

## **Online Appendix 1 BTS Guideline for Pleural Disease**

### **Literature search strategies and PRISMA diagrams**

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## **Databases**

MEDLINE ALL

EMBASE

Cochrane Database of Systematic Reviews (CDSR)

Central Register of Controlled Trials (CENTRAL)

MEDLINE ALL and EMBASE via Ovid

CDSR and CENTRAL Section A and Section C via Ovid; Section B and Section D via Wiley

## Section A Spontaneous pneumothorax

### Records retrieved

Database	Records retrieved	Deduplicated records
MEDLINE ALL	3900	
EMBASE	6853	
CDSR	48	
CENTRAL	375	
<b>Total</b>	<b>111876</b>	<b>7770</b>

### Database search strategies

#### MEDLINE ALL

1       exp pneumothorax/  
2       pneumothor\$.ti,ab.  
3       (collaps\$ adj1 lung\$).ti,ab.  
4       or/1-3  
5       exp pleurodesis/  
6       pleurodesis.ti,ab.  
7       5 or 6  
8       observat\$.ti,ab.  
9       conservativ\$.ti,ab.  
10      ambula\$.ti,ab.  
11      electiv\$.ti,ab.  
12      exp thoracoscopy/  
13      exp Thoracic Surgery, Video-Assisted/  
14      exp thoracotomy/  
15      (thoracoscop\$ or pleuroscop\$ or (pleura\$ adj endoscop\$)).ti,ab.  
16      (((video-assisted or (video adj assisted)) adj thoracic\$ adj surger\$) or VATS).ti,ab.  
17      pleurectom\$.ti,ab.  
18      thoracotom\$.ti,ab.  
19      abras\$.ti,ab.  
20      or/12-19  
21      exp thoracentesis/  
22      (thoracentes\$ or aspiration\$).ti,ab.  
23      (intercost\$ adj2 drain\$).ti,ab.  
24      ((chest or surg\$) adj2 (drain\$ or tube\$)).ti,ab.  
25      abras\$.ti,ab.  
26      (aspirat\$ adj3 intercost\$).ti,ab.  
27      or/21-26  
28      talc.ti,ab.  
29      bullectomy.ti,ab.  
30      bulla\$.ti,ab.  
31      29 or 30  
32      (air\$ adj2 leak\$).ti,ab.  
33      exp bronchial fistula/  
34      (bronchi\$ adj2 fistul\$).ti,ab.  
35      valv\$.ti,ab.  
36      (blood\$ adj2 patch\$).ti,ab.

37 suction.ti,ab.  
38 or/32-37  
39 aspiration.ti,ab.  
40 (or/7-10) or 20 or 31 or 39  
41 27 or 35  
42 4 and 40 and 41  
43 (or/7-9) or 11 or 28 or 39  
44 20 or 31  
45 4 and 43 and 44  
46 (or/7-9) or 20 or 31 or 38  
47 4 and 27 and 46  
48 7 or 20 or 28  
49 4 and 31 and 48  
50 4 and 20  
51 42 or 45 or 47 or 49 or 50  
52 exp animals/ not humans/  
53 51 not 52  
54 limit 53 to english language

## EMBASE

1 exp pneumothorax/  
2 pneumothor\$.ti,ab.  
3 (collaps\$ adj1 lung\$).ti,ab.  
4 or/1-3  
5 exp pleurodesis/  
6 pleurodesis.ti,ab.  
7 5 or 6  
8 exp observation/  
9 conservativ\$.ti,ab.  
10 ambula\$.ti,ab.  
11 electiv\$.ti,ab.  
12 exp thoracoscopy/  
13 exp Thoracic Surgery, Video-Assisted/  
14 exp thoracotomy/  
15 (thoracoscop\$ or pleuroscop\$ or (pleura\$ adj endoscop\$)).ti,ab.  
16 (((video-assisted or (video adj assisted)) adj thoracic\$ adj surger\$) or VATS).ti,ab.  
17 exp pleurectomy/  
18 pleurectom\$.ti,ab.  
19 thoracotom\$.ti,ab.  
20 exp abrasion/  
21 abrasion\$.ti,ab.  
22 or/12-21  
23 exp thoracentesis/  
24 exp aspiration/  
25 thoracent\$.ti,ab.  
26 aspiration.ti,ab.  
27 (intercost\$ adj2 drain\$).ti,ab.  
28 ((chest or surg\$) adj2 (drain\$ or tube\$)).ti,ab.  
29 abrasion.ti,ab.  
30 (aspirat\$ adj3 intercost\$).ti,ab.  
31 or/23-30  
32 exp talc/  
33 talc.ti,ab.

34       bullectomy.ti,ab.  
35       (air\$ adj2 leak\$).ti,ab.  
36       exp bronchial fistula/  
37       (bronchi\$ adj2 fistul\$).ti,ab.  
38       exp valve/  
39       one-way valve.ti,ab.  
40       heimlich valve.ti,ab.  
41       exp blood patch/  
42       (blood\$ adj2 patch\$).ti,ab.  
43       exp suction/  
44       suction.ti,ab.  
45       or/35-44  
46       aspiration.ti,ab.  
47       (or/7-10) or 22 or 34 or 46  
48       31 or 38 or 39 or 40  
49       4 and 47 and 48  
50       (or/7-9) or 11 or 24 or 27 or 32 or 33 or 46  
51       22 or 34  
52       4 and 50 and 51  
53       (or/7-9) or 22 or 34 or 45  
54       4 and 31 and 53  
55       7 or 22 or 32 or 33  
56       4 and 34 and 55  
57       4 and 22  
58       49 or 52 or 54 or 56 or 57  
59       (animal/ or animal experiment/ or animal model/ or animal tissue/ or nonhuman/) not exp human/  
60       58 not 59  
61       limit 60 to english language  
62       limit 61 to conference abstracts  
63       61 not 62

#### **Cochrane Database of Systematic Reviews (CDSR)**

1       pneumothor\$.ti,ab,kw.

#### **Cochrane Central Register of Controlled Trials (CENTRAL)**

1       exp pneumothorax/  
2       pneumothor\$.ti,ab,kw.  
3       (collaps\$ adj1 lung\$).ti,ab,kw.  
4       or/1-3  
5       exp pleurodesis/  
6       pleurodes\$.ti,ab,kw.  
7       5 or 6  
8       exp observation/  
9       observat\$.ti,ab,kw.  
10      conservat\$.ti,ab,kw.  
11      ambula\$.ti,ab,kw.  
12      electiv\$.ti,ab,kw.  
13      exp thoracoscopy/  
14      exp Thoracic Surgery, Video-Assisted/  
15      exp thoracotomy/  
16      (thoracoscop\$ or pleuroscop\$ or (pleura\$ adj endoscop\$)).ti,ab,kw.

17 (((video-assisted or (video adj assisted)) adj thoracic\$ adj surger\$) or VATS).ti,ab,kw.  
18 pleurectom\$.ti,ab,kw.  
19 thoracotom\$.ti,ab,kw.  
20 abras\$.ti,ab,kw.  
21 or/13-20  
22 thoracent\$.ti,ab,kw.  
23 aspirat\$.ti,ab,kw.  
24 (intercost\$ adj2 drain\$).ti,ab,kw.  
25 ((chest or surg\$) adj2 (drain\$ or tube\$)).ti,ab,kw.  
26 abras\$.ti,ab,kw.  
27 (aspirat\$ adj3 intercost\$).ti,ab,kw.  
28 or/22-27  
29 exp talc/  
30 talc.ti,ab,kw.  
31 bullect\$.ti,ab,kw.  
32 (air\$ adj2 leak\$).ti,ab,kw.  
33 exp bronchial fistula/  
34 (bronchi\$ adj2 fistul\$).ti,ab,kw.  
35 valv\$.ti,ab,kw.  
36 (blood\$ adj2 patch\$).ti,ab,kw.  
37 exp suction/  
38 suction\$.ti,ab,kw.  
39 or/32-38  
40 aspiration.ti,ab,kw.  
41 (or/7-11) or 21 or 31 or 40  
42 28 or 35  
43 4 and 41 and 42  
44 (or/7-10) or 12 or 29 or 30 or 40  
45 7 or 21 or 29 or 30 or 31  
46 4 and 44 and 45  
47 (or/7-10) or 21 or 31 or 39  
48 4 and 28 and 47  
49 7 or 21 or 29 or 30  
50 4 and 31 and 49  
51 4 and 21  
52 42 or 46 or 48 or 50 or 51  
53 limit 51 to english language

## Section B Investigation of the undiagnosed pleural effusion

### Records retrieved

Database	Records retrieved			
	Question B1	Questions B2-B6	Total	Deduplicated records
MEDLINE ALL	1696	2387	4083	
EMBASE	3448	3208	6656	
CDSR	2	4	6	
CENTRAL	370	283	653	
<b>Total</b>	<b>5516</b>	<b>5882</b>	<b>11398</b>	<b>6773</b>

### Database search strategies

#### Question B1

##### MEDLINE ALL

```

1      exp Pleural Effusion/
2      (pleura$ adj3 effus$).ti,ab.
3      (pleura$ adj3 fluid$).ti,ab.
4      Empyema/
5      exp Empyema, Pleural/
6      empyema$.ti,ab.
7      exp Tuberculosis, Pleural/
8      ((pleura$ or effus$ or pleuris$) adj2 (tuberculo$ or TB)).ti,ab.
9      (pleura$ adj2 infect$).ti,ab.
10     (parapneumonic adj2 (effus$ or fluid$)).ti,ab.
11     or/1-10
12     "Sensitivity and Specificity"/
13     "Predictive Value of Tests"/
14     roc curve/
15     false negative reactions/
16     False Positive Reactions/
17     (sensitivity or specificity or diagnostic$).ti,ab.
18     (predictive adj3 value$).ti,ab.
19     roc adj (curve$ or analy$)).ti,ab.
20     Receiver Operating Characteristic$.ti,ab.
21     (true adj (positiv$ or negativ$)).ti,ab.
22     (false adj (positiv$ or negativ$)).ti,ab.
23     or/12-22
24     11 and 23
25     Radiology/
26     exp Radiography, Thoracic/
27     exp Ultrasonography/
28     exp tomography, emission-computed/ or exp tomography, x-ray computed/
29     exp Magnetic Resonance Imaging/
30     radiolog$.ti,ab.
31     (chest adj3 (xray$ or x ray$ or radiograph$)).ti,ab.
32     CXR.ti,ab.

```

33 (ultrasound\$ or ultrasonograph\$ or sonograph\$).ti,ab.  
34 tomograph\$.ti,ab.  
35 PET.ti,ab.  
36 ((CT or CAT) adj (scan\$ or imag\$)).ti,ab.  
37 (cross-sectional adj2 (scan\$ or imag\$)).ti,ab.  
38 (magnetic resonance imag\$ or MRI or MR imag\$).ti,ab.  
39 or/25-38  
40 24 and 39  
41 exp animals/ not humans/  
42 40 not 41  
43 limit 42 to english language

## EMBASE

1 exp pleura effusion/  
2 (pleura\$ adj3 effus\$).ti,ab.  
3 (pleura\$ adj3 fluid\$).ti,ab.  
4 empyema/  
5 pleura empyema/  
6 tuberculous empyema/  
7 empyema\$.ti,ab.  
8 tuberculous pleurisy/  
9 ((pleura\$ or effus\$ or pleuris\$) adj2 (tuberculo\$ or TB)).ti,ab.  
10 (pleura\$ adj2 infect\$).ti,ab.  
11 (parapneumonic adj2 (effus\$ or fluid\$)).ti,ab.  
12 or/1-11  
13 "sensitivity and specificity"/  
14 predictive value/  
15 receiver operating characteristic/  
16 false negative result/  
17 false positive result/  
18 diagnostic test accuracy study/  
19 (sensitivity or specificity or diagnostic\$).ti,ab.  
20 (predictive adj3 value\$).ti,ab.  
21 (roc adj (curve\$ or analy\$)).ti,ab.  
22 Receiver Operating Characteristic\$.ti,ab.  
23 (true adj (positiv\$ or negativ\$)).ti,ab.  
24 (false adj (positiv\$ or negativ\$)).ti,ab.  
25 or/13-24  
26 12 and 25  
27 radiology/  
28 thorax radiography/  
29 exp echography/  
30 exp tomography/  
31 exp nuclear magnetic resonance imaging/  
32 radiolog\$.ti,ab.  
33 (chest adj3 (xray\$ or x ray\$ or radiograph\$)).ti,ab.  
34 CXR.ti,ab.  
35 (ultrasound\$ or ultrasonograph\$ or sonograph\$).ti,ab.  
36 tomograph\$.ti,ab.  
37 PET.ti,ab.  
38 ((CT or CAT) adj (scan\$ or imag\$)).ti,ab.  
39 (cross-sectional adj2 (scan\$ or imag\$)).ti,ab.  
40 (magnetic resonance imag\$ or MRI or MR imag\$).ti,ab.  
41 or/27-40

42 26 and 41  
43 (animal/ or animal experiment/ or animal model/ or animal tissue/ or nonhuman/) not exp human/  
44 42 not 43  
45 limit 44 to english language  
46 limit 45 to conference abstracts  
47 45 not 46

### Cochrane Database of Systematic Reviews (CDSR)

#1 MeSH descriptor: [Pleural Effusion] explode all trees  
#2 (pleura\* near/3 effus\*):ti,ab,kw  
#3 (pleura\* near/3 fluid\*):ti,ab,kw  
#4 MeSH descriptor: [Empyema] this term only  
#5 MeSH descriptor: [Empyema, Pleural] explode all trees  
#6 empyema\*:ti,ab,kw  
#7 MeSH descriptor: [Tuberculosis, Pleural] explode all trees  
#8 ((pleura\* or effus\* or pleuris\*) near/2 (tuberculo\* or TB)):ti,ab,kw  
#9 (pleura\* near/2 infect\*):ti,ab,kw  
#10 (parapneumonic near/2 (effus\* or fluid\*)):ti,ab,kw  
#11 {OR #1-#10}  
#12 MeSH descriptor: [Radiology] this term only  
#13 MeSH descriptor: [Radiography, Thoracic] explode all trees  
#14 MeSH descriptor: [Ultrasonography] explode all trees  
#15 MeSH descriptor: [Tomography, Emission-Computed] explode all trees  
#16 MeSH descriptor: [Tomography, X-Ray Computed] explode all trees  
#17 MeSH descriptor: [Magnetic Resonance Imaging] explode all trees  
#18 radiolog\*:ti,ab,kw  
#19 (chest near/3 (xray\* or (x next ray\*) or radiograph\*)):ti,ab,kw  
#20 CXR:ti,ab,kw  
#21 (ultrasound\* or ultrasonograph\* or sonograph\*):ti,ab,kw  
#22 tomograph\*:ti,ab,kw  
#23 PET:ti,ab,kw  
#24 ((CT or CAT) next (scan\* or imag\*)):ti,ab,kw  
#25 ((cross next sectional) near/2 (scan\* or imag\*)):ti,ab,kw  
#26 ((magnetic next resonance next imag\*) or MRI or (MR next imag\$)):ti,ab,kw  
#27 {OR #12-#26}  
#28 #11 and #27  
#29 #11 and #27 in Cochrane Reviews, Cochrane Protocols  
#30 #11 and #27 in Trials

### Cochrane Central Register of Controlled Trials (CENTRAL)

See above under search strategy for CDSR.

### Questions B2-B6

#### MEDLINE ALL

1 exp Pleural Effusion/  
2 (pleura\$ adj3 effus\$).ti,ab.  
3 (pleura\$ adj3 fluid\$).ti,ab.  
4 or/1-3  
5 exp Image-Guided Biopsy/  
6 ((imag\$ or scan\$) adj2 guid\$).ti,ab.

7 ((ultrasound\$ or US or sonograph\$ or tomograph\$ or CT or CAT or cross-sectional or xray\$ or x-ray\$ or radiograph\$) adj2 guid\$).ti,ab.  
8 or/5-7  
9 4 and 8  
10 exp animals/ not humans/  
11 9 not 10  
12 limit 11 to english language  
13 exp Pleural Effusion/  
14 (pleura\$ adj3 effus\$).ti,ab.  
15 (pleura\$ adj3 fluid\$).ti,ab.  
16 or/13-15  
17 Thoracentesis/  
18 Paracentesis/  
19 (pleura\$ adj2 aspirat\$).ti,ab.  
20 (thoracentes\$ or thoracocentes\$).ti,ab.  
21 (paracentes\$ adj6 pleura\$).ti,ab.  
22 or/17-21  
23 16 and 22  
24 (pleura\$ adj (fluid\$ or effus\$ or aspirat\$) adj2 (analys\$ or analyz\$ or test\$ or sampl\$)).ti,ab.  
25 23 or 24  
26 (volume\$ or quantit\$).ti,ab.  
27 (container\$ or Bactec or ((plain or biochem\$) adj (tube or tubes)) or specimen cup\$ or drainage bag\$).ti,ab.  
28 26 or 27  
29 25 and 28  
30 exp animals/ not humans/  
31 29 not 30  
32 limit 31 to english language  
33 exp Pleural Effusion/  
34 (pleura\$ adj3 effus\$).ti,ab.  
35 33 or 34  
36 (pleura\$ adj3 fluid\$).ti,ab.  
37 35 and 36  
38 "Sensitivity and Specificity"/  
39 "Predictive Value of Tests"/  
40 roc curve/  
41 false negative reactions/  
42 False Positive Reactions/  
43 (sensitivity or specificity or diagnostic\$).ti,ab.  
44 (predictive adj3 value\$).ti,ab.  
45 (roc adj (curve\$ or analy\$)).ti,ab.  
46 Receiver Operating Characteristic\$.ti,ab.  
47 (true adj (positiv\$ or negativ\$)).ti,ab.  
48 (false adj (positiv\$ or negativ\$)).ti,ab.  
49 or/38-48  
50 37 and 49  
51 exp animals/ not humans/  
52 50 not 51  
53 limit 52 to english language  
54 exp Pleural Effusion/  
55 (pleura\$ adj3 effus\$).ti,ab.  
56 (pleura\$ adj3 fluid\$).ti,ab.  
57 or/54-56  
58 Biopsy/  
59 exp Biopsy, Needle/

60 58 or 59  
61 Pleura/  
62 60 and 61  
63 (pleura\$ adj3 biops\$).ti,ab.  
64 62 or 63  
65 57 and 64  
66 exp Thoracoscopy/  
67 (thoracoscop\$ or pleuroscop\$ or (pleura\$ adj endoscop\$)).ti,ab.  
68 66 or 67  
69 57 and 68  
70 65 or 69  
71 "Sensitivity and Specificity"/  
72 "Predictive Value of Tests"/  
73 roc curve/  
74 false negative reactions/  
75 False Positive Reactions/  
76 (sensitivity or specificity or diagnostic\$).ti,ab.  
77 (predictive adj3 value\$).ti,ab.  
78 (roc adj (curve\$ or analy\$)).ti,ab.  
79 Receiver Operating Characteristic\$.ti,ab.  
80 (true adj (positiv\$ or negativ\$)).ti,ab.  
81 (false adj (positiv\$ or negativ\$)).ti,ab.  
82 or/71-81  
83 70 and 82  
84 exp animals/ not humans/  
85 83 not 84  
86 limit 85 to english language  
87 12 or 32 or 53 or 86

## EMBASE

1 exp pleura effusion/  
2 (pleura\$ adj3 effus\$).ti,ab.  
3 (pleura\$ adj3 fluid\$).ti,ab.  
4 or/1-3  
5 exp image guided biopsy/  
6 ((imag\$ or scan\$) adj2 guid\$).ti,ab.  
7 ((ultrasound\$ or US or tomograph\$ or CT or CAT or cross-sectional or xray\$ or x-ray\$ or radiograph\$) adj2 guid\$).ti,ab.  
8 or/5-7  
9 4 and 8  
10 (animal/ or animal experiment/ or animal model/ or animal tissue/ or nonhuman/) not exp human/  
11 9 not 10  
12 limit 11 to english language  
13 limit 12 to conference abstracts  
14 12 not 13  
15 exp pleura effusion/  
16 (pleura\$ adj3 effus\$).ti,ab.  
17 (pleura\$ adj3 fluid\$).ti,ab.  
18 or/15-17  
19 thoracocentesis/  
20 paracentesis/  
21 (pleura\$ adj2 aspirat\$).ti,ab.  
22 (thoracentes\$ or thoracocentes\$).ti,ab.

23 (paracentes\$ adj6 pleura\$).ti,ab.  
24 or/19-23  
25 18 and 24  
26 (pleura\$ adj (fluid\$ or effus\$ or aspirat\$) adj2 (analys\$ or analyz\$ or test\$ or sampl\$)).ti,ab.  
27 25 or 26  
28 volume/  
29 (volume\$ or quantit\$).ti,ab.  
30 (container\$ or Bactec or ((plain or biochem\$) adj (tube or tubes)) or specimen cup\$ or drainage bag\$).ti,ab.  
31 or/28-30  
32 27 and 31  
33 (animal/ or animal experiment/ or animal model/ or animal tissue/ or nonhuman/) not exp human/  
34 32 not 33  
35 limit 34 to english language  
36 limit 35 to conference abstracts  
37 35 not 36  
38 exp pleura effusion/  
39 (pleura\$ adj3 effus\$).ti,ab.  
40 38 or 39  
41 pleura fluid/  
42 (pleura\$ adj3 fluid\$).ti,ab.  
43 41 or 42  
44 40 and 43  
45 "sensitivity and specificity"/  
46 predictive value/  
47 receiver operating characteristic/  
48 false negative result/  
49 false positive result/  
50 diagnostic test accuracy study/  
51 (sensitivity or specificity or diagnostic\$).ti,ab.  
52 (predictive adj3 value\$).ti,ab.  
53 (roc adj (curve\$ or analy\$)).ti,ab.  
54 Receiver Operating Characteristic\$.ti,ab.  
55 (true adj (positiv\$ or negativ\$)).ti,ab.  
56 (false adj (positiv\$ or negativ\$)).ti,ab.  
57 or/45-56  
58 44 and 57  
59 (animal/ or animal experiment/ or animal model/ or animal tissue/ or nonhuman/) not exp human/  
60 58 not 59  
61 limit 60 to english language  
62 limit 61 to conference abstracts  
63 61 not 62  
64 exp pleura effusion/  
65 (pleura\$ adj3 effus\$).ti,ab.  
66 (pleura\$ adj3 fluid\$).ti,ab.  
67 or/64-66  
68 pleura biopsy/  
69 (pleura\$ adj3 biops\$).ti,ab.  
70 68 or 69  
71 67 and 70  
72 thoracoscopy/  
73 (thoracoscop\$ or pleuroscop\$ or (pleura\$ adj endoscop\$)).ti,ab.  
74 72 or 73  
75 67 and 74  
76 71 or 75

77 "sensitivity and specificity"/  
 78 predictive value/  
 79 receiver operating characteristic/  
 80 false negative result/  
 81 false positive result/  
 82 diagnostic test accuracy study/  
 83 (sensitivity or specificity or diagnostic\$).ti,ab.  
 84 (predictive adj3 value\$).ti,ab.  
 85 (roc adj (curve\$ or analy\$)).ti,ab.  
 86 Receiver Operating Characteristic\$.ti,ab.  
 87 (true adj (positiv\$ or negativ\$)).ti,ab.  
 88 (false adj (positiv\$ or negativ\$)).ti,ab.  
 89 or/77-88  
 90 76 and 89  
 91 (animal/ or animal experiment/ or animal model/ or animal tissue/ or nonhuman/) not exp human/  
 92 90 not 91  
 93 limit 92 to english language  
 94 limit 93 to conference abstracts  
 95 93 not 94  
 96 14 or 37 or 63 or 95

### **Cochrane Database of Systematic Reviews (CDSR)**

#1 MeSH descriptor: [Pleural Effusion] explode all trees  
 #2 (pleura\* near/3 effus\*):ti,ab,kw  
 #3 (pleura\* near/3 fluid\*):ti,ab,kw  
 #4 #1 or #2 or #3  
 #5 MeSH descriptor: [Image-Guided Biopsy] explode all trees  
 #6 ((imag\* or scan\*) near/2 guid\*):ti,ab,kw  
 #7 ((ultrasound\* or US or sonograph\* or tomograph\* or CT or CAT or cross-sectional or xray\* or x-ray\* or radiograph\*) near/2 guid\*):ti,ab,kw  
 #8 #5 or #6 or #7  
 #9 #4 and #8  
 #10 MeSH descriptor: [Thoracentesis] this term only  
 #11 MeSH descriptor: [Paracentesis] this term only  
 #12 (pleura\* near/2 aspirat\*):ti,ab,kw  
 #13 (thoracentes\* or thoracocentes\*):ti,ab,kw  
 #14 (paracentes\* near/6 pleura\*):ti,ab,kw  
 #15 {OR #10-#14}  
 #16 #4 and #15  
 #17 (pleura\* next (fluid\* or effus\* or aspirat\*) near/2 (analys\* or analyz\* or test\* or sampl\*)):ti,ab,kw  
 #18 #16 or #17  
 #19 (volume\* or quantit\*):ti,ab,kw  
 #20 (container\* or Bactec or ((plain or biochem\*) next (tube or tubes)) or specimen next cup\* or drainage next bag\*):ti,ab,kw  
 #21 #19 or #20  
 #22 #18 and #21  
 #23 MeSH descriptor: [Pleural Effusion] explode all trees  
 #24 (pleura\* near/3 effus\*):ti,ab,kw  
 #25 #23 or #24  
 #26 (pleura\* near/3 fluid\*):ti,ab,kw  
 #27 #25 and #26  
 #28 MeSH descriptor: [Biopsy] this term only  
 #29 MeSH descriptor: [Biopsy, Needle] explode all trees

#30 #28 or #29  
 #31 MeSH descriptor: [Pleura] this term only  
 #32 #30 and #31  
 #33 (pleura\* near/3 biops\*):ti,ab,kw  
 #34 #32 or #33  
 #35 #4 and #34  
 #36 MeSH descriptor: [Thoracoscopy] explode all trees  
 #37 (thoracoscop\* or pleuroscop\* or (pleura\* next endoscop\*)):ti,ab,kw  
 #38 #36 or #37  
 #39 #4 and #38  
 #40 #35 or #39  
 #41 #9 or #22 or #27 or #40  
 #42 #9 or #22 or #27 or #40 in Cochrane Reviews, Cochrane Protocols  
 #43 #9 or #22 or #27 or #40 in Trials

### **Cochrane Central Register of Controlled Trials (CENTRAL)**

See above under search strategy for CDSR.

## **Section C Pleural infection**

### **Records retrieved**

Database	Records retrieved	Deduplicated records
MEDLINE ALL	1732	
EMBASE	4622	
CDSR	3	
CENTRAL	108	
<b>Total</b>	<b>6465</b>	<b>4138</b>

### **Database search strategies**

#### **MEDLINE ALL**

```

1      exp pleural empyema/
2      (pleura$ adj2 infect$).ti,ab.
3      (parapneumon$ adj3 effusi$).ti,ab.
4      (pleura$ adj2 empyem$).ti,ab.
5      or/1-4
6      ((clinic$ or prognos$ or predict$) adj2 (scor$ or measur$ or index$ or indice$ or indicator$)).ti,ab.
7      5 and 6
8      exp Ultrasonography/
9      exp tomography, emission-computed/ or exp tomography, x-ray computed/
10     (ultrasound$ or ultrasonograph$ or sonograph$).ti,ab.
11     tomograph$.ti,ab.
12     (CT or ((CT or CAT) adj (scan$ or imag$))).ti,ab.
13     or/8-12
14     exp thorax/
15     (thora$ or chest).ti,ab.
  
```

16 14 or 15  
17 13 and 16  
18 5 and 17  
19 (stage\$ or stagi\$).ti,ab.  
20 ((fine adj class\$) or fine-class\$).ti,ab.  
21 19 or 20  
22 5 and 21  
23 18 and 22  
24 exp Mass Chest X-Ray/  
25 (CXR or (chest adj3 (xray\$ or x ray\$ or x-ray\$ or radiograph\$))).ti,ab.  
26 24 or 25  
27 5 and 26  
28 18 or 27  
29 ((pleura\$ adj3 fluid\$) or (pleura\$ adj3 biops\$) or (pleura\$ adj3 microbiol\$)).ti,ab.  
30 5 and 29  
31 28 and 30  
32 exp Thoracentesis/  
33 (thoracentes\$ or aspiration\$).ti,ab.  
34 (intercost\$ adj2 drainag\$).ti,ab.  
35 (chest adj2 (drainag\$ or tube\$)).ti,ab.  
36 exp thoracoscopy/  
37 exp Thoracic Surgery, Video-Assisted/  
38 exp thoracotomy/  
39 (thoracoscop\$ or pleuroscop\$ or (pleura\$ adj endoscop\$)).ti,ab.  
40 (((video-assisted or (video adj assisted)) adj thoracic\$ adj surger\$) or VATS).ti,ab.  
41 thoracotom\$.ti,ab.  
42 or/32-41  
43 5 and 42  
44 7 or 18 or 23 or 31 or 43  
45 exp animals/ not humans/  
46 44 not 45  
47 limit 46 to english language

## EMBASE

1 exp pleura empyema/  
2 exp pleura infection/  
3 (pleura\$ adj2 empymem\$).ti,ab.  
4 (pleura\$ adj2 infect\$).ti,ab.  
5 (parapneumon\$ adj3 effusi\$).ti,ab.  
6 or/1-5  
7 ((clinic\$ or prognos\$ or predict\$) adj2 (scor\$ or measur\$ or index\$ or indice\$ or indicator\$)).ti,ab.  
8 6 and 7  
9 exp Ultrasonography/  
10 exp tomography, emission-computed/ or exp tomography, x-ray computed/  
11 (ultrasound\$ or ultrasonograph\$ or sonograph\$).ti,ab.  
12 tomograph\$.ti,ab.  
13 (CT or ((CT or CAT) adj (scan\$ or imag\$))).ti,ab.  
14 exp computed tomography/  
15 or/9-14  
16 exp thorax/  
17 (thora\$ or chest).ti,ab.  
18 16 or 17  
19 15 and 18

20 6 and 19  
21 exp staging/  
22 (stage\$ or stagi\$).ti,ab.  
23 ((fine adj class\$) or fine-class\$).ti,ab.  
24 or/21-23  
25 20 and 24  
26 exp chest xray/  
27 (CXR or (chest adj3 (xray\$ or x ray\$ or x-ray\$ or radiograph\$))).ti,ab.  
28 26 or 27  
29 6 and 28  
30 20 or 29  
31 exp pleura fluid/  
32 exp pleura biopsy/  
33 ((pleura\$ adj3 fluid\$) or (pleura\$ adj3 biops\$) or (pleura\$ adj3 microbiol\$)).ti,ab.  
34 or/31-33  
35 6 and 34  
36 30 and 35  
37 exp Thoracentesis/  
38 (thoracentes\$ or aspiration\$).ti,ab.  
39 exp aspiration/  
40 exp chest drain/  
41 exp chest drainage/  
42 (chest adj2 (drainag\$ or tube\$)).ti,ab.  
43 exp thoracoscopy/  
44 exp Thoracic Surgery, Video-Assisted/  
45 exp thoracotomy/  
46 exp pleurectomy/  
47 thoracoscop\$ or pleuroscop\$ or (pleura\$ adj endoscop\$)).ti,ab.  
48 (((video-assisted or (video adj assisted)) adj thoracic\$ adj surger\$) or VATS).ti,ab.  
49 thoracotom\$.ti,ab.  
50 or/37-49  
51 6 and 50  
52 8 or 20 or 25 or 36 or 51  
53 (animal/ or animal experiment/ or animal model/ or animal tissue/ or nonhuman/) not exp human/  
54 52 not 53  
55 limit 54 to english language  
56 limit 55 to conference abstracts  
57 55 not 56

#### Cochrane Database of Systematic Reviews (CDSR)

1 (pleura\$ adj2 empyem\$).ti,ab,kw.  
2 (pleura\$ adj2 infect\$).ti,ab,kw.  
3 (parapneumon\$ adj3 effusi\$).ti,ab,kw.  
4 or/1-3

#### Cochrane Central Register of Controlled Trials (CENTRAL)

1 exp Empyema, Pleural/  
2 (pleura\$ adj2 infect\$).ti,ab,kw.  
3 (parapneumon\$ adj3 effusi\$).ti,ab,kw.  
4 (pleura\$ adj2 empyem\$).ti,ab,kw.  
5 or/1-4  
6 ((clinic\$ or prognos\$ or predict\$) adj2 (scor\$ or measur\$ or index\$ or indice\$ or indicator\$)).ti,ab,kw.  
7 5 and 6

8 exp Ultrasonography/  
 9 exp tomography, emission-computed/ or exp tomography, x-ray computed/  
 10 (ultrasound\$ or ultrasonograph\$ or sonograph\$).ti,ab,kw.  
 11 tomograph\$.ti,ab,kw.  
 12 (CT or ((CT or CAT) adj (scan\$ or imag\$))).ti,ab,kw.  
 13 or/8-12  
 14 exp thorax/  
 15 (thora\$ or chest).ti,ab,kw.  
 16 14 or 15  
 17 13 and 16  
 18 5 and 17  
 19 (stage\$ or stagi\$).ti,ab,kw.  
 20 ((fine adj class\$) or fine-class\$).ti,ab,kw.  
 21 19 or 20  
 22 5 and 21  
 23 18 and 22  
 24 exp Mass Chest X-Ray/  
 25 (CXR or (chest adj3 (xray\$ or x ray\$ or x-ray\$ or radiograph\$))).ti,ab,kw.  
 26 24 or 25  
 27 5 and 26  
 28 18 or 27  
 29 ((pleura\$ adj3 fluid\$) or (pleura\$ adj3 biops\$) or (pleura\$ adj3 microbiol\$)).ti,ab,kw.  
 30 5 and 29  
 31 28 and 30  
 32 (thoracent\$ or aspiration\$).ti,ab,kw.  
 33 (intercost\$ adj2 drain\$).ti,ab,kw.  
 34 (chest adj2 (drain\$ or tube\$)).ti,ab,kw.  
 35 exp thoracoscopy/  
 36 exp Thoracic Surgery, Video-Assisted/  
 37 exp thoracotomy/  
 38 (thoracoscop\$ or pleuroscop\$ or (pleura\$ adj endoscop\$)).ti,ab,kw.  
 39 (((video-assisted or (video adj assisted)) adj thoracic\$ adj surger\$) or VATS).ti,ab,kw.  
 40 thoracotom\$.ti,ab,kw.  
 41 or/32-40  
 42 5 and 41  
 43 7 or 18 or 23 or 31 or 42  
 44 limit 43 to english language

## Section D Pleural malignancy

### Records retrieved

Database	Records retrieved			
	Question D1	Questions D2-D12	Total	Deduplicated records
MEDLINE ALL	1375	8319	9694	
EMBASE	1690	10032	11722	
CDSR	0	5	5	
CENTRAL	411	1373	1784	
<b>Total</b>	<b>3476</b>	<b>19729</b>	<b>23205</b>	<b>14276</b>

## Database search strategies

### Question D1

#### MEDLINE ALL

```
1      exp Pleural Neoplasms/
2      exp Mesothelioma/
3      (pleura$ and (cancer$ or neoplas$ or carcinoma$ or tumour$ or tumor$ or malignan$ or metastas$ or
4      metastat$)).ti,ab.
5      mesothelioma$.ti,ab.
6      or/1-4
7      "Sensitivity and Specificity"/
8      "Predictive Value of Tests"/
9      roc curve/
10     false negative reactions/
11     False Positive Reactions/
12     (sensitivity or specificity or diagnostic$).ti,ab.
13     (predictive adj3 value$).ti,ab.
14     (roc adj (curve$ or analy$)).ti,ab.
15     Receiver Operating Characteristic$.ti,ab.
16     (true adj (positiv$ or negativ$)).ti,ab.
17     (false adj (positiv$ or negativ$)).ti,ab.
18     or/6-16
19     5 and 17
20     Radiology/
21     exp Ultrasonography/
22     exp tomography, emission-computed/ or exp tomography, x-ray computed/
23     exp Magnetic Resonance Imaging/
24     radiolog$.ti,ab.
25     (ultrasound$ or ultrasonograph$ or sonograph$).ti,ab.
26     tomograph$.ti,ab.
27     PET.ti,ab.
28     ((CT or CAT) adj (scan$ or imag$)).ti,ab.
29     (cross-sectional adj2 (scan$ or imag$)).ti,ab.
30     (magnetic resonance imag$ or MRI or MR imag$).ti,ab.
31     or/19-29
32     18 and 30
33     exp animals/ not humans/
34     31 not 32
35     limit 33 to english language
```

#### EMBASE

```
1      exp pleura tumor/
2      pleura mesothelioma/
3      malignant pleura effusion/
4      (pleura$ and (cancer$ or neoplas$ or carcinoma$ or tumour$ or tumor$ or malignan$ or metastas$ or
5      metastat$)).ti,ab.
6      mesothelioma$.ti,ab.
7      1 or 2 or 3 or 4 or 5
8      "sensitivity and specificity"/
9      predictive value/
10     receiver operating characteristic/
11     false negative result/
```

11 false positive result/  
12 diagnostic test accuracy study/  
13 (sensitivity or specificity or diagnostic\$).ti,ab.  
14 (predictive adj3 value\$).ti,ab.  
15 (roc adj (curve\$ or analy\$)).ti,ab.  
16 Receiver Operating Characteristic\$.ti,ab.  
17 (true adj (positiv\$ or negativ\$)).ti,ab.  
18 (false adj (positiv\$ or negativ\$)).ti,ab.  
19 or/7-18  
20 6 and 19  
21 radiology/  
22 exp echography/  
23 exp tomography/  
24 exp nuclear magnetic resonance imaging/  
25 radiolog\$.ti,ab.  
26 (ultrasound\$ or ultrasonograph\$ or sonograph\$).ti,ab.  
27 tomograph\$.ti,ab.  
28 PET.ti,ab.  
29 ((CT or CAT) adj (scan\$ or imag\$)).ti,ab.  
30 (cross-sectional adj2 (scan\$ or imag\$)).ti,ab.  
31 (magnetic resonance imag\$ or MRI or MR imag\$).ti,ab.  
32 or/21-31  
33 20 and 32  
34 (animal/ or animal experiment/ or animal model/ or animal tissue/ or nonhuman/) not exp human/  
35 33 not 34  
36 limit 35 to english language  
37 limit 36 to conference abstracts  
38 36 not 37

### Cochrane Database of Systematic Reviews (CDSR)

#1 MeSH descriptor: [Pleural Neoplasms] explode all trees  
#2 MeSH descriptor: [Mesothelioma] explode all trees  
#3 (pleura\* and (cancer\* or neoplas\* or carcinoma\* or tumour\* or tumor\* or malignan\* or metastas\* or metastat\*)):ti,ab,kw  
#4 mesothelioma\*:ti,ab,kw  
#5 #1 or #2 or #3 or #4  
#6 MeSH descriptor: [Radiology] this term only  
#7 MeSH descriptor: [Ultrasonography] explode all trees  
#8 MeSH descriptor: [Tomography, Emission-Computed] explode all trees  
#9 MeSH descriptor: [Tomography, X-Ray Computed] explode all trees  
#10 MeSH descriptor: [Magnetic Resonance Imaging] explode all trees  
#11 radiolog\*:ti,ab,kw  
#12 (ultrasound\* or ultrasonograph\* or sonograph\*):ti,ab,kw  
#13 tomograph\*:ti,ab,kw  
#14 PET:ti,ab,kw  
#15 ((CT or CAT) next (scan\* or imag\*)):ti,ab,kw  
#16 ((cross next sectional) near/2 (scan\* or imag\*)):ti,ab,kw  
#17 ((magnetic next resonance next imag\*) or MRI or (MR next imag\$)):ti,ab,kw  
#18 {OR #6-#17}  
#19 #5 and #18  
#20 #5 and #18 in Cochrane Reviews, Cochrane Protocols  
#21 #5 and #18 in Trials

## Cochrane Central Register of Controlled Trials (CENTRAL)

See above under search strategy for CDSR.

### Questions D2-D12

#### MEDLINE ALL

1       exp Pleural Neoplasms/  
2       exp Mesothelioma/  
3       (pleura\$ and (cancer\$ or neopla\$ or carcinoma\$ or tumour\$ or tumor\$ or malignan\$ or metastas\$ or metasta\$)).ti,ab.  
4       mesothelioma\$.ti,ab.  
5       or/1-4  
6       Pleurodesis/  
7       pleurodesis.ti,ab.  
8       6 or 7  
9       5 and 8  
10      Thoracentesis/  
11      Paracentesis/  
12      (pleura\$ adj2 aspirat\$).ti,ab.  
13      (thoracentes\$ or thoracocentes\$).ti,ab.  
14      (paracentes\$ adj6 pleura\$).ti,ab.  
15      or/10-14  
16      5 and 15  
17      Talc/  
18      talc.ti,ab.  
19      17 or 18  
20      5 and 19  
21      Thoracic Surgical Procedures/  
22      pleurectom\$.ti,ab.  
23      decorticat\$.ti,ab.  
24      abras\$.ti,ab.  
25      or/21-24  
26      5 and 25  
27      Drainage/  
28      (drain\$ adj3 pleura\$).ti,ab.  
29      27 or 28  
30      5 and 29  
31      ((prognostic or predict\$) adj2 (scor\$ or measur\$ or index\$ or indice\$ or indicator\$)).ti,ab.  
32      5 and 31  
33      Enzyme Therapy/  
34      Enzymes/  
35      Fibrinolytic Agents/  
36      Tissue Plasminogen Activator/  
37      exp Deoxyribonucleases/  
38      (enzyme\$ and (intrapleura\$ or intra pleura\$)).ti,ab.  
39      fibrinolytic\$.ti,ab.  
40      (tissue plasminogen activator\$ or tPA).ti,ab.  
41      (deoxyribonuclease\$ or DNase).ti,ab.  
42      or/33-41  
43      5 and 42  
44      exp Antineoplastic Agents/  
45      Molecular Targeted Therapy/  
46      (chemotherap\$ or chemo therap\$).ti,ab.

47 (targeted adj2 (therap\$ or drug\$)).ti,ab.  
48 Immunotherapy/  
49 (immunotherap\$ or immuno therap\$).ti,ab.  
50 exp Antineoplastic Agents, Hormonal/  
51 (hormon\$ adj2 (therap\$ or treatment\$ or intervention\$ or drug\$ or agent\$)).ti,ab.  
52 exp Administration, Intravenous/  
53 (systemic\$ adj2 (therap\$ or treatment\$ or intervention\$ or drug\$ or agent\$)).ti,ab.  
54 ((intravenous\$ or IV) adj2 (therap\$ or treatment\$ or intervention\$ or drug\$ or agent\$)).ti,ab.  
55 or/44-54  
56 5 and 55  
57 9 or 16 or 20 or 26 or 30 or 32 or 43 or 56  
58 exp animals/ not humans/  
59 57 not 58  
60 limit 59 to english language

## EMBASE

1 exp pleura tumor/  
2 pleura mesothelioma/  
3 malignant pleura effusion/  
4 (pleura\$ and (cancer\$ or neoplas\$ or carcinoma\$ or tumour\$ or tumor\$ or malignan\$ or metastas\$ or metastat\$)).ti,ab.  
5 mesothelioma\$.ti,ab.  
6 or/1-5  
7 pleurodesis/  
8 pleurodesis.ti,ab.  
9 7 or 8  
10 6 and 9  
11 thoracocentesis/  
12 paracentesis/  
13 (pleura\$ adj2 aspirat\$).ti,ab.  
14 (thoracentes\$ or thoracocentes\$).ti,ab.  
15 (paracentes\$ adj6 pleura\$).ti,ab.  
16 or/11-15  
17 6 and 16  
18 talc/  
19 talc.ti,ab.  
20 18 or 19  
21 6 and 20  
22 thorax surgery/  
23 pleurectom\$.ti,ab.  
24 pleurectomy/  
25 decorticat\$.ti,ab.  
26 abras\$.ti,ab.  
27 or/22-26  
28 6 and 27  
29 thorax drainage/  
30 (drain\$ adj3 pleura\$).ti,ab.  
31 29 or 30  
32 6 and 31  
33 ((prognostic or predict\$) adj2 (scor\$ or measur\$ or index\$ or indice\$ or indicator\$)).ti,ab.  
34 6 and 33  
35 enzyme therapy/  
36 enzyme/

37 fibrinolytic agent/  
38 tissue plasminogen activator/  
39 deoxyribonuclease/  
40 (enzyme\$ and (intrapleura\$ or intra pleura\$)).ti,ab.  
41 fibrinolytic\$.ti,ab.  
42 (tissue plasminogen activator\$ or tPA).ti,ab.  
43 (deoxyribonuclease\$ or DNase).ti,ab.  
44 or/35-43  
45 6 and 44  
46 exp chemotherapy/  
47 molecularly targeted therapy/  
48 (chemotherap\$ or chemo therap\$).ti,ab.  
49 (targeted adj2 (therap\$ or drug\$)).ti,ab.  
50 exp immunotherapy/  
51 (immunotherap\$ or immuno therap\$).ti,ab.  
52 cancer hormone therapy/  
53 (hormon\$ adj2 (therap\$ or treatment\$ or intervention\$ or drug\$ or agent\$)).ti,ab.  
54 systemic therapy/  
55 intravenous drug administration/  
56 (systemic\$ adj2 (therap\$ or treatment\$ or intervention\$ or drug\$ or agent\$)).ti,ab.  
57 ((intravenous\$ or IV) adj2 (therap\$ or treatment\$ or intervention\$ or drug\$ or agent\$)).ti,ab.  
58 or/46-57  
59 6 and 58  
60 10 or 17 or 21 or 28 or 32 or 34 or 45 or 59  
61 (animal/ or animal experiment/ or animal model/ or animal tissue/ or nonhuman/) not exp human/  
62 60 not 61  
63 limit 62 to english language  
64 limit 63 to conference abstracts  
65 63 not 64

### Cochrane Database of Systematic Reviews (CDSR)

#1 MeSH descriptor: [Pleural Neoplasms] explode all trees  
#2 MeSH descriptor: [Mesothelioma] explode all trees  
#3 (pleura\* and (cancer\* or neoplas\* or carcinoma\* or tumour\* or tumor\* or malignan\* or metastas\* or metasta\*)).ti,ab,kw  
#4 mesothelioma\*:ti,ab,kw  
#5 #1 or #2 or #3 or #4  
#6 MeSH descriptor: [Pleurodesis] this term only  
#7 pleurodesis:ti,ab,kw  
#8 #6 or #7  
#9 #5 and #8  
#10 MeSH descriptor: [Thoracentesis] this term only  
#11 MeSH descriptor: [Paracentesis] this term only  
#12 (pleura\* near/2 aspirat\*).ti,ab,kw  
#13 (thoracentes\* or thoracocentes\*).ti,ab,kw  
#14 (paracentes\* near/6 pleura\*).ti,ab,kw  
#15 {OR #10-#14}  
#16 #5 and #15  
#17 MeSH descriptor: [Talc] this term only  
#18 talc:ti,ab,kw  
#19 #17 or #18  
#20 #5 and #19  
#21 MeSH descriptor: [Thoracic Surgical Procedures] this term only

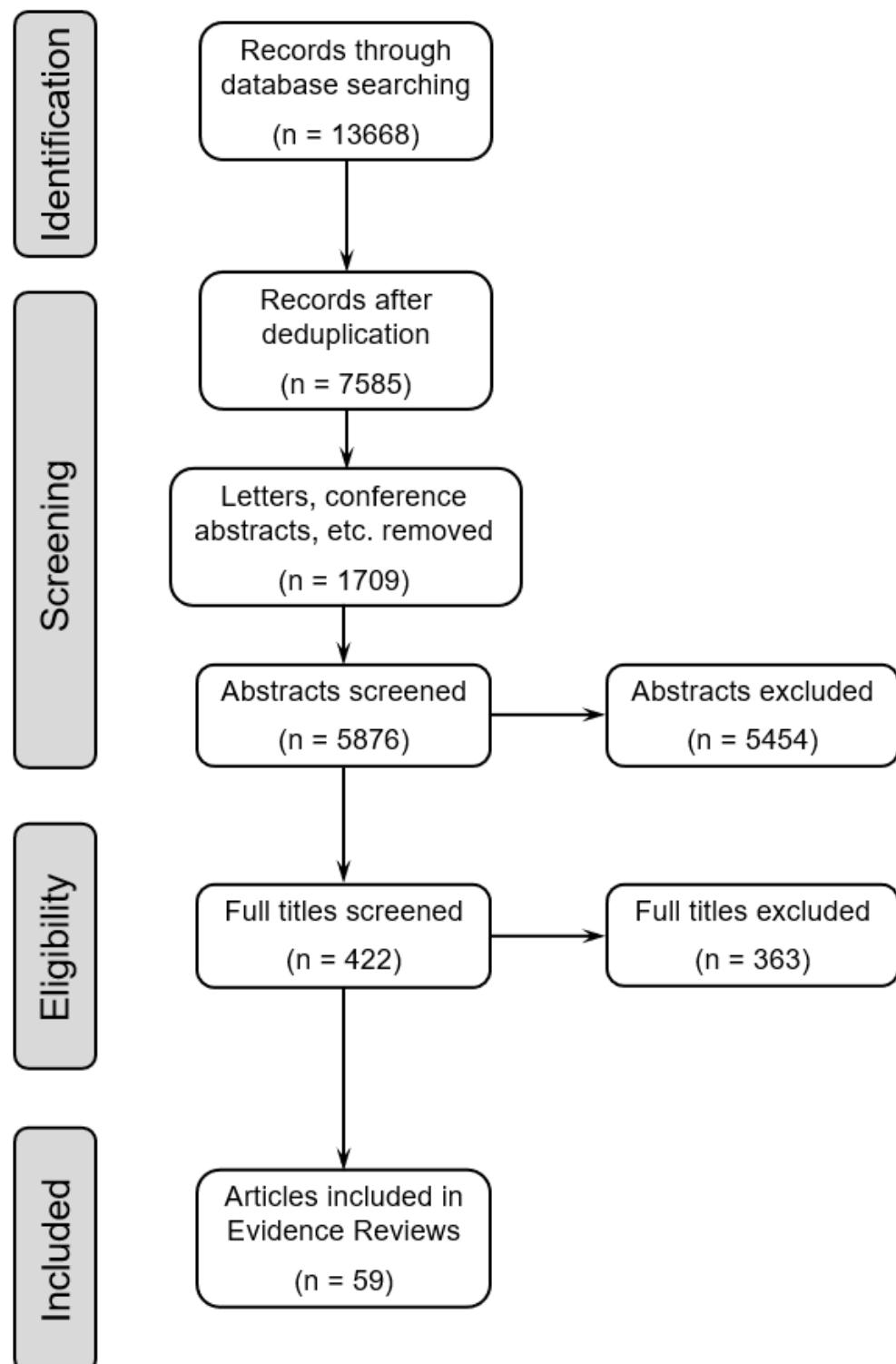
#22 pleurectom\*:ti,ab,kw  
#23 decorticat\*:ti,ab,kw  
#24 abras\*:ti,ab,kw  
#25 {OR #21-#24}  
#26 #5 and #25  
#27 MeSH descriptor: [Drainage] this term only  
#28 (drain\* near/3 pleura\*):ti,ab,kw  
#29 #27 or #28  
#30 #5 and #29  
#31 ((prognostic or predict\*) near/2 (scor\* or measur\* or index\* or indice\* or indicator\*)):ti,ab,kw  
#32 #5 and #31  
#33 MeSH descriptor: [Enzyme Therapy] this term only  
#34 MeSH descriptor: [Enzymes] this term only  
#35 MeSH descriptor: [Fibrinolytic Agents] this term only  
#36 MeSH descriptor: [Tissue Plasminogen Activator] this term only  
#37 MeSH descriptor: [Deoxyribonucleases] explode all trees  
#38 (enzyme\* and (intrapleura\* or intra pleura\*)):ti,ab,kw  
#39 fibrinolytic\*:ti,ab,kw  
#40 ((tissue next plasminogen next activator\*) or tPA):ti,ab,kw  
#41 (deoxyribonuclease\* or DNase):ti,ab,kw  
#42 {OR #33-#41}  
#43 #5 and #42  
#44 MeSH descriptor: [Antineoplastic Agents] explode all trees  
#45 MeSH descriptor: [Molecular Targeted Therapy] this term only  
#46 (chemotherap\* or (chemo next therap\*)):ti,ab,kw  
#47 (targeted near/2 (therap\* or drug\*)):ti,ab,kw  
#48 MeSH descriptor: [Immunotherapy] this term only  
#49 (immunotherap\* or (immuno next therap\*)):ti,ab,kw  
#50 MeSH descriptor: [Antineoplastic Agents, Hormonal] explode all trees  
#51 (hormon\* near/2 (therap\* or treatment\* or intervention\* or drug\* or agent\*)):ti,ab,kw  
#52 MeSH descriptor: [Administration, Intravenous] explode all trees  
#53 (systemic\* near/2 (therap\* or treatment\* or intervention\* or drug\* or agent\*)):ti,ab,kw  
#54 ((intravenous\* or IV) near/2 (therap\* or treatment\* or intervention\* or drug\* or agent\*)):ti,ab,kw  
#55 {OR #44-#54}  
#56 #5 and #55  
#57 #9 or #16 or #20 or #26 or #30 or #32 or #43 or #56  
#58 #9 or #16 or #20 or #26 or #30 or #32 or #43 or #56 in Cochrane Reviews, Cochrane Protocols  
#59 #9 or #16 or #20 or #26 or #30 or #32 or #43 or #56 in Trials

#### Cochrane Central Register of Controlled Trials (CENTRAL)

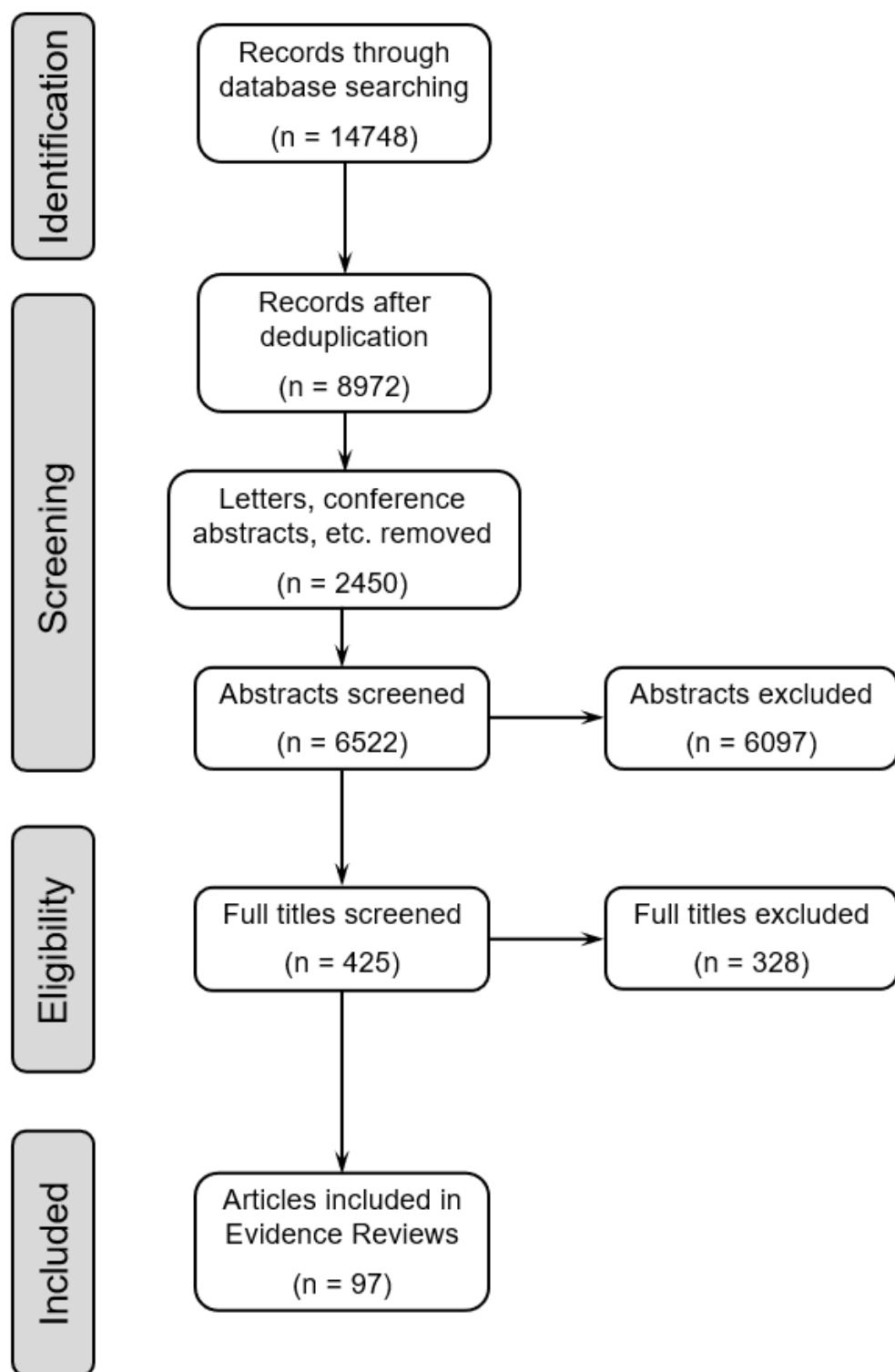
See above under search strategy for CDSR.

## PRISMA diagrams

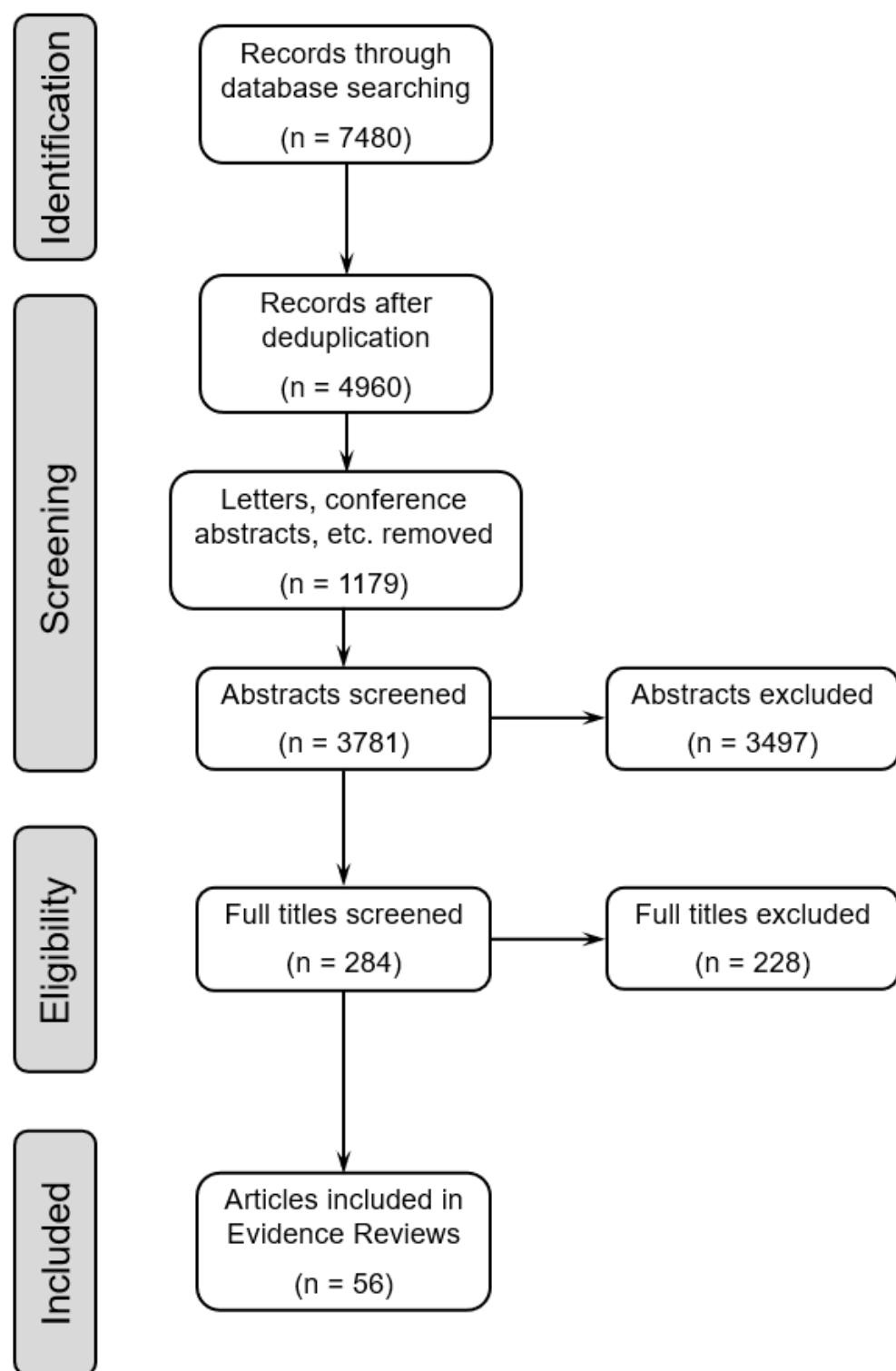
### Section A Spontaneous pneumothorax



## Section B Investigation of the undiagnosed pleural effusion



## Section C Pleural infection



## Section D Pleural malignancy

