

## Appendix 2 Search Strategies

Cochrane Library via Wiley 17 August 2016 (CDSR, DARE, HTA)

Title: surgical treatment of biliary colic or cholecystitis (systematic reviews)

Search terms	Items found
<b>Population: persons with biliary colic or cholecystitis</b>	
1. [mh Cholecystitis]	228
2. [mh Gallstones]	295
3. [mh "Biliary Tract Diseases"] AND [mh Colic]	44
4. Gallstone* or 'biliary colic' or cholecystitis or 'gallbladder disease' or 'gallbladder diseases' or 'gallbladder stone disease' or "gallbladder stone diseases" or (gallbladder and (empyema or inflam*)):ti,ab,kw	2248
5. <b>1 OR 2 OR 3 OR 4</b>	
<b>Intervention: cholecystectomy/ laparoscopy</b>	
6. [mh cholecystectomy]	1836
7. [mh Gallstones] explode all trees and with qualifier(s): [Surgery - SU]	172
8. [mh Gallbladder] explode all trees and with qualifier(s): [Surgery - SU]	27
9. [mh Laparoscopy]	5657
10. Cholecystecto* or colecystecto* or ((excis* or remov*) and gallbladder) or Laparoscop* or endoscop*:ti,ab,kw	26788
11. <b>6 OR 7 OR 8 OR 9 OR 10</b>	
<b>Combined sets</b>	
12. <b>5 AND 11</b>	<b>CDSR/155 DARE/66 HTA/8</b>

The search result, usually found at the end of the documentation, forms the list of abstracts.

[AU] = Author

[MAJR] = MeSH Major Topic

[MeSH] = Term from the Medline controlled vocabulary, including terms found below this term in the MeSH hierarchy

[MeSH:NoExp] = Does not include terms found below this term in the MeSH hierarchy

Systematic[SB] = Filter for retrieving systematic reviews

[TI] = Title

[TIAB] = Title or abstract

[TW] = Text Word

\* = Truncation

“ “ = Citation Marks; searches for an exact phrase

CDSR = Cochrane Database of Systematic Review  
CENTRAL = Cochrane Central Register of Controlled Trials, “trials”  
CRM = Method Studies  
DARE = Database Abstracts of Reviews of Effects, “other reviews”  
EED = Economic Evaluations  
HTA = Health Technology Assessments

## Cochrane Library via Wiley 12 April 2016 (CENTRAL &amp; EED)

## Title: operation or observation for patients with cholecystitis or biliary colic

Search terms	Items found
<b>Population: patients with cholecystitis or biliary colic</b>	
1. MeSH descriptor: [Cholecystitis] explode all trees OR (MeSH descriptor: [Gallbladder Diseases] explode all trees AND MeSH descriptor: [Colic] explode all trees) OR MeSH descriptor: [Gallstones] explode all trees	510
2. (cholecystitis OR "gallstone colic" OR "biliary colic" OR Gallstones OR "gallbladder disease" OR "gallbladder stone disease" OR "Gall Stone" OR "gall stones" OR "Biliary Calculi"):ti	599
3. <b>1 OR 2</b>	<b>931</b>
<b>Control: cholecystectomy</b>	
4. MeSH descriptor: [Cholecystectomy] explode all trees OR MeSH descriptor: [Gallstones] explode all trees and with qualifier(s): [Surgery - SU] OR MeSH descriptor: [Gallbladder] explode all trees and with qualifier(s): [Surgery - SU]	1909
5. (Cholecystecto* OR colecystecto* OR ((excis* OR remov*) AND gallbladder) OR Operation OR Surgery)	148011
6. <b>4 OR 5</b>	<i>148011</i>
<b>Intervention: watchful waiting</b>	
7. MeSH descriptor: [Watchful Waiting] explode all trees OR MeSH descriptor: [Time Factors] explode all trees OR MeSH descriptor: [Time-to-Treatment] explode all trees OR MeSH descriptor: [Observation] explode all trees	56348
8. (Conservative OR observation OR Wait* OR Timing OR Time):ti OR ("expectant management" OR "expectative management" OR "operation or observation" OR "conservative treatment" OR "conservative strategy" OR "non-operative management" OR "Watchful Waiting"):ti,ab,kw	24680
9. <b>7 OR 8</b>	77792
<b>Combined sets</b>	
10. <b>3 AND 6 AND 9 AND Publication Year from 1990</b>	<b>Central/ 85 EED/12</b>

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HTA = Health Technology Assessments

**Cochrane Library via Wiley 12 April 2016 (CENTRAL & EED)**  
**Title: laparoscopic vs open surgery for acute cholecystitis**

Search terms		Items found
<b>Population: patients with acute cholecystitis</b>		
1.	MeSH descriptor: [Cholecystitis] explode all trees	228
2.	Cholecystitis:ti,ab,kw	643
3.	<b>1 OR 2</b>	<b>643</b>
<b>Intervention: laparoscopic cholecystectomy</b>		
4.	MeSH descriptor: [Cholecystectomy, Laparoscopic] this term only OR MeSH descriptor: [Laparoscopy] explode all trees	5661
5.	(Laparoscopic OR endoscopic OR laparoendoscopic):ti,ab,kw	17757
6.	<b>4 OR 5</b>	<b>18562</b>
<b>Control: open surgery</b>		
7.	MeSH descriptor: [Cholecystectomy] this term only	764
8.	((open OR 'small incision' OR conventional OR traditional OR 'mini-incision' OR 'kocher incision') NEAR/2 (cholecystectomy OR surgery OR laparotomy)):ti,ab,kw	3467
9.	<b>7 OR 8</b>	<b>4056</b>
<b>Combined sets</b>		
10.	<b>3 AND 6 AND 9</b>	<b>92</b>
11.	<b>10 AND Publication Year from 1990 to 2016</b>	<b>Central/ 74 EED/7</b>

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EED = Economic Evaluations

HTA = Health Technology Assessments

**CRD Database, limited to DARE 9 September 2016**  
**Title: surgical treatment of biliary colic or cholecystitis**

Search terms	Items found
<b>Population: persons with biliary colic or cholecystitis</b>	
1. "Cholecystitis"[Mesh] OR "Gallstones"[Mesh]	82
2. Gallstone* OR "biliary colic" OR "cholecystitis" OR "gallbladder disease" OR "gallbladder stone disease"	188
3. <b>1 OR 2</b>	<b>208</b>
4. <b>3 Limited to 2015</b>	<b>1</b>

The search result, usually found at the end of the documentation, forms the list of abstracts.

**Embase via Elsevier 17 August 2016****Title: surgical treatment of biliary colic or cholecystitis (systematic reviews)**

Search terms	Items found
<b>Population: persons with biliary colic or cholecystitis</b>	
1. 'cholecystitis'/exp OR 'biliary colic'/de OR ('biliary tract disease'/exp AND 'colic'/exp) OR 'gallstone'/de	37,078
2. Gallstone*:ti OR 'biliary colic':ti OR cholecystitis:ti OR 'gallbladder disease':ti OR 'gallbladder diseases':ti OR 'gallbladder stone disease':ti OR "gallbladder stone diseases":ti OR (gallbladder:ti AND (empyema:ti OR inflam*:ti))	17,082
3. <b>1 OR 2</b>	<b>42,060</b>
<b>Intervention: cholecystectomy/ laparoscopy</b>	
4. 'cholecystectomy'/exp OR 'biliary tract surgery'/exp OR 'gallstone'/exp/dm_su OR 'laparoscopy'/exp	176,293
5. Cholecystecto*:ti,ab OR colecystecto*:ti,ab OR ((excis*:ti OR remov*:ti) AND gallbladder:ti) OR Laparoscop*:ti,ab OR endoscop*:ti,ab	387,871
6. <b>4 OR 5</b>	<b>438,513</b>
<b>Combined sets</b>	
7. <i>3 AND 6</i>	<i>18,561</i>
8. <b>3 AND 6 AND ([cochrane review]/lim OR [systematic review]/lim OR [meta analysis]/lim)</b>	<b>222</b>

/de= Term from the EMTREE controlled vocabulary

/exp= Includes terms found below this term in the EMTREE hierarchy

/mj = Major Topic

:ab = Abstract

:au = Author

:ti = Article Title

:ti:ab = Title or abstract

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## Embase via Elsevier 12 April 2016

## Title: operation or observation for patients with cholecystitis or biliary colic

Search terms	Items found
<b>Population: patients with cholecystitis or biliary colic</b>	
1. 'cholecystitis'/de OR 'acalculous cholecystitis'/de OR 'acute cholecystitis'/de OR 'emphysematous cholecystitis'/de OR 'biliary colic'/de OR 'gallstone'/de	35,277
2. (cholecystitis OR "gallstone colic" OR "biliary colic" OR gallstone OR Gallstones OR "gallbladder disease" OR "gallbladder stone disease" OR "Gall Stone" OR "gall stones" OR "Biliary Calculi"):ti	17,268
3. <b>1 OR 2</b>	<b>40,712</b>
<b>Control: cholecystectomy</b>	
4. 'cholecystectomy'/de	41,006
5. (Cholecystecto* OR colecystecto* OR ((excis* OR remov*) AND gallbladder)):ti OR (Operation OR Surgery):ti,ab	1,444,967
6. <b>4 OR 5</b>	<b>1,462,145</b>
<b>Intervention: watchful waiting</b>	
7. 'conservative treatment'/de OR 'watchful waiting'/de OR 'observation'/de OR 'disease free interval'/de	72,397
8. (Conservative OR observation OR Wait* OR Timing OR Time OR non-operative OR expectant):ti OR ("expectant management" OR "expectative management" OR "expectant treatment" OR "operation or observation" OR "randomized to observation" OR "conservative treatment" OR "conservative strategy" OR "conservative management" OR "non-operative management" OR "nonoperative management" OR "Watchful Waiting" OR "wait-and-see"):ti,ab	340,950
9. <b>7 OR 8</b>	<b>388,158</b>
<b>Study type: randomised controlled trials and other trials or epidemiologic Studies</b>	
10. 'case control study'/exp OR 'clinical trial'/exp OR 'longitudinal study'/exp OR 'major clinical study'/exp OR 'prospective study'/exp OR 'retrospective study'/exp	3,804,826
<b>Combined sets</b>	
11. <b>3 AND 6 AND 9</b>	<b>847</b>
12. <b>3 AND 6 AND 9 AND 10</b>	<b>315</b>
13. <b>12 AND ([danish]/lim OR [english]/lim OR [norwegian]/lim OR [swedish]/lim) AND [embase]/lim AND [1990-2015]/py</b>	<b>257</b>

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**Embase via Elsevier 12 April 2016**  
**Title: laparoscopic vs open surgery for acute cholecystitis**

Search terms	Items found
<b>Population: patients with acute cholecystitis</b>	
1. 'cholecystitis'/de OR 'acute cholecystitis'/de OR 'emphysematous cholecystitis'/de	20,376
2. 'Acute Cholecystitis':ti OR (gallbladder:ti AND (empyema or inflam*):ti) OR cholecystitis:ti	8,109
3. <b>1 OR 2</b>	<b>21,263</b>
<b>Intervention: cholecystectomy</b>	
4. 'cholecystectomy'/de	41,006
5. Cholecystectomy:ti,ab	30,119
6. <i>4 OR 5</i>	<i>45,679</i>
<b>Intervention: laparoscopic cholecystectomy</b>	
7. 'laparoscopy'/exp	116,894
8. (Laparoscopic OR endoscopic OR laparoendoscopic):ti,ab	276,858
9. <i>7 OR 8</i>	<i>314,079</i>
<b>Control: open surgery</b>	
10. 'surgical technique'/de	294,590
11. Open:ti	71,389
12. ((open OR 'small incision' OR conventional OR traditional OR 'mini-incision' OR 'kocher incision') NEXT/2 (cholecystectomy OR surgery OR laparotomy)):ab,ti	42,103
13. <i>10 OR 11 OR 12</i>	<i>387,263</i>
<b>Study types</b>	
14. 'clinical trial'/exp OR 'randomized controlled trial'/de OR 'major clinical study'/de OR 'randomization'/de OR 'single blind procedure'/de OR 'double blind procedure'/de OR 'crossover procedure'/de OR 'placebo'/de OR 'prospective study'/de OR 'randomi?ed controlled' NEXT/1 trial* OR rct OR 'randomly allocated' OR 'allocated randomly' OR 'random allocation' OR allocated NEAR/2 random OR single NEXT/1 blind* OR double NEXT/1 blind* OR (treble OR triple) NEAR/1 blind* OR placebo*	3,768,800
<b>Combined sets</b>	
15. <b>3 AND 6 AND 9 AND 13 AND 14</b>	<b>551</b>
16. <b>15 AND [1990-2016]/py</b>	<b>551</b>

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## PubMed via NLM 17 August 2016

## Title: surgical treatment of biliary colic or cholecystitis (systematic reviews)

Search terms	Items found
<b>Population: persons with biliary colic or cholecystitis</b>	
1. "Cholecystitis"[Mesh] OR (Biliary Tract Diseases[MeSH] AND Colic[MeSH]) OR "Gallstones"[Mesh]	23592
2. Gallstone*[ti] OR biliary colic[ti] OR cholecystitis[ti] OR gallbladder disease*[ti] OR gallbladder stone disease*[ti] OR (gallbladder[ti] AND (empyema[ti] or inflam*[ti])) OR ((Gallstone*[tiab] OR biliary colic[tiab] OR cholecystitis[tiab] OR gallbladder disease*[tiab] OR gallbladder stone disease*[tiab] OR (gallbladder[tiab] AND (empyema[tiab] OR inflam*[tiab]))) NOT medline[SB])	15828
3. <b>1 OR 2</b>	<b>30226</b>
<b>Intervention: cholecystectomy/laparoscopy</b>	
4. Cholecystectomy[MeSH] OR Gallstones/surgery[MeSH] OR Gallbladder/surgery[MeSH] OR Laparoscopy[MeSH]	96039
5. Cholecystecto*[tiab] OR colecystecto*[tiab] OR ((excis*[tiab] OR remov*[tiab]) AND gallbladder[tiab]) OR Laparoscop*[tiab] OR endoscop*[tiab]	265022
6. <b>4 OR 5</b>	<b>283899</b>
<b>Combined sets</b>	
7. <b>3 AND 6</b>	<b>14016</b>
8. <b>3 AND 6 AND systematic[SB]</b>	<b>224</b>

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## PubMed via NLM 12 April 2016

## Title: operation or observation for patients with cholecystitis or biliary colic

Search terms	Items found
<b>Population: patients with cholecystitis or biliary colic</b>	
1. "Cholecystitis"[Mesh] OR ("Gallbladder Diseases"[Mesh] AND Colic[MeSH]) OR "Gallstones"[Mesh]	23086
2. cholecystitis[ti] OR gallstone colic[ti] OR biliary colic*[ti] OR Gallstones[ti] OR gallbladder disease[ti] OR gallbladder stone disease[ti] OR Gall Stone*[ti] OR Biliary Calculi[ti] OR ((cholecystitis[tiab] OR gallstone colic[tiab] OR biliary colic*[tiab] OR Gallstones[tiab] OR gallbladder disease[tiab] OR gallbladder stone disease[tiab] OR Gall Stone*[tiab] OR Biliary Calculi[tiab]) NOT medline[SB])	12549
3. <b>1 OR 2</b>	<b>27886</b>
<b>Control: Cholecystectomy</b>	
4. Cholecystectomy[MeSH] OR Gallstones/surgery[MeSH] OR Gallbladder/surgery[MeSH]	29083
5. Cholecystecto*[tiab] OR colecystecto*[tiab] OR ((excis*[tiab] OR remov*[tiab]) AND gallbladder[tiab]) OR Operation[tiab] OR Surgery[tiab]	1171181
6. <b>4 OR 5</b>	<i>1179890</i>
<b>Intervention: watchful waiting</b>	
7. "Watchful Waiting"[Mesh] OR Time Factors[MeSH] OR Time-to-Treatment[MeSH] OR "Observation"[Mesh]	1057820
8. Conservative[ti] OR observation[ti] OR Wait*[ti] OR Timing[ti] OR Time[ti] OR expectant management[tiab] OR expectative management[tiab] OR operation or observation[tiab] OR conservative treatment[tiab] OR conservative strategy[tiab] OR non-operative management[tiab] OR Watchful Waiting[tiab]	3195780
9. <b>7 OR 8</b>	<i>3988616</i>
<b>Study types: randomised controlled trials and other trials (filter: PubMed clinical queries, therapy, broad)<sup>1</sup> or epidemiologic Studies</b>	
10. ((clinical[Title/Abstract] AND trial[Title/Abstract]) OR clinical trials as topic[MeSH Terms] OR clinical trial[Publication Type] OR random*[Title/Abstract] OR random allocation[MeSH Terms] OR therapeutic use[MeSH Subheading]) OR "Epidemiologic Studies"[Mesh]	5731418
<b>Combined sets</b>	
11. <i>3 AND 6 AND 9</i>	<i>10724</i>
12. <i>3 AND 6 AND 9 AND 10</i>	<b>4760</b>
13. <b>12 AND Filters activated: Publication date from 1990/01/01</b>	<b>3778</b>

The search result, usually found at the end of the documentation, forms the list of abstracts.

<sup>1</sup> Haynes RB, McKibbin KA, Wilczynski NL, Walter SD, Werre SR, Hedges Team. Optimal search strategies for retrieving scientifically strong studies of treatment from Medline: analytical survey. *BMJ* 2005;330(7501):1179.

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PubMed via NLM 12 April 2016

Title: laparoscopic vs open surgery for acute cholecystitis

Search terms	Items found
<b>Population: patients with acute cholecystitis</b>	
1. "Cholecystitis"[Mesh]	13507
2. Acute Cholecystitis[ti] OR (gallbladder[ti] AND (empyema[ti] or inflam*[ti])) OR cholecystitis[ti] OR ((Acute Cholecystitis[tiab] OR (gallbladder[tiab] AND (empyema[tiab] or inflam*[tiab]))) OR cholecystitis[tiab] OR gallbladder disease[tiab] OR Gallstones[tiab]) NOT Medline[SB])	8282
3. <b>1 OR 2</b>	<b>15191</b>
<b>Intervention: laparoscopic cholecystectomy</b>	
4. Cholecystectomy, Laparoscopic[MeSH:NoExp] OR Laparoscopy[MeSH] OR Laparoscopic[tiab] OR endoscopic[tiab] OR laparoendoscopic[tiab]	207619
<b>Control: open surgery</b>	
5. Cholecystectomy[MeSH:NoExp] OR cholecystectomy[tiab] OR open surgery[tiab] OR Laparotomy[ti] OR Kocher incision[tiab] OR mini-incision[tiab] OR small incision cholecystectomy[tiab] OR classic cholecystectomy[tiab] OR open[tiab] OR conventional[tiab] OR traditional[tiab]	950467
<b>Study types: clinical trials (filter: Pubmed clinical queries, therapy, broad)</b>	
6. ((clinical[Title/Abstract] AND trial[Title/Abstract]) OR clinical trials as topic[MeSH Terms] OR clinical trial[Publication Type] OR random*[Title/Abstract] OR random allocation[MeSH Terms] OR therapeutic use[MeSH Subheading])	4546559
<b>Combined sets</b>	
7. <b>3 AND 4 AND 5</b>	<b>2096</b>
8. <b>6 AND 7</b>	<b>650</b>
9. <b>8 AND Filters activated: Publication date from 1990/01/01</b>	<b>643</b>

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