

## Pneumonia

### Diagnosis and management of community- and hospital-acquired pneumonia in adults

*Clinical guideline <...>*

*Appendix F*

*May 2014*

*Draft for Consultation*

*Commissioned by the National Institute for  
Health and Care Excellence*



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**Funding**

National Institute for Health and Care Excellence

# Contents

<b>1</b>	<b>Literature search strategies.....</b>	<b>5</b>
	Appendix F: Literature search strategies .....	<b>Error! Bookmark not defined.</b>

# 1 Literature search strategies

**Contents**

<b>Introduction</b>	<b>Search methodology</b>
<b>Section F.1</b>	<b>Population search strategies</b>
F.1.1	Population A: Pneumonia
F.1.2	Population B: Pneumonia / lower respiratory tract infection
F.1.3	Population C: Pneumonia / signs or symptoms of lower respiratory tract infection
<b>Section F.2</b>	<b>Study filter terms</b>
F.2.1	Systematic reviews (SR)
F.2.2	Randomised controlled trials (RCT)
F.2.3	Observational studies
F.2.4	Prognostic studies
F.2.5	Health economic studies
F.2.6	Quality of life studies
F.2.7	Excluded study designs and publication types
<b>Section F.3</b>	<b>Searches for specific questions</b>
F.3.1	Diagnostic tests
F.3.2	Severity assessment - lower respiratory tract infection or suspected community-acquired pneumonia in the community
F.3.3	Severity assessment - community-acquired pneumonia
F.3.4	Severity assessment - hospital-acquired pneumonia
F.3.5	Microbiological tests
F.3.6	Timing of antibiotic treatment
F.3.7	Antibiotic treatment
F.3.8	Glucocorticosteroid treatment
F.3.9	Gas exchange management
F.3.10	Monitoring response
F.3.11	Safe discharge
F.3.12	Patient information
<b>Section F.4</b>	<b>Health economics searches</b>
F.4.1	Health economic reviews
F.4.2	Health economics - gas exchange management
F.4.3	Quality of life reviews
<b>Section F.5</b>	<b>References</b>

Search strategies used for the pneumonia guideline are outlined below and were run in accordance with the methodology in the NICE Guidelines Manual 2012.<sup>1</sup> All searches were run up to 17<sup>th</sup> March 2014 unless otherwise stated. Any studies added to the databases after this date (even those published prior to this date) were not included unless specifically stated in the text. Searches are not routinely undertaken for electronic, ahead of print or “online early” publications. Where possible searches were limited to retrieve material published in English.

**Table 1: Database date parameters**

Database	Dates searched
Medline	1946 – 17 <sup>th</sup> March 2014
Embase	1980 – 17 <sup>th</sup> March 2014 (week 11)
The Cochrane Library	Cochrane Reviews to 2014 Issue 3 of 12 (17 <sup>th</sup> March 2014) CENTRAL to 2014 Issue 1 of 12 DARE, HTA and NHSEED to 2014 Issue 1 of 4

Searches for the **clinical reviews** were run in Medline (OVID), Embase (OVID) and the Cochrane Library (Wiley). Usually, searches were constructed in the following way:

- A PICO format was used for **intervention** searches where population (P) terms were combined with intervention (I) and sometimes comparison (C) terms. An intervention can be a drug, a procedure or a diagnostic test. Outcomes (O) are rarely used in search strategies for interventions. Search filters were also added to the search where appropriate.
- A PEO format was used for **prognosis** searches where population (P) terms were combined with exposure (E) terms and sometimes outcomes (O). Search filters were added to the search where appropriate.

Searches for the **health economic reviews** were run in Medline (OVID), Embase (OVID), the NHS Economic Evaluations Database (NHS EED via the Centre for Reviews and Dissemination (CRD) website), the Health Technology Assessment (HTA via the CRD website) database and the Health Economic Evaluation Database (HEED via Wiley). Searches in NHS EED, HTA and HEED were constructed only using population terms. For Medline and Embase an economic filter (instead of a study type filter) was added to the same clinical search strategy.

## F.1 Population search strategies

Three sets of population terms were used in the development of this guideline. All of these sets were limited where possible to exclude paediatric studies. Section F.3 below contains full details of which population was used for each search.

### F.1.1 Population A: Pneumonia

#### Medline search terms

1.	exp pneumonia/
2.	(pneumonit* or pneumonia).ti,ab.
3.	bronchopneumonia.ti,ab.
4.	pleuropneumonia.ti,ab.
5.	((lung or lobar or pulmonary) adj2 inflamm*).ti,ab.
6.	or/1-5
7.	*pneumonia, ventilator-associated/
8.	6 not 7
9.	exp child/
10.	child*.tw.
11.	exp infant/
12.	infan*.tw.
13.	(baby or babies).tw.
14.	"adolescent"/

15.	(pediatric*1 or paediatric*1).tw.
16.	or/9-15
17.	exp adult/
18.	16 not 17
19.	8 not 18

**Embase search terms**

1.	exp *pneumonia/
2.	(pneumonit* or pneumonia).ti,ab.
3.	bronchopneumonia.ti,ab.
4.	pleuropneumonia.ti,ab.
5.	((lung or lobar or pulmonary) adj2 inflamm*).ti,ab.
6.	or/1-5
7.	*ventilator associated pneumonia/
8.	6 not 7
9.	exp child/
10.	child*.tw.
11.	childhood/
12.	infancy/
13.	infan*.tw.
14.	(baby or babies).tw.
15.	exp adolescent/
16.	(pediatric*1 or paediatric*1).tw.
17.	or/9-16
18.	adult/
19.	aged/
20.	or/18-19
21.	17 not 20
22.	8 not 21

**Cochrane search terms**

#1.	MeSH descriptor Pneumonia explode all trees
#2.	(pneumonia* or pneumonit*):ti,ab,kw
#3.	(bronchopneumonia or pleuropneumonia):ti,ab,kw
#4.	((lung or lobar or pulmonary) near/2 inflamm*):ti,ab,kw
#5.	(#1 or #2 or #3 or #4)
#6.	MeSH descriptor Pneumonia, Ventilator-Associated, this term only
#7.	(#5 and not #6)
#8.	child*:ti,ab,kw
#9.	infan*:ti,ab,kw
#10.	(baby or babies):ti,ab,kw
#11.	adolescen*:ti,ab,kw
#12.	(pediatric? or paediatric?):ti,ab,kw
#13.	{or #8-#12}
#14.	adult*:kw
#15.	(#13 and not #14)



#16.	(#7 and not #15)
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### F.1.2 Population B: Pneumonia/lower respiratory tract infection

#### Medline search terms

1.	exp pneumonia/
2.	(pneumonit* or pneumonia).ti,ab.
3.	bronchopneumonia.ti,ab.
4.	pleuropneumonia.ti,ab.
5.	((lung or lobar or pulmonary) adj2 inflamm*).ti,ab.
6.	(lower respiratory adj3 (infection* or inflamm*)).ti,ab.
7.	LRTI.ti,ab.
8.	or/1-7
9.	*pneumonia, ventilator-associated/
10.	8 not 9
11.	exp child/
12.	child*.tw.
13.	exp infant/
14.	infan*.tw.
15.	(baby or babies).tw.
16.	"adolescent"/
17.	(pediatric*1 or paediatric*1).tw.
18.	or/11-17
19.	exp adult/
20.	18 not 19
21.	10 not 20

#### Embase search terms

1.	exp *pneumonia/
2.	(pneumonit* or pneumonia).ti,ab.
3.	bronchopneumonia.ti,ab.
4.	pleuropneumonia.ti,ab.
5.	((lung or lobar or pulmonary) adj2 inflamm*).ti,ab.
6.	(lower respiratory adj3 (infection* or inflamm*)).ti,ab.
7.	LRTI.ti,ab.
8.	or/1-7
9.	*ventilator associated pneumonia/
10.	8 not 9
11.	exp child/
12.	child*.tw.
13.	childhood/
14.	infancy/
15.	infan*.tw.
16.	(baby or babies).tw.
17.	exp adolescent/
18.	(pediatric*1 or paediatric*1).tw.

19.	or/11-18
20.	adult/
21.	aged/
22.	or/20-21
23.	19 not 22
24.	10 not 23

**Cochrane search terms**

#1.	MeSH descriptor Pneumonia explode all trees
#2.	(pneumonia* or pneumonit*):ti,ab,kw
#3.	(bronchopneumonia or pleuropneumonia):ti,ab,kw
#4.	((lung or lobar or pulmonary) near/2 inflamm*):ti,ab,kw
#5.	(lower respiratory near/3 (infection* or inflamm*)):ti,ab,kw
#6.	LRTI:ti,ab,kw
#7.	(#1 or #2 or #3 or #4 or #5 or #6)
#8.	MeSH descriptor Pneumonia, Ventilator-Associated, this term only
#9.	(#7 and not #8)
#10.	child*:ti,ab,kw
#11.	infan*:ti,ab,kw
#12.	(baby or babies):ti,ab,kw
#13.	adolescen*:ti,ab,kw
#14.	(pediatric? or paediatric?):ti,ab,kw
#15.	{or #10-#14}
#16.	adult*:kw
#17.	(#15 and not #16)
#18.	(#9 and not #17)

**F.1.3 Population C: Pneumonia/signs or symptoms of lower respiratory tract infection****Medline search terms**

1.	exp pneumonia/
2.	(pneumonit* or pneumonia).ti,ab.
3.	bronchopneumonia.ti,ab.
4.	pleuropneumonia.ti,ab.
5.	((lung or lobar or pulmonary) adj2 inflamm*).ti,ab.
6.	(lower respiratory adj3 (infection* or inflamm*)).ti,ab.
7.	LRTI.ti,ab.
8.	exp respiratory tract infections/
9.	acute respiratory infection*.tw.
10.	lower respiratory infection*.tw.
11.	lower respiratory tract infection*.tw.
12.	exp bronchitis/
13.	bronchit*.tw.
14.	cough/
15.	cough*.tw.
16.	hemoptysis/

17.	(hemoptysis or haemoptysis).tw.
18.	sputum/
19.	sputum.tw.
20.	fever/
21.	(fever* or pyrexia).tw.
22.	exp pleurisy/
23.	(pleurisy or pleuritis).tw.
24.	pleural effusion/
25.	exp dyspnea/
26.	(dyspnoea or dyspnea).tw.
27.	respiratory sounds/
28.	(rales or crackles or rhonchi).tw.
29.	or/1-28
30.	*pneumonia, ventilator-associated/
31.	29 not 30
32.	exp child/
33.	child*.tw.
34.	exp infant/
35.	infan*.tw.
36.	(baby or babies).tw.
37.	"adolescent"/
38.	(pediatric*1 or paediatric*1).tw.
39.	or/32-38
40.	exp adult/
41.	39 not 40
42.	31 not 41

**Embase search terms**

1.	exp *pneumonia/
2.	(pneumonit* or pneumonia).ti,ab.
3.	bronchopneumonia.ti,ab.
4.	pleuropneumonia.ti,ab.
5.	((lung or lobar or pulmonary) adj2 inflamm*).ti,ab.
6.	(lower respiratory adj3 (infection* or inflamm*)).ti,ab.
7.	LRTI.ti,ab.
8.	exp lower respiratory tract infection/
9.	exp bronchitis/
10.	coughing/
11.	hemoptysis/
12.	sputum/
13.	fever/
14.	exp pleurisy/
15.	pleura effusion/
16.	exp dyspnea/
17.	stridor/

18.	wheezing/
19.	abnormal respiratory sound/
20.	acute respiratory infection*.tw.
21.	lower respiratory infection*.tw.
22.	lower respiratory tract infection*.tw.
23.	bronchit*.tw.
24.	cough*.tw.
25.	(hemoptysis or haemoptysis).tw.
26.	sputum.tw.
27.	(fever* or pyrexia).tw.
28.	(pleurisy or pleuritis).tw.
29.	(dyspnoea or dyspnea).tw.
30.	(rales or crackles or rhonchi).tw.
31.	or/1-30
32.	*ventilator associated pneumonia/
33.	31 not 32
34.	exp child/
35.	child*.tw.
36.	childhood/
37.	infancy/
38.	infan*.tw.
39.	(baby or babies).tw.
40.	exp adolescent/
41.	(pediatric*1 or paediatric*1).tw.
42.	or/34-41
43.	adult/
44.	aged/
45.	or/43-44
46.	42 not 45
47.	33 not 46

**Cochrane search terms**

#1.	MeSH descriptor: [Pneumonia] explode all trees
#2.	(pneumonia* or pneumonit*):ti,ab,kw
#3.	(bronchopneumonia or pleuropneumonia):ti,ab,kw
#4.	((lung or lobar or pulmonary) near/2 inflamm*):ti,ab,kw
#5.	(lower respiratory near/3 (infection* or inflamm*)):ti,ab,kw
#6.	LRTI:ti,ab,kw
#7.	acute respiratory infection*:ti,ab,kw
#8.	lower respiratory infection*:ti,ab,kw
#9.	lower respiratory tract infection*:ti,ab,kw
#10.	bronchit*:ti,ab,kw
#11.	cough*:ti,ab,kw
#12.	(hemoptysis or haemoptysis):ti,ab,kw
#13.	sputum:ti,ab,kw

#14.	(fever* or pyrexia):ti,ab,kw
#15.	(pleurisy or pleuritis):ti,ab,kw
#16.	(dyspnoea or dyspnea):ti,ab,kw
#17.	(rales or crackles or rhonchi):ti,ab,kw
#18.	pleural effusion:ti,ab,kw
#19.	MeSH descriptor: [Respiratory Sounds] explode all trees
#20.	{or #1-#19}
#21.	MeSH descriptor: [Pneumonia, Ventilator-Associated] this term only
#22.	#20 not #21
#23.	child*:ti,ab,kw
#24.	infan*:ti,ab,kw
#25.	(baby or babies):ti,ab,kw
#26.	adolescen*:ti,ab,kw
#27.	(pediatric? or paediatric?):ti,ab,kw
#28.	{or #23-#27}
#29.	adult*:kw
#30.	#28 not #29
#31.	#22 not #30

## F.2 Study filter search terms

### F.2.1 Systematic review (SR) search terms

#### Medline search terms

1.	meta-analysis/
2.	meta-analysis as topic/
3.	(meta analy* or metanaly* or metaanaly*).ti,ab.
4.	((systematic* or evidence*) adj2 (review* or overview*)).ti,ab.
5.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
6.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
7.	(search* adj4 literature).ab.
8.	(medline or pubmed or cochrane or embase or psychlit or psyclit or psychinfo or psycinfo or cinahl or science citation index or bids or cancerlit).ab.
9.	cochrane.jw.
10.	or/1-9

#### Embase search terms

1.	systematic review/
2.	meta-analysis/
3.	(meta analy* or metanaly* or metaanaly*).ti,ab.
4.	((systematic or evidence) adj2 (review* or overview*)).ti,ab.
5.	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.
6.	(search strategy or search criteria or systematic search or study selection or data extraction).ab.
7.	(search* adj4 literature).ab.
8.	(medline or pubmed or cochrane or embase or psychlit or psyclit or psychinfo or psycinfo or cinahl or science citation index or bids or cancerlit).ab.

9.	((pool* or combined) adj2 (data or trials or studies or results)).ab.
10.	cochrane.jw.
11.	or/1-10

## F.2.2 Randomised controlled trial (RCT) search terms

### Medline search terms

1.	randomized controlled trial.pt.
2.	controlled clinical trial.pt.
3.	randomi#ed.ab.
4.	placebo.ab.
5.	randomly.ab.
6.	clinical trials as topic.sh.
7.	trial.ti.
8.	or/1-7

### Embase search terms

1.	random*.ti,ab.
2.	factorial*.ti,ab.
3.	(crossover* or cross over*).ti,ab.
4.	((doubl* or singl*) adj blind*).ti,ab.
5.	(assign* or allocat* or volunteer* or placebo*).ti,ab.
6.	crossover procedure/
7.	double blind procedure/
8.	single blind procedure/
9.	randomized controlled trial/
10.	or/1-9

## F.2.3 Observational studies search terms

### Medline search terms

1.	epidemiologic studies/
2.	exp case control studies/
3.	exp cohort studies/
4.	cross-sectional studies/
5.	case control.ti,ab.
6.	(cohort adj (study or studies or analys*)).ti,ab.
7.	((follow up or observational or uncontrolled or non randomi#ed or nonrandomi#ed or epidemiologic*) adj (study or studies)).ti,ab.
8.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort*)).ti,ab.
9.	or/1-8

### Embase search terms

1.	clinical study/
2.	exp case control study/
3.	family study/
4.	longitudinal study/

5.	retrospective study/
6.	prospective study/
7.	cross-sectional study/
8.	cohort analysis/
9.	follow-up/
10.	cohort*.ti,ab.
11.	9 and 10
12.	case control.ti,ab.
13.	(cohort adj (study or studies or analys*)).ti,ab.
14.	((follow up or observational or uncontrolled or non randomi#ed or nonrandomi#ed or epidemiologic*) adj (study or studies)).ti,ab.
15.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort*)).ti,ab.
16.	or/1-8,11-15

#### F.2.4 Prognostic studies search terms

##### Medline search terms

1.	predict.ti.
2.	(validat* or rule*).ti,ab.
3.	(predict* and (outcome* or risk* or model*)).ti,ab.
4.	((history or variable* or criteria or scor* or characteristic* or finding* or factor*) and (predict* or model* or decision* or identif* or prognos*)).ti,ab.
5.	decision*.ti,ab. and Logistic models/
6.	(decision* and (model* or clinical*)).ti,ab.
7.	(prognostic and (history or variable* or criteria or scor* or characteristic* or finding* or factor* or model*)).ti,ab.
8.	(stratification or discrimination or discriminate or c statistic or "area under the curve" or AUC or calibration or indices or algorithm or multivariable).ti,ab.
9.	ROC curve/
10.	or/1-9

##### Embase search terms

1.	predict.ti.
2.	(validat* or rule*).ti,ab.
3.	(predict* and (outcome* or risk* or model*)).ti,ab.
4.	((history or variable* or criteria or scor* or characteristic* or finding* or factor*) and (predict* or model* or decision* or identif* or prognos*)).ti,ab.
5.	decision*.ti,ab. and Statistical model/
6.	(decision* and (model* or clinical*)).ti,ab.
7.	(prognostic and (history or variable* or criteria or scor* or characteristic* or finding* or factor* or model*)).ti,ab.
8.	(stratification or discrimination or discriminate or c statistic or "area under the curve" or AUC or calibration or indices or algorithm or multivariable).ti,ab.
9.	receiver operating characteristic/
10.	or/1-9

## F.2.5 Health economics search terms

### Medline search terms

1.	economics/
2.	value of life/
3.	exp "costs and cost analysis"/
4.	exp economics, hospital/
5.	exp economics, medical/
6.	economics, nursing/
7.	economics, pharmaceutical/
8.	exp "fees and charges"/
9.	exp budgets/
10.	budget*.ti,ab.
11.	cost*.ti.
12.	(economic* or pharmaco?economic*).ti.
13.	(price* or pricing*).ti,ab.
14.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
15.	(financ* or fee or fees).ti,ab.
16.	(value adj2 (money or monetary)).ti,ab.
17.	or/1-16

### Embase search terms

1.	health economics/
2.	exp economic evaluation/
3.	exp health care cost/
4.	exp fee/
5.	budget/
6.	funding/
7.	budget*.ti,ab.
8.	cost*.ti.
9.	(economic* or pharmaco?economic*).ti.
10.	(price* or pricing*).ti,ab.
11.	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
12.	(financ* or fee or fees).ti,ab.
13.	(value adj2 (money or monetary)).ti,ab.
14.	or/1-13

## F.2.6 Quality-of-life search terms

### Medline search terms

1.	quality-adjusted life years/
2.	sickness impact profile/
3.	(quality adj2 (wellbeing or well-being)).ti,ab.
4.	sickness impact profile.ti,ab.
5.	disability adjusted life.ti,ab.
6.	(qal* or qtime* or qwb* or daly*).ti,ab.
7.	(euroqol* or eq5d* or eq 5d*).ti,ab.



8.	(qol* or hql* or hqol* or h qol* or hrqol* or hr qol*).ti,ab.
9.	(health utility* or utility score* or disutilit*).ti,ab.
10.	(hui or hui1 or hui2 or hui3).ti,ab.
11.	health* year* equivalent*.ti,ab.
12.	(hye or hyes).ti,ab.
13.	rosser.ti,ab.
14.	(willingness to pay or time tradeoff or time trade off or tto or standard gamble*).ti,ab.
15.	(sf36 or sf 36 or short form 36 or shortform 36 or shortform36).ti,ab.
16.	(sf20 or sf 20 or short form 20 or shortform 20 or shortform20).ti,ab.
17.	(sf12 or sf 12 or short form 12 or shortform 12 or shortform12).ti,ab.
18.	(sf8 or sf 8 or short form 8 or shortform 8 or shortform8).ti,ab.
19.	(sf6 or sf 6 or short form 6 or shortform 6 or shortform6).ti,ab.
20.	or/1-19

**Embase search terms**

1.	quality adjusted life year/
2.	"quality of life index"/
3.	short form 12/ or short form 20/ or short form 36/ or short form 8/
4.	sickness impact profile/
5.	(quality adj2 (wellbeing or well-being)).ti,ab.
6.	sickness impact profile.ti,ab.
7.	disability adjusted life.ti,ab.
8.	(qal* or qtime* or qwb* or daly*).ti,ab.
9.	(euroqol* or eq5d* or eq 5d*).ti,ab.
10.	(qol* or hql* or hqol* or h qol* or hrqol* or hr qol*).ti,ab.
11.	(health utility* or utility score* or disutilit*).ti,ab.
12.	(hui or hui1 or hui2 or hui3).ti,ab.
13.	health* year* equivalent*.ti,ab.
14.	(hye or hyes).ti,ab.
15.	rosser.ti,ab.
16.	(willingness to pay or time tradeoff or time trade off or tto or standard gamble*).ti,ab.
17.	(sf36 or sf 36 or short form 36 or shortform 36 or shortform36).ti,ab.
18.	(sf20 or sf 20 or short form 20 or shortform 20 or shortform20).ti,ab.
19.	(sf12 or sf 12 or short form 12 or shortform 12 or shortform12).ti,ab.
20.	(sf8 or sf 8 or short form 8 or shortform 8 or shortform8).ti,ab.
21.	(sf6 or sf 6 or short form 6 or shortform 6 or shortform6).ti,ab.
22.	or/1-21

**F.2.7 Excluded study designs and publication types**

The following study designs and publication types were removed from **all** search results retrieved on Medline and Embase using the NOT operator.

**Medline search terms**

1.	letter/
2.	editorial/
3.	news/

4.	exp historical article/
5.	anecdotes as topic/
6.	comment/
7.	case report/
8.	(letter or comment*).ti.
9.	or/1-8
10.	randomized controlled trial/ or random*.ti,ab.
11.	9 not 10
12.	animals/ not humans/
13.	exp animals, laboratory/
14.	exp animal experimentation/
15.	exp models, animal/
16.	exp rodentia/
17.	(rat or rats or mouse or mice).ti.
18.	or/11-17

**Embase search terms**

1.	letter.pt. or letter/
2.	note.pt.
3.	editorial.pt.
4.	case report/ or case study/
5.	(letter or comment*).ti.
6.	or/1-5
7.	randomized controlled trial/ or random*.ti,ab.
8.	6 not 7
9.	animal/ not human/
10.	nonhuman/
11.	exp animal experiment/
12.	exp experimental animal/
13.	animal model/
14.	exp rodent/
15.	(rat or rats or mouse or mice).ti.
16.	or/8-15

### F.3 Searches for specific questions

#### F.3.1 Diagnostic tests

1. In adults with lower respiratory tract infection in the community, what is the clinical value and cost effectiveness of testing C-reactive protein, procalcitonin or performing a chest X-ray over clinical assessment to inform antibiotic prescribing decisions and need for hospital admission?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Population C (F.1.3) Pneumonia, signs and symptoms of	C-reactive protein, procalcitonin, chest X-ray in the community.	n/a	SRs RCTs Prognostic (filters used in Medline)	All dates (see Table 1)

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
lower respiratory tract infection			and Embase only)	

**Medline search terms**

1.	exp primary health care/
2.	exp physician's practice patterns/
3.	exp family practice/
4.	exp physicians, primary care/
5.	exp general practice/
6.	exp physicians, family/
7.	exp general practitioners/
8.	exp "referral and consultation"/
9.	((primary or communit*) adj5 care).ti,ab.
10.	(family practi* or family doctor* or family physician* or gp* or general practi*).ti,ab.
11.	exp outpatient clinics, hospital/
12.	exp ambulatory care/
13.	exp community health services/ or exp community health centers/
14.	casualty*.tw.
15.	community-acquired infections/
16.	community acquired.ti,ab.
17.	or/1-16
18.	c-reactive protein/
19.	crp.ti,ab.
20.	c reactive protein*.ti,ab.
21.	procalcitonin.ti,ab.
22.	pro-calcitonin.ti,ab.
23.	radiography, thoracic/
24.	((chest or thorax or thoracic or lung* or bronch* or trachea*) adj2 (x-ray or xray or imag* or radiogra* or radiol*)).ti,ab.
25.	or/18-24
26.	17 and 25

**Embase search terms**

1.	exp primary health care/
2.	exp professional practice/
3.	exp clinical practice/
4.	exp general practice/
5.	general practitioner/
6.	patient referral/
7.	((primary or communit*) adj5 care).ti,ab.
8.	(family practi* or family doctor* or family physician* or gp* or general practi*).ti,ab.
9.	exp outpatient department/
10.	exp ambulatory care/
11.	exp community care/
12.	health center/

13.	casualty*.tw.
14.	communicable disease/
15.	community acquired.ti,ab.
16.	or/1-15
17.	c reactive protein/
18.	procalcitonin/
19.	crp.ti,ab.
20.	c reactive protein*.ti,ab.
21.	procalcitonin.ti,ab.
22.	pro-calcitonin.ti,ab.
23.	((chest or thorax or thoracic or lung* or bronch* or trachea*) adj2 (x-ray or xray or imag* or radiogra* or radiol*)):ti,ab.
24.	exp thorax radiography/
25.	or/17-25
26.	16 and 25

### Cochrane search terms

#1.	((primary or communit* or ambulatory) near/5 (care or health)):ti,ab,kw
#2.	(family practi* or family doctor* or family physician* or gp* or general practi*):ti,ab,kw
#3.	casualty*:ti,ab,kw
#4.	community acquired:ti,ab,kw
#5.	MeSH descriptor: [Referral and Consultation] explode all trees
#6.	MeSH descriptor: [Outpatient Clinics, Hospital] explode all trees
#7.	MeSH descriptor: [Physician's Practice Patterns] explode all trees
#8.	{or #1-#7}
#9.	((chest or thorax or thoracic or lung* or bronch* or trachea*) near/2 (x-ray or xray or imag* or radiogra* or radiol*)):ti,ab,kw
#10.	crp:ti,ab,kw
#11.	c reactive protein*:ti,ab,kw
#12.	(procalcitonin or pro-calcitonin):ti,ab,kw
#13.	MeSH descriptor: [Radiography, Thoracic] explode all trees
#14.	{or #9-#13}
#15.	#8 and #14

### F.3.2 Severity assessment - lower respiratory tract infection or suspected community-acquired pneumonia in the community

2. In adults presenting with a lower respiratory tract infection or suspected community-acquired pneumonia in the community, what is the most accurate and cost-effective severity assessment tool to identify patients whose outcome will be improved by referral to hospital?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Population C (F.1.3) Pneumonia, signs and symptoms of lower respiratory tract infection	Severity assessment tools in the community	n/a	SRs RCTs (filters used in Medline and Embase only)	All dates (see Table 1)

**Medline search terms**

1.	exp primary health care/
2.	exp physician's practice patterns/
3.	exp family practice/
4.	exp physicians, primary care/
5.	exp general practice/
6.	exp physicians, family/
7.	exp general practitioners/
8.	exp "referral and consultation"/
9.	((primary or communit*) adj5 care).ti,ab.
10.	(family practi* or family doctor* or family physician* or gp* or general practi*).ti,ab.
11.	exp outpatient clinics, hospital/
12.	exp ambulatory care/
13.	exp community health services/ or exp community health centers/
14.	casualty*.tw.
15.	community-acquired infections/
16.	community acquired.ti,ab.
17.	or/1-16
18.	systemic inflammatory response syndrome criteria.ti,ab.
19.	((early warning or mews or sirs) adj3 (criteria or rule* or scor* or predict* or tool*)).ti,ab.
20.	(modified ews adj3 (criteria or rule* or scor* or predict* or tool*)).ti,ab.
21.	guideline*.ti,ab.
22.	(crb65 or crb-65).ti,ab.
23.	(crb adj3 (criteria or rule* or scor* or predict* or tool*)).ti,ab.
24.	(national institute for health or nice).ti,ab.
25.	21 and 24
26.	c-reactive protein/
27.	crp.ti,ab.
28.	c reactive protein*.ti,ab.
29.	procalcitonin.ti,ab.
30.	pro-calcitonin.ti,ab.
31.	or/26-30
32.	or/18-20,22-23,25,31
33.	17 and 32

**Embase search terms**

1.	exp primary health care/
2.	exp professional practice/
3.	exp clinical practice/
4.	exp general practice/
5.	general practitioner/
6.	patient referral/
7.	((primary or communit*) adj5 care).ti,ab.
8.	(family practi* or family doctor* or family physician* or gp* or general practi*).ti,ab.
9.	exp outpatient department/
10.	exp ambulatory care/

11.	exp community care/
12.	health center/
13.	casualty*.tw.
14.	communicable disease/
15.	community acquired.ti,ab.
16.	or/1-15
17.	systemic inflammatory response syndrome criteria.ti,ab.
18.	((early warning or mews or sirs) adj3 (criteria or rule* or scor* or predict* or tool*)):ti,ab.
19.	(modified ews adj3 (criteria or rule* or scor* or predict* or tool*)):ti,ab.
20.	(crb65 or crb-65).ti,ab.
21.	(crb adj3 (criteria or rule* or scor* or predict* or tool*)):ti,ab.
22.	guideline*.ti,ab.
23.	(national institute for health or nice).ti,ab.
24.	and/22-23
25.	c reactive protein/
26.	procalcitonin/
27.	crp.ti,ab.
28.	c reactive protein*.ti,ab.
29.	procalcitonin.ti,ab.
30.	pro-calcitonin.ti,ab.
31.	or/17-21,24,25-30
32.	16 and 31

**Cochrane search terms**

#1.	((primary or communit* or ambulatory) near/5 (care or health)):ti,ab,kw
#2.	(family practi* or family doctor* or family physician* or gp* or general practi*):ti,ab,kw
#3.	casualty*:ti,ab,kw
#4.	community acquired:ti,ab,kw
#5.	MeSH descriptor: [Referral and Consultation] explode all trees
#6.	MeSH descriptor: [Outpatient Clinics, Hospital] explode all trees
#7.	MeSH descriptor: [Physician's Practice Patterns] explode all trees
#8.	{or #1-#7}
#9.	systemic inflammatory response syndrome criteria:ti,ab
#10.	((early warning or mews or sirs) near/3 (criteria or rule* or scor* or predict* or tool*)):ti,ab
#11.	(modified ews near/3 (criteria or rule* or scor* or predict* or tool*)):ti,ab
#12.	(crb65 or crb-65):ti,ab
#13.	(crb near/3 (criteria or rule* or scor* or predict* or tool*)):ti,ab
#14.	{or #9-#13}
#15.	(national institute for health or nice):ti,ab
#16.	guideline*:ti,ab
#17.	#15 and #16
#18.	crp:ti,ab
#19.	c reactive protein*:ti,ab,kw
#20.	(procalcitonin or pro-calcitonin):ti,ab,kw
#21.	{or #18-#20}

#22.	{or #14,#17,#21}
#23.	#8 and #22

### F.3.3 Severity assessment - community-acquired pneumonia

3. In adults with community-acquired pneumonia (presenting to Accident and Emergency) what is the most accurate and cost-effective severity assessment tool to stratify patients at first presentation according to who would benefit from
- hospital admission?
  - ITU assessment?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Population A (F.1.1) Pneumonia	Severity assessment tools	n/a	None	All dates (see Table 1)

#### Medline search terms

1.	(curb65 or crb65 or curb-65 or crb-65).ti,ab.
2.	((a-drop or adrop or ecurb or e-curb or corb) adj3 (criteria or rule* or scor* or predict* or tool*)).ti,ab.
3.	((curb or severe community acquired pneumonia or scap or severe cap) adj3 (criteria or rule* or scor* or predict* or tool*)).ti,ab.
4.	(smart-cop or smrt-co).ti,ab.
5.	((early warning or ews) adj3 (criteria or rule* or scor* or predict* or tool*)).ti,ab.
6.	((psi or port or fine) adj3 (criteria or rule* or scor* or predict* or tool*)).ti,ab.
7.	pneumonia severity index.ti,ab.
8.	((ats or idsa or sccm or accp or american thoracic society or infectious disease* society or sirs or organ dysfunction or sepsis severity) adj5 (criteria or scor* or predict* or rule* or tool*)).ti,ab.
9.	(apache-ii or apacheii or "acute physiolog* assessment and chronic health evaluation").ti,ab.
10.	systemic inflammatory response syndrome criteria.ti,ab.
11.	(sofa or sepsis-related organ failure assessment or sequential organ failure assessment).ti,ab.
12.	(clinician determined illness severity or cdis).ti,ab.
13.	(rea-icu or "risk of early admission to icu").ti,ab.
14.	or/1-13

#### Embase search terms

1.	(curb65 or crb65 or curb-65 or crb-65).ti,ab.
2.	((a-drop or adrop or ecurb or e-curb or corb) adj3 (criteria or rule* or scor* or predict* or tool*)).ti,ab.
3.	((curb or severe community acquired pneumonia or scap or severe cap) adj3 (criteria or rule* or scor* or predict* or tool*)).ti,ab.
4.	(smart-cop or smrt-co).ti,ab.
5.	((early warning or ews) adj3 (criteria or rule* or scor* or predict* or tool*)).ti,ab.
6.	((psi or port or fine) adj3 (criteria or rule* or scor* or predict* or tool*)).ti,ab.
7.	pneumonia severity index.ti,ab.
8.	((ats or idsa or sccm or accp or american thoracic society or infectious disease* society or sirs or organ dysfunction or sepsis severity) adj5 (criteria or scor* or predict* or rule* or

	tool*)):ti,ab.
9.	(apache-ii or apacheii or "acute physiolog* assessment and chronic health evaluation").ti,ab.
10.	systemic inflammatory response syndrome criteria.ti,ab.
11.	(sofa or sepsis-related organ failure assessment or sequential organ failure assessment).ti,ab.
12.	(clinician determined illness severity or cdis).ti,ab.
13.	(rea-icu or "risk of early admission to icu").ti,ab.
14.	or/1-13

### Cochrane search terms

#1.	(curb65 or crb65 or curb-65 or crb-65 or smart-cop or smrt-co or apache-ii or apacheii or systemic inflammatory response syndrome criteria or sofa or sepsis-related organ failure assessment or sequential organ failure assessment or clinician determined illness severity or cdis):ti,ab
#2.	((curb or severe community acquired pneumonia or scap or severe cap or adrop or a-drop or ecurb or e-curb or corb or early warning or ewe or psi or port* or fine) near/3 (criteria or rule* or scor* or predict* or tool*)):ti,ab
#3.	pneumonia severity index:ti,ab
#4.	((ats or idsa or sccm or accp or american thoracic society or infectious disease* society or sirs or organ dysfunction or sepsis severity) near/5 (criteria or scor* or predict* or rule* or tool*)):ti,ab
#5.	(physiolog* assessment near/2 chronic health evaluation):ti,ab
#6.	(rea-icu or "risk of early admission to icu"):ti,ab
#7.	{or #1-#6}

### F.3.4 Severity assessment - hospital-acquired pneumonia

4. In adults with hospital-acquired pneumonia what is the most accurate and cost-effective severity assessment tool to stratify patients at first presentation according to who would benefit from ITU assessment?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Hospital-acquired pneumonia (see below)	Severity assessment tools	n/a	SRs RCTs Observational Prognostic (filters used in Medline and Embase only)	All dates (see Table 1)

### Medline search terms

1.	exp pneumonia
2.	cross infection/
3.	exp residential facilities/
4.	1 and (2 or 3)
5.	((health care or healthcare or residential or nursing home* or care or hospital*) adj2 (acquire* or associate*) adj5 (pneumon* or pleuropneumon* or bronchopneumon*)):ti,ab.
6.	((nosocomial or cross infect*) adj5 (pneumon* or pleuropneumon* or bronchopneumon*)):ti,ab.
7.	or/4-6
8.	(criteria or rule* or scor* or predict*):ti,ab.
9.	((decision or predict* or assess* or screen* or score* or scoring or stratif*) adj4 (tool* or rule*



	or instrument*1 or index* or test* or technique* or analys* or criteria)).ti,ab.
10.	(severity adj2 (assess* or index or indices or score or scoring)).ti,ab.
11.	or/8-10
12.	7 and 11

**Embase search terms**

1.	exp *pneumonia/
2.	*hospital infection/
3.	*cross infection/
4.	*healthcare associated infection/
5.	*residential home/
6.	*nursing home/
7.	*assisted living facility/
8.	or/2-7
9.	1 and 8
10.	((health care or healthcare or residential or nursing home* or care or hospital*) adj2 (acquire* or associate*) adj5 (pneumon* or pleuropneumon* or bronchopneumon*)).ti,ab.
11.	((nosocomial or cross infect*) adj5 (pneumon* or pleuropneumon* or bronchopneumon*)).ti,ab.
12.	or/9-10
13.	(criteria or rule* or scor* or predict*).ti,ab.
14.	((decision or predict* or assess* or screen* or score* or scoring or stratif*) adj4 (tool* or rule* or instrument*1 or index* or test* or technique* or analys* or criteria)).ti,ab.
15.	(severity adj2 (assess* or index or indices or score or scoring)).ti,ab.
16.	or/13-15
17.	12 and 16

**Cochrane search terms**

#1.	((health care or healthcare or residential or nursing home* or care or hospital*) near/2 (acquire* or associate*) near/5 (pneumon* or pleuropneumon* or bronchopneumon*)):ti,ab,kw
#2.	((nosocomial or cross infect*) near/5 (pneumon* or pleuropneumon* or bronchopneumon*)):ti,ab,kw
#3.	#1 or #2
#4.	(criteria or rule* or scor* or predict*):ti,ab,kw
#5.	((decision or predict* or assess* or screen* or score* or scoring or stratif*) near/4 (tool* or rule* or instrument*1 or index* or test* or technique* or analys* or criteria)):ti,ab,kw
#6.	(severity near/2 (assess* or index or indices or score or scoring)):ti,ab,kw
#7.	#4 or #5 or #6
#8.	#3 and #7

**F.3.5 Microbiological tests**

Two searches were conducted for the following question. The second search was conducted only on Medline and Embase for observational studies. Further SRs and RCTs for this question were identified from the search for antibiotic treatment (section F.3.7).

5. In adults with community-acquired pneumonia or hospital-acquired pneumonia in a hospital setting, what microbiological test or combination of tests at presentation (including urinary

pneumococcal and urinary legionella antigen, blood culture and sputum culture) is most likely to be clinically and cost effective?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Population A (F.1.1) Pneumonia	Microbiological test or combination of tests	n/a	SRs RCTs Observational (filters used in Medline and Embase only)	All dates (see Table 1)

#### Medline search terms

1.	antigens, bacterial/
2.	urinalysis/
3.	(urin* adj2 antigen*).ti,ab.
4.	((sputum or blood) adj2 culture*).ti,ab.
5.	(sputum adj2 gram).ti,ab.
6.	gram stain*.ti,ab.
7.	or/1-6

#### Embase search terms

1.	blood culture/
2.	sputum culture/
3.	gram staining/
4.	bacterial antigen/
5.	urinalysis/
6.	antigen detection/
7.	(urin* adj2 antigen*).ti,ab.
8.	((sputum or blood) adj2 culture*).ti,ab.
9.	(sputum adj2 gram).ti,ab.
10.	gram stain*.ti,ab.
11.	or/1-10

#### Cochrane search terms

#1.	(urin* near/2 antigen*).ti,ab,kw
#2.	((sputum or blood) near/2 culture*).ti,ab,kw
#3.	gram stain*.ti,ab,kw
#4.	(sputum near/2 gram).ti,ab,kw
#5.	MeSH descriptor: [Antigens, Bacterial] explode all trees
#6.	MeSH descriptor: [Urinalysis] explode all trees
#7.	{or #1-#6}

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Population A (F.1.1) Pneumonia	Targeted therapy	n/a	Observational (filters used in Medline and Embase only)	All dates (see Table 1)

**Medline search terms**

1.	((target* or direct* or pathogen* or broad-spectrum or nontarget* or non-target* or empiric*) adj3 (treatment* or therapy or antibiotic* or anti-bacterial* or antibacterial* or anti-microbial* or antimicrobial* or anti-mycobacterial* or antimycobacterial* or bacteriocid* or bactericid*).ti,ab.
----	--

**Embase search terms**

1.	((target* or direct* or pathogen* or broad-spectrum or nontarget* or non-target* or empiric*) adj3 (treatment* or therapy or antibiotic* or anti-bacterial* or antibacterial* or anti-microbial* or antimicrobial* or anti-mycobacterial* or antimycobacterial* or bacteriocid* or bactericid*).ti,ab.
----	--

**F.3.6 Timing of antibiotic treatment**

One search was conducted for the following 2 questions:

6. In adults with suspected community-acquired pneumonia is earlier rather than later antibiotic administration more clinically and cost effective?
7. In adults with hospital-acquired pneumonia is earlier rather than later antibiotic administration more clinically and cost effective?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Population B (F.1.2) Pneumonia, lower respiratory tract infection	Earlier or later administration of antibiotics	n/a	SRs RCTs Observational (filters used in Medline and Embase only)	All dates (see Table 1)

**Medline search terms**

1.	time factors/
2.	((prompt or hour* or rapid or within or early or earlier or late* or time* or late or later or delay*) adj8 (initiat* or start* or treat* or therap* or administ* or prescri* or antibiotic*).ti,ab.
3.	or/1-2
4.	exp anti-bacterial agents/
5.	antibiotic*.ti,ab.
6.	(anti-bacterial* or antibacterial*).ti,ab.
7.	(anti-microbial* or antimicrobial*).ti,ab.
8.	(anti-mycobacterial* or antimycobacterial*).ti,ab.
9.	(bacteriocid* or bactericid*).ti,ab.
10.	or/4-9
11.	3 and 10

**Embase search terms**

1.	*time/
2.	therapy delay/
3.	((prompt or hour* or rapid or within or early or earlier or late* or time* or late or later or delay*) adj8 (initiat* or start* or treat* or therap* or administ* or prescri* or antibiotic*).ti,ab.
4.	or/1-3
5.	exp antibiotic agent/

6.	antibiotic*.ti,ab.
7.	(anti-bacterial* or antibacterial*).ti,ab.
8.	(anti-microbial* or antimicrobial*).ti,ab.
9.	(anti-mycobacterial* or antimycobacterial*).ti,ab.
10.	(bacteriocid* or bactericid*).ti,ab.
11.	or/5-10
12.	4 and 11

### Cochrane search terms

#1.	MeSH descriptor: [Anti-Bacterial Agents] explode all trees
#2.	(antibiotic* or anti-bacterial* or antibacterial* or anti-microbial* or antimicrobial* or anti-mycobacterial* or antimycobacterial* or bacteriocid* or bactericid*):ti,ab,kw
#3.	#1 or #2
#4.	((prompt or hour* or rapid or within or early or earlier or late* or time* or late or later or delay*) near/8 (initiat* or start* or treat* or therap* or administ* or prescri* or antibiotic*)):ti,ab,kw
#5.	#3 and #4

### F.3.7 Antibiotic treatment

One search was conducted for the following 4 questions:

8. In adults with community-acquired pneumonia what is the most clinically- and cost-effective empirical antibiotic choice?
9. In adults with hospital-acquired pneumonia what is the most clinically- and cost-effective empirical antibiotic choice?
10. In adults with community-acquired pneumonia what is the clinical and cost effectiveness of short- compared with longer-course antibiotics?
11. In adults with hospital-acquired pneumonia what is the clinical and cost effectiveness of short- compared with longer-course antibiotics?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Population A (F.1.1) Pneumonia	Antibiotics	n/a	SRs RCTs (filters used in Medline and Embase only)	All dates (see Table 1)

### Medline search terms

1.	exp anti-bacterial agents/
2.	antibiotic*.ti,ab.
3.	(anti-bacterial* or antibacterial*).ti,ab.
4.	(anti-microbial* or antimicrobial*).ti,ab.
5.	(anti-mycobacterial* or antimycobacterial*).ti,ab.
6.	(bacteriocid* or bactericid*).ti,ab.
7.	or/1-6

### Embase search terms

1.	exp antibiotic agent/
2.	antibiotic*.ti,ab.

3.	(anti-bacterial* or antibacterial*).ti,ab.
4.	(anti-microbial* or antimicrobial*).ti,ab.
5.	(anti-mycobacterial* or antimycobacterial*).ti,ab.
6.	(bacteriocid* or bactericid*).ti,ab.
7.	or/1-6

**Cochrane search terms**

#1.	MeSH descriptor Anti-Bacterial Agents explode all trees
#2.	(antibiotic* or anti-bacterial* or antibacterial* or anti-microbial* or antimicrobial* or anti-mycobacterial* or antimycobacterial* or bacteriocid* or bactericid*):ti,ab,kw
#3.	#1 or #2

**F.3.8 Glucocorticosteroid treatment**

12. In adults with community-acquired pneumonia or hospital-acquired pneumonia requiring management in hospital, what is the clinical and cost effectiveness of initial glucocorticosteroid treatment in addition to antibiotic treatment compared with antibiotic treatment alone?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Population A (F.1.1) Pneumonia	Antibiotics and glucocorticosteroids	n/a	SRs RCTs (filters used in Medline and Embase only)	All dates (see Table 1)

**Medline search terms**

1.	exp anti-bacterial agents/
2.	antibiotic*.ti,ab.
3.	(anti-bacterial* or antibacterial*).ti,ab.
4.	(anti-microbial* or antimicrobial*).ti,ab.
5.	(anti-mycobacterial* or antimycobacterial*).ti,ab.
6.	(bacteriocid* or bactericid*).ti,ab.
7.	or/1-6
8.	exp adrenal cortex hormones/
9.	exp steroids/
10.	(glucocorticosteroid* or corticosteroid* or glucocorticoid* or steroid*).ti,ab.
11.	or/8-10
12.	7 and 11

**Embase search terms**

1.	exp antibiotic agent/
2.	antibiotic*.ti,ab.
3.	(anti-bacterial* or antibacterial*).ti,ab.
4.	(anti-microbial* or antimicrobial*).ti,ab.
5.	(anti-mycobacterial* or antimycobacterial*).ti,ab.
6.	(bacteriocid* or bactericid*).ti,ab.
7.	or/1-6
8.	(glucocorticosteroid* or corticosteroid* or glucocorticoid* or steroid*).ti,ab.
9.	exp corticosteroid/

10.	or/8-9
11.	7 and 10

**Cochrane search terms**

#1.	MeSH descriptor Anti-Bacterial Agents explode all trees
#2.	(antibiotic* or anti-bacterial* or antibacterial* or anti-microbial* or antimicrobial* or anti-mycobacterial* or antimycobacterial* or bacteriocid* or bactericid*):ti,ab,kw
#3.	#1 or #2
#4.	(glucocorticosteroid* or corticosteroid* or glucocorticoid* or steroid*):ti,ab,kw
#5.	MeSH descriptor Steroids explode all trees
#6.	MeSH descriptor Adrenal Cortex Hormones explode all trees
#7.	{or #4-#6}
#8.	(#3 and #7)

**F.3.9 Gas exchange management**

One search was conducted for the following 2 questions:

13. In adults with community-acquired pneumonia or hospital-acquired pneumonia managed in hospital, what is the clinical and cost effectiveness of non-invasive ventilation compared with continuous positive airways pressure or usual care?

14. In adults with community-acquired pneumonia or hospital-acquired pneumonia managed in hospital, what is the clinical and cost effectiveness of non-invasive ventilation, continuous positive airways pressure or usual care compared with elective intubation?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Population B (F.1.2) Pneumonia, lower respiratory tract infection	Non-invasive ventilation, continuous positive airways pressure	n/a	SRs RCTs Observational (filters used in Medline and Embase only)	All dates (see Table 1)

**Medline search terms**

1.	positive-pressure respiration/
2.	continuous positive airway pressure/
3.	noninvasive ventilation/
4.	((noninvasive or non-invasive or positive-pressure or pressure release) adj3 (respirat* or breath* or ventilat*)):ti,ab.
5.	positive airway* pressure.ti,ab.
6.	(autopap or autocpap or auto-pap or auto-cpap).ti,ab.
7.	(cpap or aprv or ncpap or nppv or nippv or bipap or vpap or apap or acpap).ti,ab.
8.	or/1-7

**Embase search terms**

1.	*positive end expiratory pressure/
2.	*noninvasive ventilation/
3.	((noninvasive or non-invasive or positive-pressure or pressure release) adj3 (respirat* or breath* or ventilat*)):ti,ab.
4.	positive airway* pressure.ti,ab.

5.	(autopap or autocpap or auto-pap or auto-cpap).ti,ab.
6.	(cpap or aprv or ncpap or nppv or nippv or bipap or vpap or apap or acpap).ti,ab.
7.	or/1-6

**Cochrane search terms**

#1.	((noninvasive or non-invasive or positive-pressure or pressure release) near/3 (respirat* or breath* or ventilat*)):ti,ab,kw
#2.	positive airway* pressure:ti,ab,kw
#3.	(autopap or autocpap or auto-pap or auto-cpap):ti,ab,kw
#4.	(cpap or aprv or ncpap or nppv or nippv or bipap or vpap or apap or acpap):ti,ab,kw
#5.	{or #1-#4}

**F.3.10 Monitoring response**

15. In adults with community-acquired pneumonia or hospital-acquired pneumonia managed in hospital, what is the clinical and cost effectiveness of C-reactive protein or procalcitonin monitoring in addition to clinical observation in helping to determine when to stop or change treatment and when to discharge?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Population B (F.1.2) Pneumonia, lower respiratory tract infection	C-reactive protein, procalcitonin	n/a	SRs RCTs Prognosis (filters used in Medline and Embase only)	All dates (see Table 1)

**Medline search terms**

1.	c-reactive protein/
2.	crp.ti,ab.
3.	c reactive protein*.ti,ab.
4.	procalcitonin.ti,ab.
5.	pro-calcitonin.ti,ab.
6.	or/1-5
7.	exp anti-bacterial agents/
8.	antibiotic*.ti,ab.
9.	(anti-bacterial* or antibacterial*).ti,ab.
10.	(anti-microbial* or antimicrobial*).ti,ab.
11.	(anti-mycobacterial* or antimycobacterial*).ti,ab.
12.	(bacteriocid* or bactericid*).ti,ab.
13.	or/7-12
14.	patient discharge/
15.	length of stay/
16.	hospitalization/
17.	((patient* or hospital*) adj10 discharg*).ti,ab.
18.	or/14-17
19.	13 or 18
20.	6 and 19

**Embase search terms**

1.	c reactive protein/
2.	procalcitonin/
3.	crp.ti,ab.
4.	c reactive protein*.ti,ab.
5.	procalcitonin.ti,ab.
6.	pro-calcitonin.ti,ab.
7.	or/1-6
8.	exp antibiotic agent/
9.	antibiotic*.ti,ab.
10.	(anti-bacterial* or antibacterial*).ti,ab.
11.	(anti-microbial* or antimicrobial*).ti,ab.
12.	(anti-mycobacterial* or antimycobacterial*).ti,ab.
13.	(bacteriocid* or bactericid*).ti,ab.
14.	or/8-13
15.	((patient* or hospital*) adj10 discharg*).ti,ab.
16.	*hospital discharge/
17.	*hospitalization/
18.	*"length of stay"/
19.	or/15-18
20.	14 or 19
21.	7 and 20

#### Cochrane search terms

#1.	crp:ti,ab,kw
#2.	c reactive protein*:ti,ab,kw
#3.	(procalcitonin or pro-calcitonin):ti,ab,kw
#4.	{or #1-#3}
#5.	MeSH descriptor: [Anti-Bacterial Agents] explode all trees
#6.	(antibiotic* or anti-bacterial* or antibacterial* or anti-microbial* or antimicrobial* or anti-mycobacterial* or antimycobacterial* or bacteriocid* or bactericid*):ti,ab,kw
#7.	#5 or #6
#8.	((patient* or hospital*) near/10 discharg*):ti,ab,kw
#9.	MeSH descriptor: [Length of Stay] explode all trees
#10.	MeSH descriptor: [Patient Discharge] explode all trees
#11.	MeSH descriptor: [Hospitalization] explode all trees
#12.	{or #8-#11}
#13.	#7 or #12
#14.	#4 and #13

#### F.3.11 Safe discharge

16. What is the prognostic value, clinical and cost effectiveness of various factors for assessing whether it is safe to discharge adults with community-acquired pneumonia or hospital-acquired pneumonia requiring management in hospital?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
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Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Population B (F.1.2) Pneumonia, lower respiratory tract infection	Factors for assessing safe discharge	n/a	SRs RCTs Observational Prognosis (filters used in Medline and Embase only)	All dates (see Table 1)

**Medline search terms**

1.	(clinical* adj3 (stable or stability or unstable or instability)).ti,ab.
2.	patient discharge/
3.	((patient* or safe* or early or earlier or late or later or delay* or criteria or scor* or tool* or rule*) adj3 discharg*).ti,ab.
4.	or/1-3

**Embase search terms**

1.	(clinical* adj3 (stable or stability or unstable or instability)).ti,ab.
2.	((patient* or safe* or early or earlier or late or later or delay* or criteria or scor* or tool* or rule*) adj3 discharg*).ti,ab.
3.	*hospital discharge/
4.	or/1-3

**Cochrane search terms**

#1.	(clinical* near/3 (stable or stability or unstable or instability)):ti,ab,kw
#2.	((patient* or safe* or early or earlier or late or later or delay* or criteria or scor* or tool* or rule*) near/3 discharg*):ti,ab,kw
#3.	#1 or #2

**F.3.12 Patient information**

17. What advice should be given to adults about what symptoms and duration of symptoms can be expected following treatment for community-acquired or hospital-acquired pneumonia, and when should patients be advised to consult or re-consult a GP?

Search constructed by combining the columns in the following table using the AND Boolean operator

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Population B (F.1.2) Pneumonia, lower respiratory tract infection	Expectation of symptoms/symptom duration	n/a	SRs RCTs Observational Prognosis (filters used in Medline and Embase only)	All dates (see Table 1)

**Medline search terms**

1.	clinical* cure*.ti,ab.
2.	recovery of function/
3.	(symptom* adj5 (duration or long term or length)).ti,ab.
4.	(re-consult* or reconsult*).ti,ab.
5.	((second* or follow* or repeat* or repetiti* or return* or subsequent) adj2 (consult* or visit* or appointment* or session*)).ti,ab.
6.	((symptom* or time* or timing* or function*) adj5 (resolution* or resolv* or recover* or unresolv*)).ti,ab.

7.	((burden* or impact* or consequen*) adj4 (disease* or illness* or sick* or pneumoni*)).ti,ab.
8.	cost of illness/
9.	((symptom or symptoms) adj2 burden*).ti,ab.
10.	or/1-9

**Embase search terms**

1.	clinical* cure*.ti,ab.
2.	(symptom* adj5 (duration or long term or length)).ti,ab.
3.	(re-consult* or reconsult*).ti,ab.
4.	((second* or follow* or repeat* or repetiti* or return* or subsequent) adj2 (consult* or visit* or appointment* or session*)).ti,ab.
5.	((symptom* or time* or timing* or function*) adj5 (resolution* or resolv* or recover* or unresolv*)).ti,ab.
6.	*convalescence/
7.	((burden* or impact* or consequen*) adj4 (disease* or illness* or sick* or pneumoni*)).ti,ab.
8.	((symptom or symptoms) adj2 burden*).ti,ab.
9.	*"cost of illness"/
10.	or/1-9

**Cochrane search terms**

#1.	clinical* cure*:ti,ab
#2.	(symptom* near/5 (duration or long term or length)):ti,ab
#3.	(re-consult* or reconsult*):ti,ab
#4.	((second* or follow* or repeat* or repetiti* or return* or subsequent) near/2 (consult* or visit* or appointment* or session*)):ti,ab
#5.	((symptom* or time* or timing* or function*) near/5 (resolution* or resolv* or recover* or unresolv*)):ti,ab,kw
#6.	((burden* or impact* or consequen*) near/4 (disease* or illness* or sick* or pneumoni*)):ti,ab,kw
#7.	((symptom or symptoms) near/2 burden*):ti,ab,kw
#8.	MeSH descriptor: [Cost of Illness] explode all trees
#9.	{or #1-#8}

## F.4 Health economics searches

### F.4.1 Health economic reviews

Economic searches were conducted in Medline, Embase, HEED and CRD for NHS EED and HTA.

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Population B (F.1.2) Pneumonia, lower respiratory tract infection	n/a	n/a	Economic (filters used in Medline and Embase only)	Medline and Embase 2011–17 March 2014 HEED, NHS EED and HTA all available dates to 17 March 2014

**CRD search terms**

#1.	MeSH DESCRIPTOR Pneumonia EXPLODE ALL TREES
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#2.	(pneumonit* or pneumonia or bronchopneumonia or pleuropneumonia)
#3.	((lung or lobar or pulmonary) NEAR3 inflamm*)
#4.	#1 OR #2 OR #3

**HEED search terms**

1.	AX=(pneumonit* or pneumonia* or bronchopneumonia or pleuropneumonia)
2.	AX=lung AND inflammation*
3.	ax=lobar AND inflammation*
4.	ax=pulmonary AND inflammation*
5.	cs=1 OR 2 OR 3 OR 4

**F.4.2 Health economics - gas exchange management**

An additional search was carried out to identify evaluations of gas exchange management (section F.3.9).

Searches were conducted in Medline, Embase, HEED and CRD for NHS EED and HTA.

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Population B (F.1.2) Pneumonia, lower respiratory tract infection	Non-invasive ventilation, continuous positive airways pressure (search terms in section F.3.9 above)	n/a	Economic (filters used in Medline and Embase only)	All dates (see Table 1)

**F.4.3 Quality-of-life reviews**

Quality-of-life searches were conducted in Medline and Embase.

Population	Intervention / exposure	Comparison	Study filter used	Date parameters
Population B (F.1.2) Pneumonia, lower respiratory tract infection	n/a	n/a	Quality of life (filters used in Medline and Embase only)	All dates (see Table 1)

**F.5 References**

- 1 National Institute for Health and Clinical Excellence. The guidelines manual. London: National Institute for Health and Clinical Excellence; 2012. Available from: <http://publications.nice.org.uk/the-guidelines-manual-pmg6/>