = 0.5	52)						
Total (95% CI)		306		302	100.0%	0.56 [0.15, 2.04]			
Total events	3		6						
Heterogeneity: Tau ² =	0.00; Chi	² = 0.19	5, df = 1 (P = 0.7	0); I ^z = 09	6	0.01		100
Test for overall effect:	Z = 0.88 (P = 0.3	38)				0.01	LC alone LC + IOC	100
Test for subgroup diffe	erences:	Chi ² = I	0.15, df=	1 (P =	0.70), l ² =	: 0%		LO alone LO + IOC	

H.632 Laparoscopic cholecystectomy compared to cholecystostomy

4 No evidence was found

2

7

H.653 Laparoscopic cholecystectomy compared to conservative management

6 Outcome 1: Disease progression

	LC		Conserva	ative		Risk Ratio	Risk Ratio			
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% Cl	M-H, Random, 95% Cl			
3.1.1 Non-complicate	ed gallbla	dder st	ones							
Vetrhus et al Subtotal (95% Cl)	1	68 68	3	69 69	22.1% 22.1 %	0.34 [0.04, 3.17] 0.34 [0.04, 3.17]				
Total events	1		3							
Heterogeneity: Not ap	oplicable									
Test for overall effect	: Z = 0.95 (P = 0.3	(4)							
3.1.2 Complicated ga	allbladder	stones	;							
Vetrhus et al	3	31	10	33	77.9%	0.32 [0.10, 1.05]				
Subtotal (95% Cl)		31		33	77.9%	0.32 [0.10, 1.05]	-			
Total events	3		10							
Heterogeneity: Not ap	oplicable									
Test for overall effect	Z = 1.87 ((P = 0.0	16)							
Total (95% Cl)		99		102	100.0%	0.32 [0.11, 0.93]	•			
Total events	4		13							
Heterogeneity: Tau ² =	= 0.00; Chi	z = 0.0), df = 1 (P	= 0.96)); I ^z = 0%					
Test for overall effect	Z = 2.10 ((P = 0.0	(4)				Favours LC Favours Conserva			
Test for subgroup differences: Chi ² = 0.00, df = 1 (P = 0.96), I ² = 0%										

8 Outcome 2: Aditional intervention required (cholecystectomy)

9 45/102 (44.1%) in the conservative management group required cholecystectomy

10 Outcome 3: Readmission (due to biliary pain)

	LC		Conserva	tive		Risk Ratio		Risk Ratio	
Study or Subgroup		Total	Events	Total	Weight	M-H, Random, 95% Cl		M-H, Random, 95 ^o	% CI
3.3.1 Non-complicate	ed gallbla	dder st	ones			, ,			
Vetrhus et al Subtotal (95% Cl)	2	68 68	15	69 69	49.7% 49.7%	0.14 [0.03, 0.57] 0.14 [0.03, 0.57]		-	
Total events	2		15						
Heterogeneity: Not ap	plicable								
Test for overall effect:	Z= 2.73	(P = 0.0	106)						
3.3.2 Complicated ga	llbladder	stones	\$						
Vetrhus et al	3	31	4	33	50.3%	0.80 [0.19, 3.28]			
Subtotal (95% CI)		31		33	50.3%	0.80 [0.19, 3.28]			
Total events	3		4						
Heterogeneity: Not ap	plicable								
Test for overall effect:	Z = 0.31 ((P = 0.7	'6)						
Total (95% CI)		99		102	100.0%	0.33 [0.06, 1.97]			
Total events	5		19						
Heterogeneity: Tau ² =	1.13; Ch	i ^z = 3.10	3, df = 1 (P	= 0.08)); I ^z = 68%	, 0	L 0.01		10 100
Test for overall effect:	Z=1.22	(P = 0.2	2)				0.01	Favours LC Favou	10 100
Test for subgroup diff	erences:	Chi r = :	2.98, df = 1	(P = 0	.08), I ² = 6	66.4%			

2 Outcome 4: Length of stay

3 Not reported

1

4 Outcome 5: Mortality

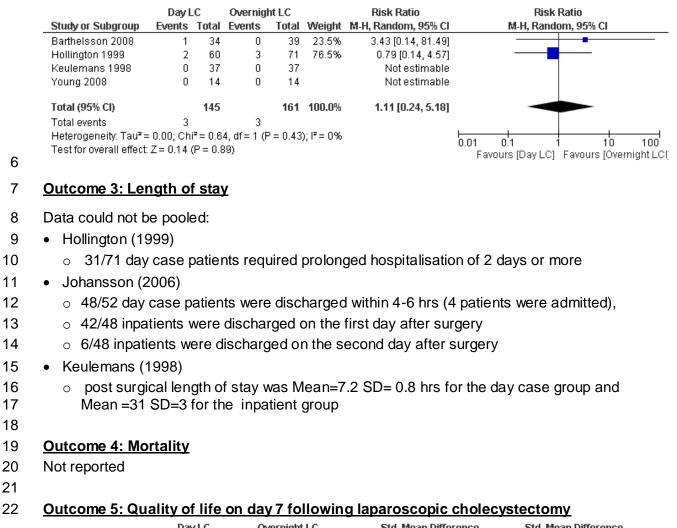
	LC		Conserva	ative		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% Cl	M-H, Random, 95% Cl
3.4.1 Non-complicate	ed gallblad	lder st	ones				
Vetrhus et al Subtotal (95% CI)	4	68 68	4	69 69	65.5% 65.5 %	1.01 [0.26, 3.89] 1.01 [0.26, 3.89]	
Total events	4		4				
Heterogeneity: Not ap	plicable						
Test for overall effect:	Z=0.02 (P = 0.9	18)				
3.4.2 Complicated ga	allbladder	stones	\$				
Vetrhus et al	4	31	0	33	34.5%	9.56 [0.54, 170.62]	
Subtotal (95% Cl)		31		33	34.5%	9.56 [0.54, 170.62]	
Total events	4		0				
Heterogeneity: Not ap	oplicable						
Test for overall effect:	Z=1.54 (P = 0.1	2)				
Total (95% CI)		99		102	100.0%	2.20 [0.25, 19.39]	-
Total events	8		4				
Heterogeneity: Tau ² =	: 1.41; Chi	² = 2.07	7, df = 1 (P	= 0.15); I^z = 52%		
Test for overall effect:	Z=0.71 (P = 0.4	8)				0.002 0.1 1 10 500 Favours LC Favours Conserva
Test for subgroup diff	ferences: (Chi ^z = 1	1.91, df = 1	(P = 0	17), I ² = 4	7.7%	

H.614 Day case laparoscopic cholecystectomy compared to planned inpatient 2 laparoscopic cholecystectomy

3 Outcome 1: Failed day case discharge

4 18/149 (12.1%) of patients in the day case arm had an unplanned inpatient admission.

5 Outcome 2: Readmission following laparoscopic cholecystectomy



	D	ayLC		Over	night l	LC		Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% Cl	IV, Random, 95% Cl
Barthelsson 2008	31.59	4.8	34	30.74	4.4	39	33.1%	0.18 [-0.28, 0.64]	
Johansson 2006	98.2	15.9	52	102.6	18.1	48	34.3%	-0.26 [-0.65, 0.14]	
Keulemans 1998	58	2	37	56	2	37	32.6%	0.99 [0.51, 1.47]	-
Total (95% CI)			123			124	100.0%	0.29 [-0.42, 1.01]	•
leterogeneity: Tau² = 0.34; Chi² = 15.36, df = 2 (P = 0.0005); I² = 87%									
Test for overall effect	Z = 0.81	(P = 0).42)						Favours Day Favours Overnight



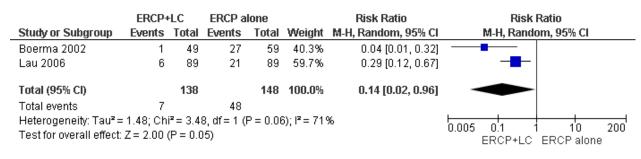
H.7 Review question 4c Managing common bile duct stones

H.721 ERCP + Laparoscopic cholecystectomy compared to ERCP alone

3 Outcome 1: Quality of life

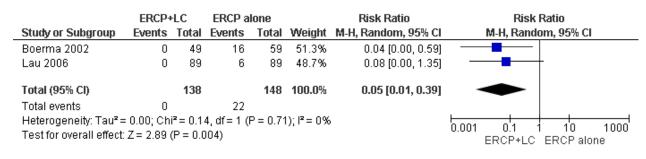
4 Not reported

5 Outcome 2: Disease recurrence/progression



6

7 Outcome 3: Additional intervention required (ERCP)



8

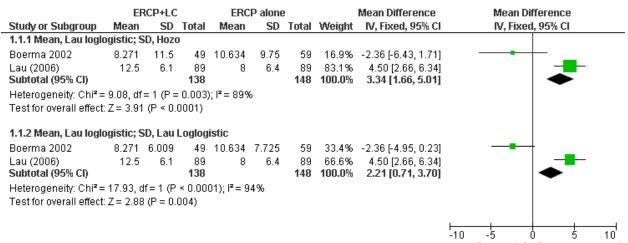
9 Outcome 4: Additional intervention required (cholecystectomy)

10 38/148 (25.7%) of people receiving ERCP alon required cholecystectomy

11 Outcome 5: Mortality

	ERCP+	LC	ERCP a	lone		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% Cl	M-H, Random, 95% Cl
Boerma 2002	0	49	0	52		Not estimable	
Lau 2006	11	89	19	89	100.0%	0.58 [0.29, 1.15]	
Total (95% CI)		138		141	100.0%	0.58 [0.29, 1.15]	•
Total events	11		19				
Heterogeneity: Not ap	plicable					Ļ	
Test for overall effect:	Z=1.57	(P = 0.1	2)			L	0.01 0.1 1 10 100 ERCP+LC ERCPalone

1 <u>Outcome 6: Length of stay, with sensitivity analysis for methods for calculating Mean</u> 2 and Standard Deviation (Lau Loglogistic with Hozo SD used in final analysis)



Favours LC Favours conservativ

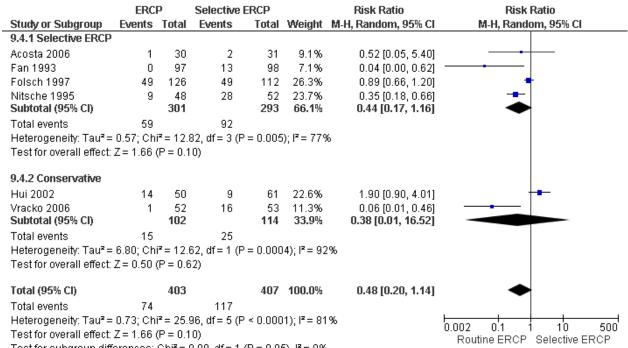
H.742 ERCP compared to conservative management

5 Outcome 1: Mortality

	ERCI	Р	Selective E	RCP		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% Cl	M-H, Random, 95% Cl
9.1.1 Selective ERCP							
Acosta 2006	0	30	0	31		Not estimable	
Fan 1993	5	97	9	98	29.7%	0.56 [0.20, 1.61]	
Folsch 1997	14	126	7	112	41.0%	1.78 [0.74, 4.25]	_ _
Nitsche 1995	1	50	1	61	5.0%	1.22 [0.08, 19.02]	
Subtotal (95% CI)		303		302	75.6%	1.08 [0.47, 2.47]	•
Total events	20		17				
Heterogeneity: Tau ² =	0.15; Chi	* = 2.73	8, df = 2 (P =	0.26); P	²=27%		
Test for overall effect: 2	Z = 0.18 ((P = 0.8	5)				
9.1.2 Conservative							
Hui 2002	1	50	1	61	5.0%	1.22 [0.08, 19.02]	
Neoptolemos 1998	1	59	5	62	8.2%	0.21 [0.03, 1.75]	
Oria 2007	3	51	1	52	7.5%	3.06 [0.33, 28.45]	
Vracko 2006	0	52	1	53	3.7%	0.34 [0.01, 8.15]	
Subtotal (95% CI)		212		228	24.4%	0.73 [0.20, 2.69]	
Total events	5		8				
Heterogeneity: Tau ² =	0.15; Chi	= 3.28	3, df = 3 (P =	0.35); P	≃ =9%		
Test for overall effect: 2	Z = 0.47 ((P = 0.6	4)				
Total (95% CI)		515		530	100.0%	1.00 [0.54, 1.86]	•
Total events	25		25				
Heterogeneity: Tau² =	0.05: Chi	² = 6.38	3. df = 6 (P =	0.38); F	² =6%		
Test for overall effect: J				-71			0.01 0.1 1 10 100
Test for subgroup diffe		•		P = 0.62	2), I2 = 0%)	Favours [ERCP] Favours [Selective ERC

6 7

1 Outcome 2: Disease progression



2 Test for subgroup differences: Chi² = 0.00, df = 1 (P = 0.95), l² = 0%

3

4 Outcome 3: Additional intervention required (ERCP)

	ERCI	D	Selective E	RCP		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% Cl	M-H, Random, 95% Cl
9.2.1 Selective ERCP							
Acosta 2006	0	30	3	31	15.8%	0.15 [0.01, 2.74]	
Fan 1993	0	97	27	98	17.5%	0.02 [0.00, 0.30]	_
Folsch 1997	0	126	22	112	17.4%	0.02 [0.00, 0.32]	
Nitsche 1995	0	48	10	52	17.1%	0.05 [0.00, 0.86]	
Subtotal (95% Cl)		301		293	67.8%	0.04 [0.01, 0.16]	◆
Total events	0		62				
Heterogeneity: Tau ² =	0.00; Chi	² = 1.46	6, df = 3 (P =	0.69); F	²=0%		
Test for overall effect: .	Z = 4.48 (P < 0.0	0001)				
9.2.2 Conservative							
Neoptolemos 1998	0	59	14	62	17.3%	0.04 [0.00, 0.59]	-
Oria 2007	0	51	2	52	14.9%	0.20 [0.01, 4.14]	
Subtotal (95% CI)		110		114	32.2%	0.08 [0.01, 0.63]	
Total events	0		16				
Heterogeneity: Tau ² =	0.00; Chi	² = 0.75	5, df = 1 (P =	0.39); P	²=0%		
Test for overall effect:	Z = 2.41 (P = 0.0	2)				
Total (95% CI)		411		407	100.0%	0.05 [0.02, 0.16]	•
Total events	0		78				
Heterogeneity: Tau ² =	0.00; Chi	² = 2.58	3, df = 5 (P =	0.76); F	²=0%		
Test for overall effect: J	Z = 5.06 (P < 0.0	0001)				0.001 0.1 1 10 1000
Test for subgroup diffe	· · · · ·			P = 0.57	7), I ^z = 0%		Favours ERCP Favours Selective ERC

Outcome 4: Additional intervention required (cholecystectomy) 1

	ERCI	р	Selective I	RCP		Odds Ratio	Odds Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% Cl	M-H, Random, 95% Cl
9.3.1 Selective ERCP							
Acosta 2006	22	30	22	31	28.9%	1.13 [0.37, 3.45]	
Subtotal (95% Cl)		30		31	28.9%	1.13 [0.37, 3.45]	•
Total events	22		22				
Heterogeneity: Not ap	plicable						
Test for overall effect: .	Z=0.21 ((P = 0.8	(4)				
9.3.2 Conservative							
Oria 2007	45	51	47	52	25.1%	0.80 [0.23, 2.80]	_
Vracko 2006	38	52	28	53	39.9%	2.42 [1.07, 5.48]	
Zhou 2002	0	20	3	25	6.1%	0.16 [0.01, 3.22]	-
Subtotal (95% Cl)		123		130	71.1%	1.12 [0.33, 3.78]	
Total events	83		78				
Heterogeneity: Tau ² =	0.61; Chi	² = 4.4	3, df = 2 (P =	: 0.11); I	²= 55%		
Test for overall effect:)	Z = 0.18 ((P = 0.8	6)				
Total (95% Cl)		153		161	100.0%	1.24 [0.57, 2.72]	+
Total events	105		100				
Heterogeneity: Tau ² =	0.23; Chi	² = 4.71), df = 3 (P =	: 0.20); l	²=36%		0.002 0.1 1 10 50
Test for overall effect: .	Z = 0.54 ((P = 0.5	9)			r	Favours [experimental] Favours [control]
Test for subgroup diffe	erences:	Chi ^z = I	0.00, df = 1 (P = 0.9	9), I ž = 0%)	avours [experimental] Favours [control]

3 Outcome 6: Length of stay

	E	RCP		Cons	servativ	е		Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Fixed, 95% Cl	IV, Fixed, 95% Cl
2.1.1 Published mea	in and SI)							
Acosta 2006	0	0	0	0	0	0		Not estimable	
Hui 2002	8.1	3	50	9.1	3.2	61	97.7%	-1.00 [-2.16, 0.16]	
Zhou 2002	10.92	4.1	20	16.044	18.77	25	2.3%	-5.12 [-12.70, 2.45]	<
Subtotal (95% CI)			70			86	100.0%	-1.09 [-2.24, 0.05]	◆
Heterogeneity: Chi ² =	= 1.11, df	= 1 (P = 0.29	9); i² = 10	1%				
Test for overall effect	: Z = 1.88	3 (P =	0.06)						
									-10 -5 0 5 10
Testfer subgroup dif	æ			- - -					Favours ERCP Favours Conservativ

4 5 Test for subgroup differences: Not applicable

H.713 Biliary stent compared to cleared duct

2 Outcome 1: Mortality

	Ster	nt	Cleared	duct		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% Cl	M-H, Fixed, 95% Cl
Chopra 1996	4	43	2	43	100.0%	2.00 [0.39, 10.35]	
Total (95% CI)		43		43	100.0%	2.00 [0.39, 10.35]	
Total events	4		2				
Heterogeneity: Not ap	oplicable						
Test for overall effect:	Z = 0.83	(P = 0.4	41)				Favours Stent Favours Cleared duc

3

4 Outcome 2: Disease progression

	Sten	ıt	Cleared	duct		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% Cl	M-H, Fixed, 95% Cl
Chopra 1996	10	43	8	43	100.0%	1.25 [0.55, 2.86]	
Total (95% CI)		43		43	100.0%	1.25 [0.55, 2.86]	•
Total events	10		8				
Heterogeneity: Not ap	oplicable						0.01 0.1 1 10 100
Test for overall effect:	Z= 0.53	(P = 0.6	60)				Favours Stent Favours Cleared duc

5

6 Outcome 3: Additional intervention required (ERCP)

	Sten	ıt	Cleared	duct		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% Cl	M-H, Fixed, 95% Cl
Chopra 1996	13	39	33	43	100.0%	0.43 [0.27, 0.70]	
Total (95% Cl)		39		43	100.0%	0.43 [0.27, 0.70]	•
Total events	13		33				
Heterogeneity: Not ap	oplicable						
Test for overall effect:	Z= 3.45	(P = 0.0	0006)				Favours Stent Favours Cleared duc

7

8 Outcomes 4: Additional intervention required (cholecystectomy)

	Sten	ıt	Cleared	duct		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% Cl	M-H, Fixed, 95% Cl
Chopra 1996	5	39	3	43	100.0%	1.84 [0.47, 7.19]	
Total (95% CI)		39		43	100.0%	1.84 [0.47, 7.19]	
Total events	5		3				
Heterogeneity: Not ap	oplicable						
Test for overall effect:	Z= 0.87 ((P = 0.3	38)				Favours Stent Favours Cleared duc

9

10 Outcome 5: Length of stay

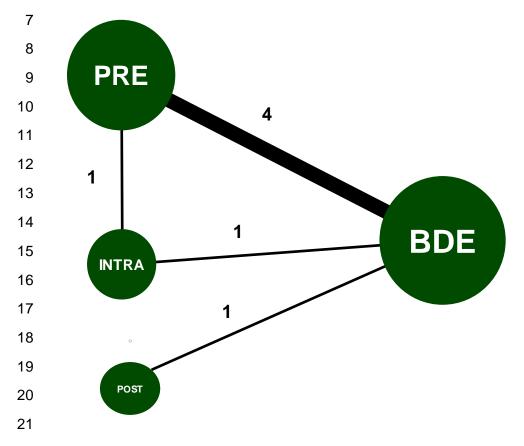
11 Not reported

H.714 Day case ERCP compared to planned inpatient ERCP

2 No evidence found

H.735 ERCP with laparoscopic cholecystectomy compared to bile duct exploration 4 with laparoscopic cholecystectomy

- 5 Outcome 1: Length of stay
- 6 Length of stay evidence network



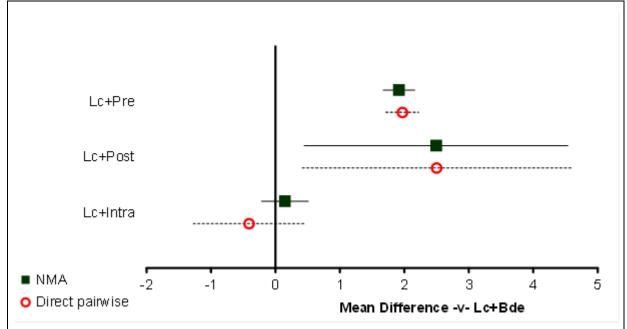
22 Length of stay – input data

	Lc+Bde	Lc+Intra	Lc+Post	Lc+Pre
ElGeidie, A.A. et al. (2011)		1.30 (0.50)		3.00 (1.50)
Bansal, V.K. et al. (2010)	4.20 (1.50)			4.00 (2.25)
Rogers,S.J. et al. (2010)	5.30 (3.20)			6.60 (4.00)
Noble,H. et al. (2009)	5.00 (1.25)			3.00 (1.25)
Hong,D.F. et al. (2006)	4.66 (3.07)	4.25 (3.46)		
Cuschieri, A. et al. (1999)	7.09 (1.30)			10.63 (1.42)
Rhodes, M. et al. (1998)	1.00 (6.25)		3.50 (2.50)	

1	Length of stay – relative effectiveness of all pairwise combinations
---	--

Length of Stay Telative e				
	Lc	Lc	Lc	Lc
	+Bde	+Intra	+Post	+Pre
Lc		-0.41	2.50	1.97
+Bde		(-1.28, 0.46)	(0.41, 4.59)	(1.71, 2.22)
Lc +Intra	0.15 (-0.22, 0.51)		-	1.70 (1.39, 2.01)
Lc +Post	2.50 (0.44, 4.54)	2.35 (0.28, 4.42)		-
Lc	1.92	1.77	-0.58	
+Pre	(1.67, 2.16)	(1.48, 2.07)	(-2.64, 1.50)	

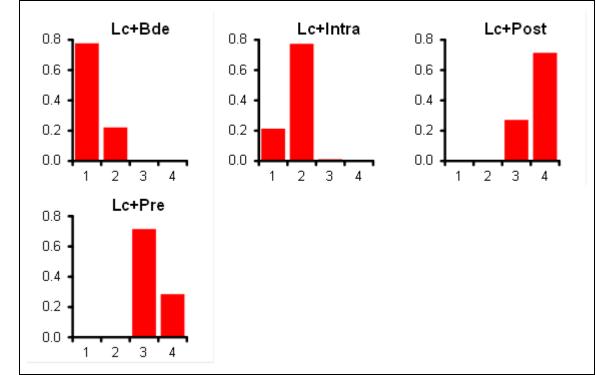
2 Length of stay – relative effect of all options versus LC+BDE



3	Length of stay – rankings for each comparator
---	---

	1 0	
	Probability best	Median rank (95%CI)
Lc+Bde	0.777	1 (1, 2)
Lc+Intra	0.214	2 (1, 2)
Lc+Post	0.008	4 (3, 4)
Lc+Pre	0.000	3 (3, 4)



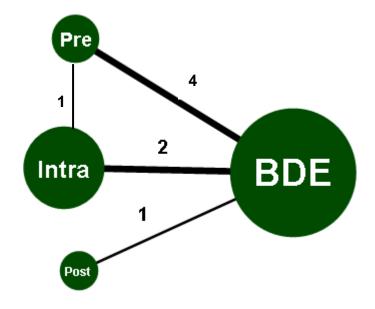


2 Length of stay – model fit statistics

Residual deviance	Dbar	Dhat	рD	DIC	
351.5 (compared to 14 datapoints)	339.385	329.396	9.989	349.374	

1 Outcome 2: Missed common bile duct stones

2 Missed CBDS - evidence network



3

4 Table 1: Missed CBDS – input data

	Lc+Bde	Lc+Intra	Lc+Post	Lc+Pre
Ding,G. et al. (2014)	2/97			9/95
ElGeidie,A.A. et al. (2011)	4/112	0/111		
ElGeidie, A.A. et al. (2011)		0/90		0/100
Noble,H. et al. (2009)	1/44			7/36
Koc,B. et al. (2013)	2/57			3/54
Hong,D.F. et al. (2006)	3/141	1/93		
Nathanson, L.K. et al. (2005)	1/41		2/45	
Sgourakis, G. & (2002)	1/36			1/42

5

6

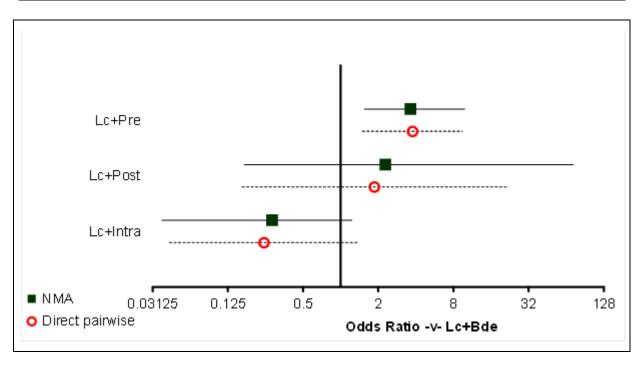
7 Table 2: Missed CBDS – relative effectiveness of all pairwise combinations

	Lc	Lc	Lc	Lc
	+Bde	+Intra	+Post	+Pre
Lc		0.24	1.86	3.76
+Bde		(0.04, 1.38)	(0.16, 21.32)	(1.49, 9.44)
	0.28 (0.04, 1.23)		-	0.90 (0.02, 45.85)

Internal Clinical Guidelines, 2014

	Lc	Lc	Lc	Lc
	+Bde	+Intra	+Post	+Pre
Lc +Post	2.28 (0.17, 72.80)	8.88 (0.41, 429.40)		-
Lc	3.64	13.20	1.59	
+Pre	(1.54, 9.86)	(2.43, 117.40)	(0.04, 25.28)	

1

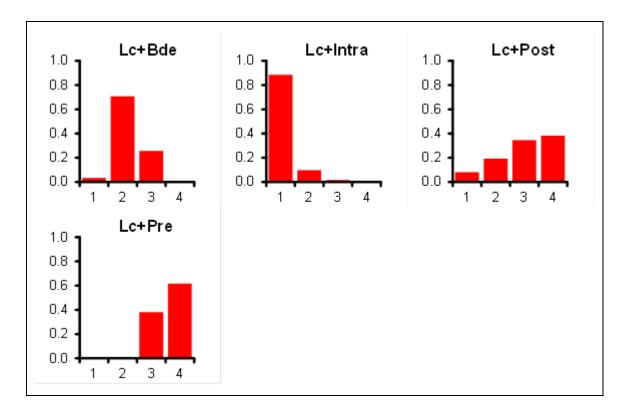


2 Figure 1: Missed CBDS – relative effect of all options versus common comparator

3

4 Table 3: Missed CBDS – rankings for each comparator

	Probability best	Median rank (95%CI)
Lc+Bde	0.035	2 (1, 3)
Lc+Intra	0.885	1 (1, 2)
Lc+Post	0.080	3 (1, 4)
Lc+Pre	0.000	4 (3, 4)



1 Figure 2: Missed CBDS – rank probability histograms

2

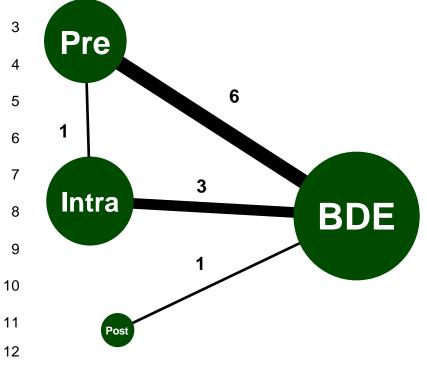
3 Table 4: Missed CBDS – model fit statistics

Residual deviance	Dbar	Dhat	рD	DIC	
16.82	55.579	45.066	10 512	66.002	
(compared to 16 datapoints)	55.579	45.000	10.515	00.092	

4

1 Outcome 3: Failed procedure





13 Table 5: Failed procedure – input data

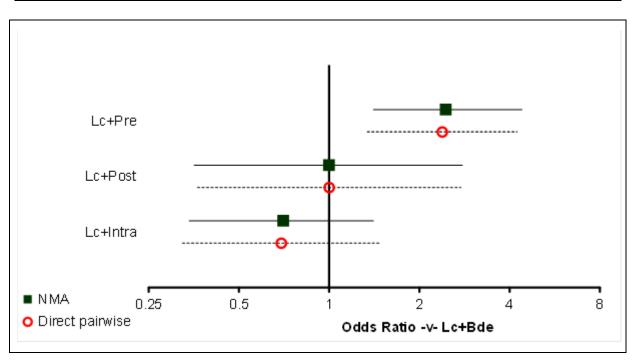
	Lc+Bde	Lc+Intra	Lc+Post	Lc+Pre
Ding,G. et al. (2014)	7/110			6/111
ElGeidie, A.A. et al. (2011)	6/115	3/111		
ElGeidie, A.A. et al. (2011)		2/98		5/93
Bansal, V.K. et al. (2010)	1/15			4/15
Rogers,S.J. et al. (2010)	2/57			1/55
Noble,H. et al. (2009)	0/44			14/47
Koc,B. et al. (2013)	2/57			3/54
Hong,D.F. et al. (2006)	15/141	8/93		
Sgourakis, G. & (2002)	4/28			5/32
Cuschieri, A. et al. (1999)	1/133			7/136
Rhodes, M. et al. (1998)	10/40		10/40	

14

1 Table 6: Failed procedure – relative effectiveness of all pairwise combinations

	Lc	Lc	Lc	Lc
	+Bde	+Intra	+Post	+Pre
	<u>۲</u> ۲			
Lc		0.69	1.00	2.38
+Bde		(0.32, 1.48)	(0.36, 2.75)	(1.34, 4.24)
Lc +Intra	0.70 (0.34, 1.41)		-	2.73 (0.52, 14.42)
Lc +Post	1.00 (0.35, 2.79)	1.42 (0.41, 4.94)		-
Lc	2.45	3.49	2.45	
+Pre	(1.40, 4.40)	(1.53, 8.44)	(0.77, 8.06)	

2

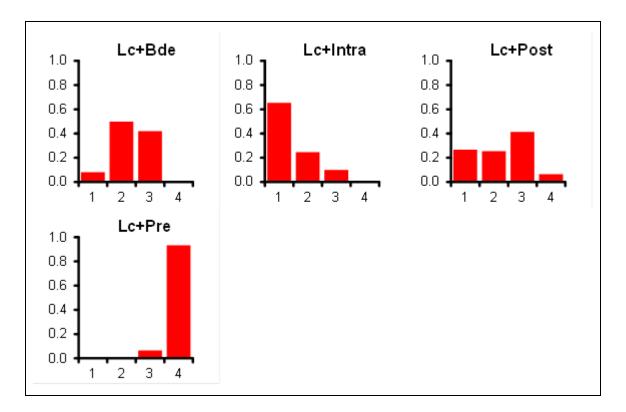


3 Figure 3: Failed procedure – relative effect of all options versus common comparator

4

5 **Table 7:** Failed procedure – rankings for each comparator

	I allea procedare	Tannange for each comp
	Probability best	Median rank (95%Cl)
Lc+Bde	0.081	2 (1, 3)
Lc+Intra	0.654	1 (1, 3)
Lc+Post	0.266	2 (1, 4)
Lc+Pre	0.000	4 (3, 4)



1 Figure 4: Failed procedure – rank probability histograms

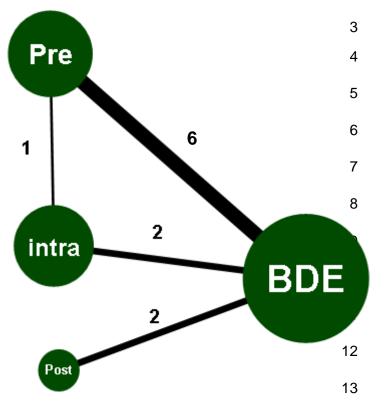
2

3 Table 8: Failed procedure – model fit statistics

Residual deviance	Dbar	Dhat	рD	DIC	
33.91 (compared to 22 datapoints)	101.152	87.251	13.901	115.052	

1 Outcome 4: Conversion to open surgery

2 Conversion to open surgery - evidence network



	Lc+Bde	Lc+Intra	Lc+Post	Lc+Pre
Ding,G. et al. (2014)	3/110			1/111
ElGeidie, A.A. et al. (2011)	7/115	4/111		
ElGeidie, A.A. et al. (2011)		2/91		2/85
Bansal, V.K. et al. (2010)	1/15			2/15
Noble,H. et al. (2009)	4/44			2/47
Koc,B. et al. (2013)	0/57			1/54
Hong,D.F. et al. (2006)	15/141	8/93		
Nathanson, L.K. et al. (2005)	1/41		1/45	
Sgourakis,G. & (2002)	1/36			5/42
Cuschieri, A. et al. (1999)	17/133			8/133
Rhodes, M. et al. (1998)	1/40		0/40	

14 **Table 9: Conversion to open surgery – input data**

15

1 Table 10: Conversion to open surgery – relative effectiveness of all pairwise 2 combinations

	Lc +Bde	Lc +Intra	Lc +Post	Lc +Pre
Lc +Bde				0.70 (0.38, 1.28)
Lc +Intra	0.70 (0.33, 1.39)		-	1.07 (0.15, 7.79)
Lc +Post		0.54 (0.02, 7.96)		-
Lc +Pre	0.69 (0.38, 1.25)	0.99 (0.41, 2.44)	1.87 (0.13, 66.73)	

3

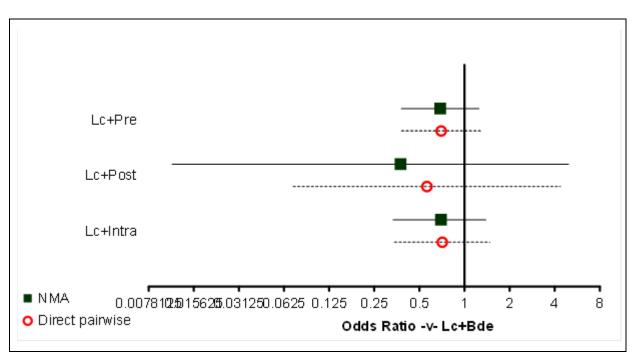
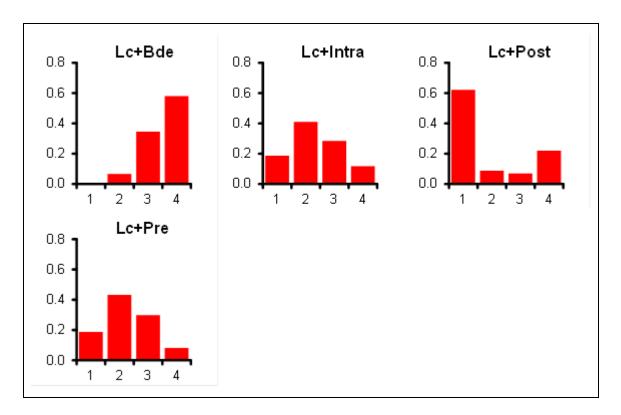


Figure 5: Conversion to open surgery – relative effect of all options versus common comparator

6

7 <u>Table 11: Conversion to open surgery – rankings for each comparator</u>

	Probability best	Median rank (95%Cl)
Lc+Bde	0.005	4 (2, 4)
Lc+Intra	0.187	2 (1, 4)
Lc+Post	0.621	1 (1, 4)
Lc+Pre	0.188	2 (1, 4)



1 Figure 6: Conversion to open surgery – rank probability histograms

2

3 Table 12: Conversion to open surgery – model fit statistics

Residual deviance	Dbar	Dhat	рD	DIC	
24.54	81.746	68.4	13.345	95.091	
(compared to 22 datapoints)					

4

5

1 Outcome 5: More than 1 ERCP required to clear bile duct

- Pre operative ERCP- Bansal 2/15, Cuscheri 7/150 = 5% overall 2
- Intra operative ERCP- not reported 3
- Post operative ERCP- Nathanson 11/45, Rhodes 7/40 = 21% overall 4
- 5

6 **Outcome 6: Mortality**

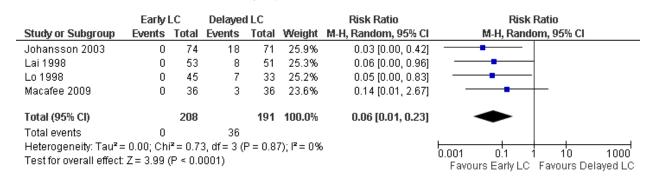
	Preop E		BDE			Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% Cl	M-H, Random, 95% Cl
11.2.1 Preop ERCP v	s BDE						
Cuschieri 1999	2	136	5	133	41.7%	0.39 [0.08, 1.98]	
Noble 2009	2	47	5	44	43.6%	0.37 [0.08, 1.83]	
Sgourakis 2002 Subtotal (95% CI)	1	42 225	1	36 213	14.7% 100.0 %	0.86 [0.06, 13.22] 0.43 [0.15, 1.23]	•
Total events	5		11				
Heterogeneity: Tau ² =	0.00; Chi ^a	²= 0.29	, df = 2 (P	= 0.87); I ^z = 0%		
Test for overall effect:	Z=1.58 (P = 0.12	2)				
11.2.2 Intraop ERCP	/s BDE						
ElGeidie 2011a Subtotal (95% Cl)	0	111 111	0	115 115		Not estimable Not estimable	
Total events	0		0				
Heterogeneity: Not ap	plicable						
Test for overall effect:	Not applic	able					
11.2.3 Pre op ERCP v	s Intra op	ERCP					
ElGeidie 2011b	0	100	0	98		Not estimable	
Subtotal (95% CI)		100		98		Not estimable	
Total events	0		0				
Heterogeneity: Not ap	plicable						
Test for overall effect:	Not applic	able					
11.2.4 Intra op ERCP	vs BDE						
Hong 2006	0	93	0	141		Not estimable	
Subtotal (95% CI)		93		141		Not estimable	
Total events	0		0				
Heterogeneity: Not ap	plicable						
Test for overall effect:	Not applic	able					
Total (95% CI)		529		567	100.0%	0.43 [0.15, 1.23]	-
Total events	5		11				
Heterogeneity: Tau ² =	0.00; Chi	²= 0.29	, df = 2 (P	= 0.87); I ² = 0%		
Test for overall effect:							Ö.01 O.1 İ 1O 1O avours Prelop ERCP Favours BDE
Test for subaroup diff	erences: N	Jot ann	licable			FC	WOULD LIE OF LANDUIS DDE

- 7 8
- 9

H.8 Review question 5 Timing of intervention

H.821 Early laparoscopic cholecystectomy compared to delayed laparoscopic 3 cholecystectomy for acute cholecystitis.

4 Outcome 1: Readmission due to symptoms



6 Outcome 2: Readmission due to surgical complications

7 Not reported

5

8 Outcome 3: Length of stay, with sensitivity analysis for methods for calculating Mean 9 and Standard Deviation (Lau Loglogistic with Hozo SD used in final analysis)

	Early			Delayed				Mean Difference	Mean Difference	
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Fixed, 95% CI	IV, Fixed, 95% Cl	
3.1.1 Mean, Lau Logi	logistic; {	SD Hoz)							
Johansson 2003	5.908	10	74	9.452	11.5	69	3.0%	-3.54 [-7.09, -0.00]		
Kolla 2004	4.1	4.5	20	7.23	1.63	20	8.5%	-3.13 [-5.23, -1.03]	_ -	
Lai 1998	7.6	3.6	53	11.6	3.4	51	20.7%	-4.00 [-5.35, -2.65]		
Lo 1998	7.089	3.5	45	12.997	7	41	6.6%	-5.91 [-8.28, -3.53]	_	
Macafee 2009	7.089	4.5	36	7.089	3.75	36	10.2%	0.00 [-1.91, 1.91]	-+	
Yadav 2009 Subtotal (95% CI)	4.33	1.46	25 253	7.23	1.63	25 242	50.9% 100.0%	-2.90 [-3.76, -2.04] - 3.07 [-3.68, -2.46]	-	
Heterogeneity: Chi ² =	- 17 44 4	f = 5 /D		(\\ IZ = 74	o/.		1001010	0.01 [0.000, 2.110]	•	
	•				70					
Test for overall effect	Z = 9.83	(F < 0.	00001)							
3.1.2 Mean, Lau Logi	logistic, S	SD Logi	ogistic							
Johansson 2003	5.908	4.292	74	9.452	6.867	69	11.3%	-3.54 [-5.44, -1.65]		
Johansson 2003 Kolla 2004	5.908 0	4.292 0	74 0	9.452 0	6.867 0	69 0	11.3%	-3.54 [-5.44, -1.65] Not estimable		
							11.3% 22.4%	Not estimable	+	
Kolla 2004 Lai 1998	0	0	0	0	0 3.4	0		Not estimable -4.00 [-5.35, -2.65]		
Kolla 2004 Lai 1998 Lo 1998	0 7.6	0 3.6	0 53	0 11.6	0 3.4	0 51	22.4%	Not estimable -4.00 [-5.35, -2.65]		
Kolla 2004	0 7.6 7.089	0 3.6 5.15	0 53 45	0 11.6 12.997	0 3.4 9.442	0 51 41	22.4% 3.8%	Not estimable -4.00 [-5.35, -2.65] -5.91 [-9.17, -2.65] 0.00 [-2.38, 2.38]		
Kolla 2004 Lai 1998 Lo 1998 Macafee 2009	0 7.6 7.089 7.089	0 3.6 5.15 5.15	0 53 45 36	0 11.6 12.997 7.089	0 3.4 9.442 5.15	0 51 41 36	22.4% 3.8% 7.2% 55.2%	Not estimable -4.00 [-5.35, -2.65] -5.91 [-9.17, -2.65] 0.00 [-2.38, 2.38]	 *	
Kolla 2004 Lai 1998 Lo 1998 Macafee 2009 Yadav 2009	0 7.6 7.089 7.089 4.33	0 3.6 5.15 5.15 1.46	0 53 45 36 25 233	0 11.6 12.997 7.089 7.23	0 3.4 9.442 5.15 1.63	0 51 41 36 25	22.4% 3.8% 7.2% 55.2%	Not estimable -4.00 [-5.35, -2.65] -5.91 [-9.17, -2.65] 0.00 [-2.38, 2.38] -2.90 [-3.76, -2.04]	 *	
Kolla 2004 Lai 1998 Lo 1998 Macafee 2009 Yadav 2009 Subtotal (95% Cl)	0 7.6 7.089 7.089 4.33 = 11.51, d	0 3.6 5.15 5.15 1.46 f = 4 (P	0 53 45 36 25 233 = 0.02)	0 11.6 12.997 7.089 7.23 ç i² = 659	0 3.4 9.442 5.15 1.63	0 51 41 36 25	22.4% 3.8% 7.2% 55.2%	Not estimable -4.00 [-5.35, -2.65] -5.91 [-9.17, -2.65] 0.00 [-2.38, 2.38] -2.90 [-3.76, -2.04]	 *	
Kolla 2004 Lai 1998 Lo 1998 Macafee 2009 Yadav 2009 Subtotal (95% CI) Heterogeneity: Chi ² =	0 7.6 7.089 7.089 4.33 = 11.51, d	0 3.6 5.15 5.15 1.46 f = 4 (P	0 53 45 36 25 233 = 0.02)	0 11.6 12.997 7.089 7.23 ç i² = 659	0 3.4 9.442 5.15 1.63	0 51 41 36 25	22.4% 3.8% 7.2% 55.2%	Not estimable -4.00 [-5.35, -2.65] -5.91 [-9.17, -2.65] 0.00 [-2.38, 2.38] -2.90 [-3.76, -2.04]		

11 Outcome 4: Mortality

12 This outcome was reported by all four included studies, but no deaths were observed in any

13 arm in any study.

	Early	LC	Delayed	1LC		Risk Ratio	Risk F	Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% Cl	M-H, Rando	m, 95% Cl
Johansson 2003	0	74	0	71		Not estimable		
Kolla 2004	0	20	0	20		Not estimable		
Lai 1998	0	53	0	51		Not estimable		
Lo 1998	0	45	0	41		Not estimable		
Total (95% CI)		192		183		Not estimable		
Total events	0		0					
Heterogeneity: Not ap	oplicable							
Test for overall effect:	Not appli	cable					0.01 0.1	Favours delayed

Outcome 5: Quality of life

1	
2	
3	

Early				elayed			Mean Difference			
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Fixed, 95% Cl	IV, Fixed, 95% Cl	
6.4.1 1 hour										
Gul 2013	2.2	0.847	30	1.63	0.556	30	100.0%	0.57 [0.21, 0.93]		
Subtotal (95% Cl)			30			30	100.0%	0.57 [0.21, 0.93]	•	
Heterogeneity: Not ap	plicable									
Test for overall effect:	Z = 3.08	8 (P = 0.	002)							
6.4.2 12 hours										
									_	
Gul 2013 Subtotol (05%, CI)	- 7.1	1.863	30 30	3.93	1.048	30 30	100.0% 100.0 %	3.17 [2.41, 3.93]		
Subtotal (95% CI)			30			30	100.0%	3.17 [2.41, 3.93]	-	
Heterogeneity: Not ap	•									
Test for overall effect:	Z = 8.12	2 (P < U.	00001)							
6.4.3 24 hours										
Gul 2013	2.83	0.834	30	2.5	0.861	30	100.0%	0.33 [-0.10, 0.76]		
Subtotal (95% CI)			30			30	100.0%	0.33 [-0.10, 0.76]	•	
Heterogeneity: Not ap	plicable	•								
Test for overall effect:	Z = 1.51	(P = 0.	13)							
6 4 4 40 hours										
6.4.4 48 hours										
Gul 2013 Subtotol (05%, CI)	1.71	0.488	30 30	1.52	0.574			0.19 [-0.08, 0.46]	—	
Subtotal (95% CI)			30			30	100.0%	0.19 [-0.08, 0.46]	T	
Heterogeneity: Not ap	•									
Test for overall effect:	Z = 1.38	3 (P = 0.	17)							
									-4 -2 0 2 4	
Tact for subgroup diff	foroncoc	- Chiž –	60.60	df = 2.4		004\ 12	- 04 204		Favours Early Favours Delay	
Test for subgroup diff	erences	. Chinina	52.63,	$u_1 = 3(1)$	- ~ 0.00	001), F	- 94.3%			

H.852 Early compared to delayed laparoscopic cholecystectomy after ERCP for 6 common bile duct stones.

- 7 Outcome 1: Readmission due to symptoms
- 8 Not reported

4

- 9 Outcome 2: Readmission due to surgical complications
- 10 Not reported

11 Outcome 3: Length of stay, with sensitivity analysis for methods for calculating Mean

12 and Standard Deviation (Lau Loglogistic with Hozo SD used in final analysis)

		Early		D	elayed			Mean Difference	Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight IV, Fixed, 95% CI		IV, Fixed, 95% Cl
4.1.1 Mean, Lau logic	ogistic; S	D, Hoza)						
Reinders 2010 Subtotal (95% CI)	5.908	4.5	47 47	5.908	4	47 47	100.0%	0.00 [-1.72, 1.72] 0.00 [-1.72, 1.72]	1
Heterogeneity: Not a	oplicable						1001011	0.00[Ť
Test for overall effect:	Z = 0.00	(P = 1.	00)						
4.1.2 Mean Lau Logi	ogistic; S	SD logio	gistic						
Reinders 2010 Subtotal (95% CI)	5.908	4.292	47 47	5.908	4.292	47 47	100.0% 100.0 %	0.00 [-1.74, 1.74] 0.00 [-1.74, 1.74]	-
Heterogeneity: Not ap	oplicable								Ī
Test for overall effect:	Z = 0.00	(P = 1.)	00)						
Test for subgroup dif	ferences	: Chi ≧ =	0.00 d	f = 1/P	= 1.00)	$I^2 = 0.9$	6		Favours Early Favours Delaye

1 Test for subgroup differences: 2 Outcome 4: Mortality

3 This outcome was reported but zero events happened in both arms.

4 Outcome 5: Quality of life

5 Not reported

H.9 Review question 6 Patient information

- 2 Themes
- 3 Diet

4

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21

- 83% said they received no post-operative dietary advice, yet many were able to state foods that were best avoided. (Blay, 2006)
- 6 o 13% requested additional information on diet (Blay, 2006)
- 7 o 4/23 patients requested additional information on diet (Blay, 2005)
- 8 Pain
 - o 7/23 patients requested more information on pain management (Blay, 2005)
- 10 Wounds
 - Respondents had many questions about how their wounds should be cared for and how the wounds should normally look (Barthelsson, 2003)
- 13 o 5/23 patients requested more information about wounds (Blay, 2005)
- 14 Resuming activity
- 65% of patients had not been told about how long it would take to resume normal
 activities. (Blay, 2006)
- 17 o 2/23 patients requested additional information on activity (Blay, 2005)
- 18 o 6% of patients requested additional information on post operative activity (Blay 2006)
- Waiting for elective surgery
 - Some patients resign themselves to the wait, whereas others attempt to speed up treatment, look for information on the disease or treatment alternatives, or seek reassurance from relatives or care providers. (Hilkhuysen, 2005)
- 23 General information
- 0 14% said they received no information from PAC nurse (Blay, 2006)
- Several respondents had no memory of the information given by the surgeon on
 discharge from hospital (Barthelsson, 2003)
- Patients were not given definitive advice on how long they should expect to be in hospital. (Blay, 2006)
- Patient's knowledge of the disease and its natural course was considered to be
 important, as sufficient knowledge would prevent patients from restricting themselves
 unnecessarily, or experiencing unreasonable distress. (Hilkhuysen, 2005)
- Patients requested additional information on diet, self care after discharge, general
 preoperative information, postoperative activity, pain management, medical
 terminology. (Blay, 2006)
- Patients requested additional information on general information, wounds, pain
 management, dietary advice, bowel management, nausea and vomiting, activity,
 medications. (Blay, 2005)
- 38 o 31% of patients with internet access used it to acquire additional information about
 39 their operations and 58% used internet search engines to acquire additional
 40 information (Tamahankar, 2009)
- Of the people who searched the internet regarding their operations, 79% rated the
 information they found as good or very good. 23% were confused or worried about by
 the information they received (Tamahankar, 2009)
- 44 o 31% of people who received routine information would have liked extra information,
- 45 36% of people who received routine information plus an information sheet would have

liked extra information- study doesn't state what information they wanted to receive.
 (King, 2004)