

Draft

Asthma

Search strategies appendix F

Clinical guideline

Appendix F

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Draft for consultation

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

Disclaimer

Healthcare professionals are expected to take NICE clinical guidelines fully into account when exercising their clinical judgement. However, the guidance does not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of each patient, in consultation with the patient and/or their guardian or carer.

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Appendix F: Literature search strategies

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Search strategies used for the asthma guideline are outlined below and were run in accordance with the methodology in the NICE guidelines manual 2012. {National Institute for Health and Clinical Excellence, 2012 NICE2012 /id} All searches were run up to 2 October 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. We do not routinely search 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—1 October 2014
Embase	1980 – 1 October 2014 (week 39)
The Cochrane Library	Cochrane Reviews to 2014 Issue 10 of 12 CENTRAL to 2014 Issue 9 of 12 DARE, HTA and NHSEED to 2014 Issue 3 of 4

Searches for the **clinical reviews** were run in Medline (OVID), Embase (OVID) and the Cochrane Library (Wiley).

Searches for **intervention and diagnostic studies** were usually constructed using a PICO format 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.

Searches for **prognostic studies** were usually constructed combining population terms with prognostic variable terms and sometimes outcomes. 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), the Health Technology Assessment (HTA) database and the Health Economic Evaluation Database (HEED). Searches in NHS EED and HEED were constructed using population terms only. 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

F.1.1 Standard population

This population was used in all clinical questions except F.3.5 occupational asthma.

Medline and Embase search terms

1.	exp asthma/
2.	asthma*.ti.
3.	or/1-2

Cochrane search terms

#1.	MeSH descriptor: [Asthma] explode all trees
#2.	asthma*:ti
#3.	{or #1-#2}

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 psychlit or psychinfo or psycinfo or cinahl or science citation index or bids or cancerlit).ab.
9.	cochrane.jw.
10.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
11.	or/1-10

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 psychlit or psychinfo or psycinfo or cinahl or science citation index or bids or cancerlit).ab.
9.	cochrane.jw.
10.	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.
11.	or/1-10

F.2.2 Randomised controlled trials (RCTs) 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 (OBS) 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

Cochrane search terms

#1.	case control:ti,ab,kw
#2.	(cohort near/2 (study or studies or analys*)):ti,ab,kw
#3.	((follow up or observational or uncontrolled or non randomi?ed or nonrandomi?ed or epidemiologic*) near/2 (study or studies)):ti,ab,kw
#4.	((longitudinal or retrospective or prospective or cross sectional) and (study or studies or review or analys* or cohort*)):ti,ab,kw
#5.	{or #1-#4}

F.2.4 Diagnostic test accuracy studies (DIAG1) search terms

Medline search terms

1.	exp "sensitivity and specificity"/
2.	(sensitivity or specificity).ti,ab.
3.	((pre test or pretest or post test) adj probability).ti,ab.
4.	(predictive value* or PPV or NPV).ti,ab.
5.	likelihood ratio*.ti,ab.
6.	likelihood function/
7.	(ROC curve* or AUC).ti,ab.
8.	(diagnos* adj2 (performance* or accurac* or utilit* or value* or efficien* or effectiveness)).ti,ab.
9.	gold standard.ab.
10.	or/1-9

Embase search terms

1.	exp "sensitivity and specificity"/
2.	(sensitivity or specificity).ti,ab.
3.	((pre test or pretest or post test) adj probability).ti,ab.
4.	(predictive value* or PPV or NPV).ti,ab.
5.	likelihood ratio*.ti,ab.
6.	(ROC curve* or AUC).ti,ab.
7.	(diagnos* adj2 (performance* or accurac* or utilit* or value* or efficien* or effectiveness)).ti,ab.
8.	diagnostic accuracy/
9.	diagnostic test accuracy study/
10.	gold standard.ab.
11.	or/1-10

Cochrane search terms

#1.	diagnos*:ti,ab,kw
#2.	(sensitivity or specificity):ti,ab,kw
#3.	((pre test or pretest or post test) near probability):ti,ab,kw
#4.	(predictive value* or PPV or NPV):ti,ab,kw

#5.	likelihood ratio*:ti,ab,kw
#6.	(ROC or AUC):ti,ab,kw
#7.	gold standard:ti,ab,kw
#8.	Any MeSH descriptor with qualifier(s): [Diagnosis - DI]
#9.	{or #1-#8}

F.2.5 Diagnostic studies (DIAG2) search terms

The following terms were added to the diagnostic test accuracy search terms in F.2.4 to create a more sensitive search in Medline and Embase only.

Medline and Embase search terms

1.	sensitiv*.mp.
2.	diagnos*.mp.
3.	di.fs.
4.	or/1-3

F.2.6 Prognostic studies (PROG) 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
11.	predict.ti.

Cochrane search terms

#1.	predict:ti,ab,kw
#2.	(validat* or rule*):ti,ab,kw
#3.	((history or variable* or criteria or scor* or characteristic* or finding* or factor*) and (model* or decision* or identif* or prognos*)):ti,ab,kw
#4.	(decision* and (model* or clinical*)):ti,ab,kw
#5.	(prognostic and (history or variable* or criteria or scor* or characteristic* or finding* or factor* or model*)):ti,ab,kw
#6.	(stratification or discrimination or discriminate or c statistic or "area under the curve" or calibration or indices or algorithm or multivariable):ti,ab,kw
#7.	{or #1-#6}

F.2.7 Validation (VAL) studies search terms

Medline search terms

1.	validation studies/
2.	reproducibility of results/
3.	(valid* or reliab*).ti,ab.
4.	observer variation/
5.	((inter* or intra* or observer* or rater*) adj3 (bias* or variation* or agree* or concordan*)):ti,ab.
6.	or/1-5

Embase search terms

1.	(valid* or reliab*).ti,ab.
2.	((inter* or intra* or observer* or rater*) adj3 (bias* or variation* or agree* or concordan*)):ti,ab.
3.	validation study/
4.	exp reliability/
5.	exp reproducibility/
6.	exp observer variation/
7.	or/1-6

F.2.8 Health economics (HE) 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.2.9 Quality of life (QOL) search terms

Medline search terms

1.	(euroqol* or eq5d* or eq 5d*).ti,ab.
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Embase search terms

1.	(euroqol* or eq5d* or eq 5d*).ti,ab.
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F.2.10 Excluded study designs and publication types

The following study designs and publication types were removed from retrieved results 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 Signs and Symptoms

1. In people under investigation for asthma, what is the diagnostic accuracy of each of the following signs and symptoms?
 - wheezing
 - cough
 - breathlessness
 - nocturnal symptoms
 - diurnal and seasonal variations.

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all ages with asthma or suspected asthma	Signs and symptoms of asthma as listed in the question	n/a	The following filters were used in all databases: DIAG1, OBS, PROG	See Table 1 English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	*respiratory sounds/
2.	*cough/
3.	*dyspnea/
4.	exp *periodicity/
5.	(wheez* or rhonchi or cough* or breathless* or dyspn?ea).ti,ab.
6.	((difficult* or labo?r* or short*) adj2 breath*).ti,ab.
7.	((24h* or 24 hour* or 24 hr*) adj2 (rhythm* or varia* or change* or pattern* or symptom* or sign or signs)).ti,ab.
8.	((season* or diurnal or circadian or nyctohemeral or night* or nocturnal) adj3 (wheez* or rhonchi or cough* or breathless* or dyspn?ea or symptom or symptoms or sign or signs or asthma*).ti,ab.
9.	or/1-8

Embase search terms

1.	*wheezing/
2.	*irritative coughing/
3.	*chronic cough/
4.	*coughing/
5.	*dyspnea/
6.	*abnormal respiratory sound/
7.	*seasonal variation/
8.	exp *periodicity/
9.	((difficult* or labo?r* or short*) adj2 breath*).ti,ab.
10.	((24h* or 24 hour* or 24 hr*) adj2 (rhythm* or varia* or change* or pattern* or symptom* or sign or signs)).ti,ab.
11.	((season* or diurnal or circadian or nyctohemeral or night* or nocturnal) adj3 (wheez* or rhonchi or cough* or breathless* or dyspn?ea or symptom or symptoms or sign or signs or asthma*).ti,ab.
12.	(wheez* or rhonchi or cough* or breathless* or dyspn?ea).ti,ab.
13.	or/1-12

Cochrane search terms

#1.	MeSH descriptor: [Respiratory Sounds] this term only
#2.	MeSH descriptor: [Cough] this term only
#3.	MeSH descriptor: [Dyspnea] this term only
#4.	MeSH descriptor: [Periodicity] explode all trees
#5.	(wheez* or rhonchi or cough* or breathless* or dyspn?ea):ti,ab,kw
#6.	((difficult* or labo?r* or short*) near/2 breath*):ti,ab,kw
#7.	((24h* or 24 hour* or 24 hr*) near/2 (rhythm* or varia* or change* or pattern* or symptom* or sign or signs)):ti,ab,kw
#8.	((season* or diurnal or circadian or nyctohemeral or night* or nocturnal) near/3 (wheez* or rhonchi or cough* or breathless* or dyspn?ea or symptom or symptoms or sign or signs or asthma*)):ti,ab,kw
#9.	{or #1-#8}

F.3.2 Personal/family history of atopic disorders

2. In people under investigation for asthma, what is the diagnostic accuracy of taking a personal/family history of atopic disorders?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all ages with asthma or suspected asthma	Personal/family history of atopic disorders	n/a	The following filters were used in all databases: DIAG1, PROG	See Table 1 English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	medical history taking/
2.	(histories or history).ti,ab.
3.	exp questionnaires/
4.	question?aire*.ti,ab.
5.	or/1-4
6.	(atopic or atopy).ti,ab.
7.	(histor* adj2 (hypersensitiv* or allerg*)).ti,ab.
8.	((family or familial or relative? or kin or kinship or brother? or sister? or mother? or father? or son? or daughter? or parent?) adj3 (hypersensitiv* or allerg*)).ti,ab.
9.	rhinitis, allergic, seasonal/
10.	rhinitis, allergic, perennial/
11.	dermatitis, atopic/
12.	exp food hypersensitivity/
13.	((hypersensitiv* or allerg*) adj2 asthma*).ab.
14.	(hay fever or hayfever or pollinosis).ti,ab.
15.	(pollen* adj2 (sensitiv* or hypersensitiv* or allerg*)).ti,ab.
16.	allergic rhinitis.ti,ab.
17.	eczema.ti,ab.
18.	((food* or wheat or nut* or peanut* or milk or dairy or egg* or soy* or sesame or seed* or pecan* or pistachio* or walnut* or coconut* or fish or shellfish or seafood* or cereal* or gluten* or barley or corn* or maize) adj2 (sensitiv* or hypersensitiv* or allerg*)).ti,ab.
19.	or/6-18
20.	5 and 19

Embase search terms

1.	exp *anamnesis/
2.	(histories or history).ti,ab.
3.	exp *questionnaire/
4.	question?aire*.ti,ab.
5.	or/1-4
6.	(atopic or atopy).ti,ab.
7.	(histor* adj2 (hypersensitiv* or allerg*)).ti,ab.
8.	((family or familial or relative? or kin or kinship or brother? or sister? or mother? or father? or

	son? or daughter? or parent?) adj3 (hypersensitiv* or allerg*).ti,ab.
9.	((hypersensitiv* or allerg*) adj2 asthma*).ab.
10.	(hay fever or hayfever or pollinosis).ti,ab.
11.	(pollen* adj2 (sensitiv* or hypersensitiv* or allerg*).ti,ab.
12.	allergic rhinitis.ti,ab.
13.	eczema.ti,ab.
14.	((food* or wheat or nut* or peanut* or milk or dairy or egg* or soy* or sesame or seed* or pecan* or pistachio* or walnut* or coconut* or fish or shellfish or seafood* or cereal* or gluten* or barley or corn* or maize) adj2 (sensitiv* or hypersensitiv* or allerg*).ti,ab.
15.	*atopic dermatitis/
16.	*atopy/
17.	exp *allergic rhinitis/
18.	exp *food allergy/
19.	or/6-18
20.	5 and 19

Cochrane search terms

#1.	(histories or history or question*):ti,ab,kw
#2.	(atopic or atopy):ti,ab,kw
#3.	(histor* near/2 (hypersensitiv* or allerg*)):ti,ab,kw
#4.	((family or familial or relative? or kin or kinship or brother? or sister? or mother? or father? or son? or daughter? or parent?) near/3 (hypersensitiv* or allerg*)):ti,ab,kw
#5.	((hypersensitiv* or allerg*) near/2 asthma*):ti,ab,kw
#6.	(hay fever or hayfever or pollinosis):ti,ab,kw
#7.	(pollen* near/2 (sensitiv* or hypersensitiv* or allerg*)):ti,ab,kw
#8.	allergic rhinitis:ti,ab,kw
#9.	eczema:ti,ab,kw
#10.	((food* or wheat or nut* or peanut* or milk or dairy or egg* or soy* or sesame or seed* or pecan* or pistachio* or walnut* or coconut* or fish or shellfish or seafood* or cereal* or gluten* or barley or corn* or maize) near/2 (sensitiv* or hypersensitiv* or allerg*)):ti,ab,kw
#11.	{or #2-#10}
#12.	#1 and #11

F.3.3 Symptoms in response to exercise

3. In people under investigation for asthma, what is the diagnostic accuracy of a clinical history of symptoms in response to exercise?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all ages with asthma or suspected asthma	History of symptoms following exercise	n/a	The following filter was used in all databases: DIAG1	See Table 1 English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	medical history taking/
2.	(histories or history).ti,ab.
3.	exp questionnaires/
4.	question*.ti,ab.
5.	exp "signs and symptoms, respiratory"/
6.	(symptom or symptoms).ti,ab.
7.	or/1-6
8.	exp exercise/
9.	exp sports/
10.	(exercise* or sport*).ti,ab.
11.	(physical* adj (train* or exert* or activit*)).ti,ab.
12.	or/8-11
13.	7 and 12

Embase search terms

1.	exp *anamnesis/
2.	(histories or history).ti,ab.
3.	exp *questionnaire/
4.	question*.ti,ab.
5.	(symptom or symptoms).ti,ab.
6.	exp *breathing disorder/
7.	exp *coughing/
8.	or/1-7
9.	exp *exercise/
10.	exp *sport/
11.	(exercise* or sport*).ti,ab.
12.	(physical* adj (train* or exert* or activit*)).ti,ab.
13.	or/9-12
14.	8 and 13

Cochrane search terms

#1.	(histories or history or question*):ti,ab,kw
#2.	(symptom or symptoms):ti,ab,kw
#3.	{or #1-#2}
#4.	(exercise* or sport*):ti,ab,kw
#5.	(physical* near/1 (train* or exert* or activit*)):ti,ab,kw
#6.	#4or #5
#7.	#3 and #6

F.3.4 Symptoms after drugs

4. In people under investigation for asthma, what is the diagnostic accuracy of a clinical history of symptoms after taking the following drugs:
- in adults - beta blockers, aspirin, or other NSAIDs
 - in children – ibuprofen?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all ages with asthma or suspected asthma	Drugs as listed in the question	n/a	The following filter was used in all databases: DIAG1 The following filter was used in Medline and Embase only: DIAG2	See Table 1 English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	((anti inflamm* or antiinflam* or anti-inflamm*) adj2 (non- steroid* or nonsteroid* or non-steroid*) adj2 agent*).ti,ab.
2.	((cox2 or cox-2 or coxii or cox-ii) adj2 inhibitor*).ti,ab.
3.	((cyclo-oxygenase2 or cyclo-oxygenase-2 or cyclooxygenase-2 or cyclooxygenase2) adj2 inhibitor*).ti,ab.
4.	((cyclo-oxygenase-ii or cyclo-oxygenaseii or cyclooxygenase-ii or cyclooxygenaseii) adj2 inhibitor*).ti,ab.
5.	(arcoxia or lodine or eccoxolac or mobic or prexige).ti,ab.
6.	(diclofenac or naproxen or tolmetin or ketoprofen or aceclofenac).ti,ab.
7.	(fenbufen or tenoxicam or nabumetone or osmosin or benoxaprofen).ti,ab.
8.	(fenoprofen or azapropazone or aceclofenac or mefenamic acid or dexketoprofen).ti,ab.
9.	(ibuprofen or ibuprofen).ti,ab.
10.	(indometacin or indomethacin).ti,ab.
11.	(parecoxib or deracoxib or cimicoxib or tilmacoxib).ti,ab.
12.	(piroxicam or flurbiprofen or niflumic acid or diflunisal).ti,ab.
13.	(sulindac or meclofenamate or meclofenamic acid).ti,ab.
14.	exp anti-inflammatory agents, non-steroidal/
15.	celebrex.ti,ab.
16.	celecoxib.ti,ab.
17.	coxib*.ti,ab.
18.	etodolac.ti,ab.
19.	etoricoxib.ti,ab.
20.	exp aspirin/
21.	aspirin.ti,ab.
22.	exp cyclooxygenase 2 inhibitors/
23.	exp diclofenac/
24.	exp diflunisal/
25.	exp etodolac/
26.	exp fenoprofen/
27.	exp flurbiprofen/
28.	exp ibuprofen/
29.	exp indomethacin/
30.	exp ketoprofen/
31.	exp meclofenamic acid/
32.	exp mefenamic acid/
33.	exp naproxen/

34.	exp niflumic acid/
35.	exp piroxicam/
36.	exp sulindac/
37.	exp tolmetin/
38.	flosulide.ti,ab.
39.	iguratimod.ti,ab.
40.	meloxicam.ti,ab.
41.	nimesulide.ti,ab.
42.	nsaid*.ti,ab.
43.	tiaprofenic acid.ti,ab.
44.	(isoxicam or zomepirac or carprofen or proquazone or lornoxicam).ti,ab.
45.	(propranolol or angilol or angilol or inderal-la or half-inalderal or inderal or bedranol or prograne or slo-pro or acebutolol or sectral or atenolol or tenormin or bisoprolol or cardiacor or emcor or carvedilol or eucardic or celiprolol or celectol or co-tenidone or tenoret or tenoretic or esmolol or brevbloc or labetalol or trandate or metoprolol or betaloc or lopresor or nadolol or corgard or nebivolol or nebilet or hypoloc or oxprenolol or trasicor or slow-trasicor or pindolol or visken or sotalol or beta-cardone or sotacor or timolol or betim).ti,ab.
46.	(beta adj3 block*).ti,ab.
47.	(b adj3 block*).ti,ab.
48.	(beta adj2 antagonist*).ti,ab.
49.	((beta-adrenoceptor or b-adrenoceptor or beta-adrenergic) adj3 (blockade or blocker* or blocking or antagonist*).ti,ab.
50.	exp adrenergic beta-antagonists/
51.	or/1-50
52.	medical history taking/
53.	(histories or history).ti,ab.
54.	exp drug hypersensitivity/
55.	((drug or medication* or medicine*) adj2 (allerg* or hypersensitivity or sensitivity or intolerance)).ti,ab.
56.	exp questionnaires/
57.	question*.ti,ab.
58.	exp "signs and symptoms, respiratory"/
59.	(symptom or symptoms).ti,ab.
60.	or/52-59
61.	51 and 60

Embase search terms

1.	((anti inflamm* or antiinflamm* or anti-inflamm*) adj2 (non- steroid* or nonsteroid* or non-steroid*) adj2 agent*).ti,ab.
2.	((cox2 or cox-2 or coxii or cox-ii) adj2 inhibitor*).ti,ab.
3.	((cyclooxygenase-2 or cyclooxygenase2 or cyclooxygenase 2) adj2 inhibitor*).ti,ab.
4.	((cyclooxygenase-ii or cyclooxygenaseii or cyclooxygenase ii) adj2 inhibitor*).ti,ab.
5.	(arcoxia or lodine or eccoxolac or prexige or mobic).ti,ab.
6.	(diclofenac or naproxen or tolmetin or ketoprofen or aceclofenac).ti,ab.
7.	(fenbufen or tenoxicam or nabumetone or osmosin or benoxaprofen).ti,ab.
8.	(fenoprofen or azapropazone or aceclofenac or mefenamic acid or dexketoprofen).ti,ab.
9.	(ibuprofen or ibuprufen).ti,ab.

10.	(indometacin or indomethacin).ti,ab.
11.	(isoxicam or zomepirac or carprofen or proquazone or lornoxicam).ti,ab.
12.	(parecoxib or deracoxib or cimicoxib or tilmacoxib).ti,ab.
13.	(piroxicam or flurbiprofen or niflumic acid or diflunisal).ti,ab.
14.	(sulindac or meclofenamate or meclofenamic acid).ti,ab.
15.	celebrex.ti,ab.
16.	celecoxib.ti,ab.
17.	coxib*.ti,ab.
18.	etodolac.ti,ab.
19.	etoricoxib.ti,ab.
20.	exp *aceclofenac/
21.	exp *aspirin/
22.	exp *azapropazone/
23.	exp *benoxaprofen/
24.	exp *carprofen/
25.	exp *celecoxib/
26.	exp *cyclooxygenase 2 inhibitor/
27.	exp *dexketoprofen/
28.	exp *diclofenac/
29.	exp *diflunisal/
30.	exp *etodolac/
31.	exp *etoricoxib/
32.	exp *fenbufen/
33.	exp *fenoprofen/
34.	exp *flosulide/
35.	exp *flurbiprofen/
36.	exp *ibuprofen/
37.	exp *iguratimod/
38.	exp *indomethacin/
39.	exp *ketoprofen/
40.	exp *lornoxicam/
41.	exp *lumiracoxib/
42.	exp *meclofenamic acid/
43.	exp *mefenamic acid/
44.	exp *meloxicam/
45.	exp *nabumetone/
46.	exp *naproxen/
47.	exp *niflumic acid/
48.	exp *nimesulide/
49.	exp *parecoxib/ or exp *tilmacoxib/
50.	exp *piroxicam/
51.	exp *proquazone/
52.	exp *sulindac/
53.	exp *tenoxicam/
54.	exp *tiaprofenic acid/

55.	exp *tolmetin/
56.	exp *zomepirac/
57.	flosulide.ti,ab.
58.	iguratimod.ti,ab.
59.	lumiracoxib.ti,ab.
60.	meloxicam.ti,ab.
61.	nimesulide.ti,ab.
62.	exp *nonsteroid antiinflammatory agent/
63.	nsaid*.ti,ab.
64.	tiaprofenic acid.ti,ab.
65.	aspirin.ti,ab.
66.	exp *beta adrenergic receptor blocking agent/
67.	exp *bisoprolol/ or exp *bisoprolol fumarate/ or exp *bisoprolol fumarate plus hydrochlorothiazide/ or exp *carvedilol/ or exp *metoprolol/ or exp*metoprolol fumarate/ or exp *metoprolol succinate/ or exp *metoprolol tartrate/ or exp *nebivolol/
68.	(propranolol or angilol or angilol or inderal-la or half-inalderal or inderal or bedranol or prograne or slo-pro or acebutolol or sectral or atenolol or tenormin or bisoprolol or cardicor or emcor or carvedilol or eucardic or celiprolol or celectol or co-tenidone or tenoret or tenoretic or esmolol or brevbloc or labetalol or trandate or metoprolol or betaloc or lopresor or nadolol or corgard or nebivolol or nebilet or hypoloc or oxprenolol or trasicor or slow-trasicor or pindolol or visken or sotalol or beta-cardone or sotacor or timolol or betim).ti,ab.
69.	(beta adj3 block*).ti,ab.
70.	(b adj3 block*).ti,ab.
71.	(beta adj2 antagonist*).ti,ab.
72.	((beta-adrenoceptor or b-adrenoceptor or beta-adrenergic) adj3 (blockade or blocker* or blocking or antagonist*).ti,ab.
73.	or/1-72
74.	exp *anamnesis/
75.	(histories or history).ti,ab.
76.	exp *questionnaire/
77.	question*.ti,ab.
78.	exp *drug hypersensitivity/
79.	((drug or medication* or medicine*) adj2 (allerg* or hypersensitivity or sensitivity or intolerance)).ti,ab.
80.	(symptom or symptoms).ti,ab.
81.	exp *breathing disorder/
82.	exp *coughing/
83.	or/74-82
84.	73 and 83

Cochrane search terms

#1.	((anti inflamm* or antiinflamm* or anti-inflamm*) near/2 (non- steroid* or nonsteroid* or non-steroid*)):ti,ab,kw
#2.	((cox2 or cox-2 or coxii or cox-ii) near/2 (inhibitor*)):ti,ab,kw
#3.	((cyclooxygenase-2 or cyclooxygenase2 or cyclooxygenase 2) near/2 (inhibitor*)):ti,ab,kw
#4.	((cyclo-oxygenase2 or cyclo-oxygenase-2 or cyclooxygenase-2 or cyclooxygenase2) near/2 (inhibitor*)):ti,ab,kw
#5.	((cyclooxygenase-ii or cyclooxygenaseii) near/2 (inhibitor*)):ti,ab,kw

#6.	((cyclo-oxygenase-ii or cyclo-oxygenaseii or cyclooxygenase-ii or cyclooxygenaseii) near/2 (inhibitor*)):ti,ab,kw
#7.	(aceclofenac or arcoxia or aspirin or azapropazone or benoxaprofen or carprofen or celebrex or celecoxib or cimicoxib or coxib* or deracoxib or dexketoprofen or diclofenac or diflunisal or eccoxolac or etodolac or etoricoxib or fenbufen or fenoprofen or flosulide or flurbiprofen or ibuprofen or ibuprufen or iguratimod or indometacin or indomethacin or isoxicam or ketoprofen or lodine or lornoxicam or lumiracoxib or meclofenam* or mefenamic acid or meloxicam or mobic or nabumetone or naproxen or niflumic acid or nimesulide or nsaid* or osmosin or parecoxib or piroxicam or prexige or proquazone or sulindac or tenoxicam or tiaprofenic acid or tilmacoxib or tolmetin or zomepirac):ti,ab,kw
#8.	(propranolol or angilol or angilol or inderal-la or half-inalderal or inderal or bedranol or prograne or slo-pro or acebutolol or sectral or atenolol or tenormin or bisoprolol or cardiacor or emcor or carvedilol or eucardic or celiprolol or celectol or co-tenidone or tenoret or tenoretic or esmolol or brevibloc or labetalol or trandate or metoprolol or betaloc or lopresor or nadolol or corgard or nebivolol or nebilet or hypoloc or oxprenolol or trasicor or slow-trasicor or pindolol or visken or sotalol or beta-cardone or sotacor or timolol or betim):ti,ab,kw
#9.	(beta or b) near/3 (block* or antagonist*):ti,ab,kw
#10.	((beta-adrenoceptor or b-adrenoceptor or beta-adrenergic) near/3 (blockade or blocker* or blocking or antagonist*)):ti,ab,kw
#11.	{or #1-#10}
#12.	(histories or history or question*):ti,ab,kw
#13.	((drug or medication* or medicine*) near/2 (allerg* or hypersensitivity or sensitivity or intolerance)):ti,ab,kw
#14.	(symptom or symptoms):ti,ab,kw
#15.	{or #12-#14}
#16.	#11 and #15

F.3.5 Occupational asthma

5. In adults under investigation for occupational asthma, what is the diagnostic accuracy for case identification, of asking whether their symptoms are better away from work?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
Adults under investigation for occupational asthma	Symptom history	n/a	The following filters were used in Medline and Embase only: DIAG1, OBS, RCT, SR	See Table 1 English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	asthma, occupational/
2.	((occupation* or work* or job* or employ*) adj2 asthma*).ti,ab
3.	or/1-2
4.	*occupational diseases/
5.	exp asthma/
6.	4 and 5
7.	3 or 6
8.	medical history taking/

9.	(histories or history).ti,ab.
10.	questionnaires/
11.	question*.ti,ab.
12.	(holiday* or weekend* or vacation*).ti,ab.
13.	((away or absent* or leave*) adj3 (work* or job* or employ* or occupation*)).ti,ab.
14.	or/8-13
15.	7 and 14

Embase search terms

1.	((occupation* or work* or job* or employ*) adj2 asthma*).ti,ab.
2.	*occupational asthma/
3.	or/1-2
4.	*occupational disease/
5.	exp *asthma/
6.	4 and 5
7.	3 or 6
8.	exp *anamnesis/
9.	(histories or history).ti,ab.
10.	exp *questionnaire/
11.	question*.ti,ab.
12.	(holiday* or weekend* or vacation*).ti,ab.
13.	((away or absent* or leave*) adj3 (work* or job* or employ* or occupation*)).ti,ab.
14.	or/8-13
15.	7 and 14

Cochrane search terms

#1.	((occupation* or work* or job* or employ*) near/2 asthma*):ti,ab,kw
#2.	(histories or history or question* or holiday* or weekend* or vacation*):ti,ab,kw
#3.	((away or absent* or leave*) near/3 (work* or job* or employ* or occupation*)):ti,ab,kw
#4.	#2 or #3
#5.	#1 and #4

F.3.6 Spirometry/flow volume loop measures

6. In people under investigation for asthma, what is the diagnostic test accuracy and cost-effectiveness of spirometry / flow volume loop measures?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all ages with asthma or suspected asthma	Spirometry / flow volume loop measures	n/a	The following filter was used in all databases: DIAG1	See Table 1 English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	vital capacity/
2.	forced expiratory volume/
3.	(FEV1 or FEV 1 or FVC).ti,ab.
4.	(flow volume adj (loop* or curve* or graph*)).ti,ab.
5.	(forced expiratory volume* adj6 ("1" or one)).ti,ab.
6.	((force* or time*) adj vital capacit*).ti,ab.
7.	spirometry.ti.
8.	or/1-7

Embase search terms

1.	vital capacity/
2.	forced expiratory volume/
3.	lung flow volume curve/
4.	(FEV1 or FEV 1 or FVC).ti,ab.
5.	(flow volume adj (loop* or curve* or graph*)).ti,ab.
6.	(forced expiratory volume* adj6 ("1" or one)).ti,ab.
7.	((force* or time*) adj vital capacit*).ti,ab.
8.	spirometry.ti.
9.	or/1-8

Cochrane search terms

#1.	MeSH descriptor: [Vital Capacity] this term only
#2.	MeSH descriptor: [Forced Expiratory Volume] this term only
#3.	(FEV1 or "FEV 1" or FVC):ti,ab
#4.	(flow volume near/2 (loop* or curve* or graph*)):ti,ab
#5.	(forced expiratory volume* near/6 ("1" or one)):ti,ab
#6.	((force* or time*) near/2 vital capacit*):ti,ab
#7.	spirometry:ti
#8.	{or #1-#7}

F.3.7 Bronchodilator response

7. In people under investigation for asthma, what is the diagnostic test accuracy and cost-effectiveness of bronchodilator response (using PEF or FEV1)?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all ages with asthma or suspected asthma	Bronchodilator response	n/a	The following filter was used in Medline and Cochrane: DIAG1 The following filter was used in Medline only: DIAG2	See Table 1 English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	exp bronchodilator agents/du
2.	bronchoreversibility.ti,ab.

3.	((bronchodilator* or bronchial dilat* or broncholytic*) adj3 (test* or revers* or respons* or respond*)).ti,ab.
4.	(BDR or BDT).ti,ab.
5.	or/1-4

Embase search terms

1.	bronchoreversibility.ti,ab.
2.	((bronchodilator* or bronchial dilat* or broncholytic*) adj3 (test* or revers* or respons* or respond*)).ti,ab.
3.	(BDR or BDT).ti,ab.
4.	bronchoreversibility.ti,ab.
5.	or/1-4
6.	exp "sensitivity and specificity"/
7.	(sensitivity or specificity).ti,ab.
8.	((pre test or pretest or post test) adj probability).ti,ab.
9.	(predictive value* or PPV or NPV).ti,ab.
10.	likelihood ratio*.ti,ab.
11.	(ROC curve* or AUC).ti,ab.
12.	(diagnos* adj2 (performance* or accurac* or utilit* or value* or efficien* or effectiveness)).ti,ab.
13.	diagnostic accuracy/
14.	diagnostic test accuracy study/
15.	gold standard.ab.
16.	sensitiv*.mp.
17.	diagnos*.mp.
18.	di.fs.
19.	or/6-18
20.	5 and 19
21.	exp *bronchodilating agent/
22.	or/6-15
23.	21 and 22
24.	20 or 23

Cochrane search terms

#1.	((bronchodilator* or bronchial dilat* or broncholytic*) near/3 (test* or revers* or respons* or respond*)):ti,ab,kw
#2.	bronchoreversibility:ti,ab,kw
#3.	(BDR or BDT):ti,ab,kw
#4.	MeSH descriptor: [Bronchodilator Agents] explode all trees and with qualifiers: [Diagnostic use - DU]
#5.	{or #1-#4}

F.3.8 Peak expiratory flow

8. In people under investigation for asthma, what is the diagnostic test accuracy and cost-effectiveness of peak expiratory flow (PEF) variability?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all ages with asthma or suspected asthma	Peak expiratory flow (PEF) variability	n/a	The following filter was used in all databases: DIAG1 The following filter was used in Medline and Embase only: DIAG2	See Table 1 English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	PEFV.ti,ab.
2.	((diurnal* or circadian or variation* or variability or fluctuat* or alter* or increas* or decreas* or chang*) adj3 (PEF or PEFr or PFR or peak expiratory flow* or peak flow*)).ti,ab.
3.	peak expiratory flow rate/
4.	exp circadian rhythm/
5.	3 and 4
6.	1 or 2 or 5

Embase search terms

1.	PEFV.ti,ab.
2.	((diurnal* or circadian or variation* or variability or fluctuat* or alter* or increas* or decreas* or chang*) adj3 (PEF or PEFr or PFR or peak expiratory flow* or peak flow*)).ti,ab.
3.	peak expiratory flow/
4.	circadian rhythm/
5.	3 and 4
6.	1 or 2 or 5

Cochrane search terms

#1.	pefv:ti,ab,kw
#2.	((diurnal* or circadian or variation* or variability or fluctuat* or alter* or increas* or decreas* or chang*) near/3 (PEFR or PFR or peak expiratory flow* or peak flow*)):ti,ab,kw
#3.	{or #1-#2}

F.3.9 Skin prick test

9. In people under investigation for asthma, what is the diagnostic test accuracy and cost-effectiveness of skin prick tests?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all ages with asthma or suspected asthma	Skin prick test	n/a	The following filter was used in Medline and Embase only: DIAG1	See Table 1 English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	((dust or housedust) adj mite*).ti,ab.
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2.	(dermatophagoides or euroglyphus).ti,ab.
3.	pyroglyphidae/
4.	(cat or cats or feline*).ti,ab.
5.	cats/
6.	(dog or dogs or canine*).ti,ab.
7.	dogs/
8.	pollen*.ti,ab.
9.	pollen/
10.	exp aspergillus/
11.	aspergillus.ti,ab.
12.	alternaria/
13.	alternaria.ti,ab.
14.	cladosporium/
15.	cladosporium.ti,ab.
16.	((air* or aero*) adj allergen*).ti,ab.
17.	aeroallergen*.ti,ab.
18.	or/1-17
19.	exp skin tests/
20.	skin prick*.ti,ab.
21.	skin scratch*.ti,ab.
22.	prick* test*.ti,ab.
23.	scratch* test*.ti,ab.
24.	skin test*.ti,ab.
25.	or/19-24
26.	18 and 25

Embase search terms

1.	((dust or housedust) adj mite*).ti,ab.
2.	(dermatophagoides or euroglyphus).ti,ab.
3.	(cat or cats or feline*).ti,ab.
4.	(dog or dogs or canine*).ti,ab.
5.	pollen*.ti,ab.
6.	aspergillus.ti,ab.
7.	alternaria.ti,ab.
8.	cladosporium.ti,ab.
9.	exp *dermatophagoides/
10.	*cat/
11.	*dog/
12.	*grass pollen/
13.	*pollen/
14.	exp *aspergillus/
15.	exp *alternaria/
16.	exp *cladosporium/
17.	((air* or aero*) adj allergen*).ti,ab.
18.	aeroallergen*.ti,ab.

19.	or/1-18
20.	exp *skin test/
21.	skin prick*.ti,ab.
22.	skin scratch*.ti,ab.
23.	prick* test*.ti,ab.
24.	scratch* test*.ti,ab.
25.	skin test*.ti,ab.
26.	or/20-25
27.	19 and 26

Cochrane search terms

#1.	(skin prick* or skin scratch* or prick* test* or scratch* test* or skin test*):ti,ab,kw
#2.	((dust or housedust) near/1 mite*):ti,ab,kw
#3.	(dermatophagoides or euroglyphus or cat or cats or feline* or dog or dogs or canine* or pollen or aspergillus or alternaria or cladosporium or pyroglyphidae):ti,ab,kw
#4.	((air* or aero*) near/1 allergen*):ti,ab
#5.	aeroallergen*:ti,ab
#6.	{or #2-#5}
#7.	#1 and #6

F.3.10 IgE

10. In people under investigation for asthma, what is the diagnostic test accuracy and cost-effectiveness of total and specific serum IgE measures?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all ages with asthma or suspected asthma	Serum IgE	n/a	The following filters were used in Medline and Embase only: DIAG1, OBS, RCT, SR	See Table 1 English only Exclusion filter applied in Medline and Embase

Medline and Embase search terms

1.	*radioallergosorbent test/
2.	(RAST or radioallergosorbent).ti.
3.	*immunoglobulin E/
4.	(immunoglobulin E or IgE).ti.
5.	or/1-4

Cochrane search terms

#1.	(immunoglobulin E or IgE or RAST or radioallergosorbent):ti,kw
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F.3.11 FeNO

11. In people under investigation for asthma, what is the diagnostic test accuracy and cost-effectiveness of fractional exhaled nitric oxide (FeNO) measures?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all ages with asthma or suspected asthma	Fractional exhaled nitric oxide (FeNO)	n/a	The following filter was used in Medline and Embase only: DIAG1	See Table 1 English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	FeNO.ti,ab.
2.	((Fe or exhal* or fraction*) adj2 (NO or nitric or nitrogen)).ti,ab.
3.	or/1-2
4.	nitric oxide/
5.	biological markers/
6.	breath tests/
7.	exhalation/
8.	or/5-7
9.	4 and 8
10.	3 or 9

Embase search terms

1.	FeNO.ti,ab.
2.	((Fe or exhal* or fraction*) adj2 (NO or nitric or nitrogen)).ti,ab.
3.	or/1-2
4.	*nitric oxide/
5.	*breath analysis/
6.	*expired air/
7.	*biological marker/
8.	*exhalation/
9.	or/5-8
10.	4 and 9
11.	3 or 10

Cochrane search terms

#1.	FeNO:ti,ab,kw
#2.	((Fe or exhal* or fraction*) near/2 (NO or nitric or nitrogen)):ti,ab,kw
#3.	((NO or nitric or nitrogen) near/2 (marker* or biomarker* or breath* or
#4.	{or #1-#3}
#5.	test* or exhal* or expir*)):ti,ab,kw
#6.	MeSH descriptor: [Nitric Oxide] explode all trees
#7.	MeSH descriptor: [Biological Markers] explode all trees
#8.	MeSH descriptor: [Breath Tests] explode all trees
#9.	MeSH descriptor: [Exhalation] explode all trees
#10.	{or #6-#9}
#11.	#5 and #10

#12.	#4 or #11
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F.3.12 Peripheral blood eosinophil count

12. In people under investigation for asthma, what is the diagnostic test accuracy and cost-effectiveness of eosinophil blood count measures?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all ages with asthma or suspected asthma	Eosinophil blood count measures	n/a	The following filter was used in Medline and Embase only: DIAG1	See Table 1 English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	*eosinophils/
2.	*eosinophilia/
3.	(blood* adj2 (eosinophil* or acidophil*)).ti,ab.
4.	or/1-3

Embase search terms

1.	*eosinophil/
2.	*eosinophil count/
3.	*eosinophilia/
4.	(blood* adj2 (eosinophil* or acidophil*)).ti,ab.
5.	or/1-4

Cochrane search terms

#1.	eosinophil*:kw
#2.	(blood* near/2 (eosinophil* or acidophil*)):ti,ab
#3.	{or #1-#2}

F.3.13 Bronchial challenge test: histamine, methacholine, mannitol

Searches for the following two questions were run as one search:

13. In people under investigation for asthma, what is the diagnostic test accuracy and cost-effectiveness of airway hyper-reactivity (non-specific bronchial challenge) with histamine and methacholine?

14. In people under investigation for asthma, what is the diagnostic test accuracy and cost-effectiveness of airway hyper-reactivity (non-specific bronchial challenge) with mannitol?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all ages with asthma or	Bronchial challenge tests using histamine and	n/a	The following filter was used in all databases: DIAG1	See Table 1 English only Exclusion filter

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
suspected asthma	methacholine or mannitol			applied in Medline and Embase

Medline search terms

1.	exp mannitol/
2.	exp histamine/
3.	methacholine chloride/
4.	(mannitol* or histamine* or methacholine*).ti,ab.
5.	or/1-4
6.	bronchial provocation tests/
7.	(inhalation or provocation or provoke* or challenge*).ti,ab.
8.	(hyperresponsiv* or hyperreactiv*).ti,ab.
9.	bronchial hyperreactivity/
10.	or/6-9
11.	5 and 10

Embase search terms

1.	mannitol/
2.	histamine/
3.	methacholine/
4.	(mannitol* or histamine* or methcholine*).ti,ab.
5.	or/1-4
6.	inhalation test/
7.	provocation test/
8.	bronchus hyperreactivity/
9.	(inhalation or provocation or provoke* or challenge*).ti,ab.
10.	(hyperresponsiv* or hyperreactiv*).ti,ab.
11.	or/6-10
12.	5 and 11

Cochrane search terms

#1.	MeSH descriptor: [Mannitol] explode all trees
#2.	MeSH descriptor: [Histamine] explode all trees
#3.	MeSH descriptor: [Methacholine Chloride] explode all trees
#4.	(mannitol or histamine or methacholine):ti,ab
#5.	{or #1-#4}
#6.	MeSH descriptor: [Bronchial Provocation Tests] explode all trees
#7.	MeSH descriptor: [Bronchial Hyperreactivity] explode all trees
#8.	(inhalation or provocation or provoke* or challenge*):ti,ab
#9.	(hyperresponsiv* or hyperreactiv*):ti,ab
#10.	{or #6-#9}
#11.	5 and 10

F.3.14 Bronchial challenge test: exercise

15. In people under investigation for asthma, what is the diagnostic accuracy of bronchoconstriction in response to an exercise challenge?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all ages with asthma or suspected asthma	Clinical history of symptoms in response to exercise	n/a	The following filter was used in all databases: DIAG1	See Table 1 English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	exp exercise/
2.	exp sports/
3.	(exercise* or sport*).ti,ab.
4.	(physical* adj (train* or exert* or activit*)).ti,ab.
5.	or/1-4
6.	medical history taking/
7.	(histories or history).ti,ab.
8.	exp questionnaires/
9.	question*.ti,ab.
10.	exp "signs and symptoms, respiratory"/
11.	(symptom or symptoms).ti,ab.
12.	or/6-11
13.	5 and 12

Embase search terms

1.	exp *exercise/
2.	exp *sport/
3.	(exercise* or sport*).ti,ab.
4.	(physical* adj (train* or exert* or activit*)).ti,ab.
5.	or/1-4
6.	exp *anamnesis/
7.	(histories or history).ti,ab.
8.	exp *questionnaire/
9.	question*.ti,ab.
10.	(symptom or symptoms).ti,ab.
11.	exp *breathing disorder/
12.	exp *coughing/
13.	or/6-12
14.	5 and 13

Cochrane search terms

#1.	(exercise* or sport*):ti,ab,kw
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#2.	(physical* near/1 (train* or exert* or activit*)):ti,ab,kw
#3.	{or #1-#2}
#4.	(histories or history or question*):ti,ab,kw
#5.	(symptom or symptoms):ti,ab,kw
#6.	#4 or #5
#7.	#3 and #6

F.3.15 Questionnaires

16. In people with asthma, what is the clinical and cost-effectiveness of using symptoms scores/diaries or validated questionnaires measuring symptom control (e.g. ACT, ACQ, cACT, RCP 3 questions) and/or health related quality of life (e.g. AQLQ, pAQLQ) to monitor asthma?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all ages with asthma or suspected asthma	Validated questionnaires	n/a	The following filters were used in Medline and Embase only: OBS, RCT, VAL	See Table 1 English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	(diary or diaries).ti,ab.
2.	(symptom* adj2 scor*).ti,ab.
3.	or/1-2
4.	(measur* or assess* or monitor* or evaluat*).ti,ab.
5.	3 and 4
6.	(CACT or ACQ 6 or ACQ 7 or ACQ6 or ACQ7 or PACQ or RCP-3 or RCP3 or PAQLQ or AQLQ or PACQLQ).ti,ab.
7.	asthma control test*.ti,ab.
8.	asthma control questionnaire*.ti,ab.
9.	(rcp3 question* or rcp 3 question* or rcp three question* or royal college of physician*3 question* or royal college of physician* three question*).ti,ab.
10.	asthma quality of life questionnaire*.ti,ab.
11.	((p?ediatric or caregiver* or care giver* or carer*) adj3 quality of life questionnaire*).ti,ab.
12.	or/6-11
13.	5 or 12

Embase search terms

1.	(diary or diaries).ti,ab.
2.	(symptom* adj2 scor*).ti,ab.
3.	or/1-2
4.	(measur* or assess* or monitor* or evaluat*).ti,ab.
5.	3 and 4
6.	(CACT or ACQ 6 or ACQ 7 or ACQ6 or ACQ7 or PACQ or RCP-3 or RCP3 or PAQLQ or AQLQ or PACQLQ).ti,ab.
7.	asthma control test*.ti,ab.

8.	asthma control questionnaire*.ti,ab.
9.	(rcp3 question* or rcp 3 question* or rcp three question* or royal college of physician*3 question* or royal college of physician* three question*).ti,ab.
10.	asthma quality of life questionnaire*.ti,ab.
11.	((p?ediatric or caregiver* or care giver* or carer*) adj3 quality of life questionnaire*).ti,ab.
12.	or/6-11
13.	5 or 12

Cochrane search terms

#1.	(diary or diaries):ti,ab
#2.	(symptom* near/2 scor*):ti,ab
#3.	{or #1-#2}
#4.	(measur* or assess* or monitor* or evaluat*):ti,ab
#5.	#3 and #4
#6.	(CACT or ACQ 6 or ACQ 7 or ACQ6 or ACQ7 or PACQ or RCP-3 or RCP3 or PAQLQ or AQLQ or PACQLQ):ti,ab
#7.	asthma control test*:ti,ab
#8.	asthma control questionnaire*:ti,ab
#9.	(rcp3 question* or rcp 3 question* or rcp three question* or royal college of physician*3 question* or royal college of physician* three question*):ti,ab
#10.	asthma quality of life questionnaire*:ti,ab
#11.	((p?ediatric or caregiver* or care giver* or carer*) near/3 "quality of life questionnaire*"):ti,ab
#12.	{or #6-#11}
#13.	#5 or #12

F.3.16 Lung functions tests

17. In people with asthma, what is the clinical and cost effectiveness of using measures of pulmonary function assessing asthma control (for example, spirometry and peak expiratory flow) to monitor asthma?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all ages with asthma or suspected asthma	Lung function tests	n/a	The following filter was used in Medline and Embase only: RCT	See Table 1 English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	vital capacity/
2.	forced expiratory volume/
3.	(FEV1 or FEV 1 or FVC).ti,ab.
4.	(flow volume adj (loop* or curve* or graph*)).ti,ab.
5.	(forced expiratory volume* adj6 ("1" or one)).ti,ab.
6.	((force* or time*) adj vital capacit*).ti,ab.
7.	spirometry.ti.

8.	or/1-7
9.	PEFV.ti,ab.
10.	(PEF or PEFR or PFR or peak expiratory flow* or peak flow*).ti,ab.
11.	peak expiratory flow rate/
12.	or/9-11
13.	8 or 12
14.	monitoring, physiologic/
15.	monitor*.ti,ab.
16.	self care/
17.	plan*.ti,ab.
18.	or/14-17
19.	13 and 18

Embase search terms

1.	vital capacity/
2.	forced expiratory volume/
3.	lung flow volume curve/
4.	(FEV1 or FEV 1 or FVC).ti,ab.
5.	(flow volume adj (loop* or curve* or graph*)).ti,ab.
6.	(forced expiratory volume* adj6 ("1" or one)).ti,ab.
7.	((force* or time*) adj vital capacit*).ti,ab.
8.	spirometry.ti.
9.	or/1-8
10.	PEFV.ti,ab.
11.	(PEF or PEFR or PFR or peak expiratory flow* or peak flow*).ti,ab.
12.	peak expiratory flow/
13.	or/10-12
14.	(monitor* or plan*).ti,ab.
15.	exp monitoring/
16.	self care/
17.	or/14-16
18.	9 or 13
19.	17 and 18

Cochrane search terms

#1.	MeSH descriptor: [Vital Capacity] this term only
#2.	MeSH descriptor: [Forced Expiratory Volume] this term only
#3.	(FEV1 or "FEV 1" or FVC):ti,ab
#4.	(flow volume near/2 (loop* or curve* or graph*)):ti,ab
#5.	(forced expiratory volume* near/6 ("1" or one)):ti,ab
#6.	((force* or time*) near/2 vital capacit*):ti,ab
#7.	spirometry:ti
#8.	{or #1-#7}
#9.	PEFV:ti,ab
#10.	(PEF or PEFR or PFR or peak expiratory flow* or peak flow*):ti,ab,kw
#11.	#9 or #10

#12.	#8 or #11
#13.	(monitor* or plan*):ti,ab,kw
#14.	MeSH descriptor: [Self Care] explode all trees
#15.	#13 or #14
#16.	#12 and #15

F.3.17 FeNO (monitoring)

For search terms see F.3.11

18. In people with asthma, what is the clinical and cost-effectiveness of using fractional exhaled nitric oxide (FeNO) measures for monitoring asthma control?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all ages with asthma or suspected asthma	Fractional exhaled nitric oxide (FeNO)	n/a	The following filters were used in Medline and Embase only: OBS, RCT, SR	See Table 1 English only Exclusion filter applied in Medline and Embase

F.3.18 Peripheral blood eosinophil count (monitoring)

For search terms see F.3.12

19. In people with asthma, what is the clinical and cost-effectiveness of using the peripheral blood eosinophil count for monitoring asthma control?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all ages with asthma or suspected asthma	Eosinophil blood count measures	n/a	The following filters were used in Medline and Embase only: OBS, RCT	See Table 1 English only Exclusion filter applied in Medline and Embase

F.3.19 Airway hyper-reactivity measures

For search terms see F.3.13

20. In people with asthma, what is the clinical and cost-effectiveness of using indirect challenge tests with mannitol or direct challenge tests with histamine or methacholine for monitoring asthma control?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all	Bronchial challenge	n/a	The following filter was	See Table 1

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
ages with asthma or suspected asthma	tests using histamine and methacholine or mannitol		used in Medline and Embase only: RCT	English only Exclusion filter applied in Medline and Embase

F.3.20 Adherence to treatment

21. In people with asthma, what is the clinical and cost-effectiveness of monitoring adherence to treatment?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all ages with asthma or suspected asthma	Strategies to monitor or interventions to increase adherence	n/a	The following filters were used in Medline and Embase only: OBS, RCT	See Table 1 English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	(adheren* or complian* or concordan* or nonadheren* or noncomplian*).ti,ab.
2.	exp patient compliance/
3.	or/1-2
4.	FeNO.ti,ab.
5.	nitric oxide/
6.	biological markers/
7.	breath tests/
8.	exhalation/
9.	or/6-8
10.	5 and 9
11.	((Fe or exhal* or fraction*) adj2 (NO or nitric or nitrogen)).ti,ab.
12.	4 or 10 or 11
13.	prescription*.ti,ab.
14.	exp pharmaceutical services/
15.	or/13-14
16.	((electronic adj2 inhaler*) or smartinhaler* or smart inhaler*).ti,ab.
17.	prednisolone.ti,ab.
18.	theophylline.ti,ab.
19.	(MARS or (medication adherence adj2 scale*)).ti,ab.
20.	exp adrenal cortex hormones/
21.	administration, inhalation/
22.	20 and 21
23.	(inhal* and (corticosteroid* or steroid* or corticoid* or glucocorticoid* or glucocortico*)).ti,ab.

24.	22 or 23
25.	or/12,15-19,24
26.	exp monitoring, physiologic/
27.	monitor*.ti,ab.
28.	or/26-27
29.	25 or 28
30.	3 and 29

Embase search terms

1.	(adheren* or complian* or concordan* or nonadheren* or noncomplian*).ti,ab.
2.	exp *patient compliance/
3.	or/1-2
4.	FeNO.ti,ab.
5.	((Fe or exhal* or fraction*) adj2 (NO or nitric or nitrogen)).ti,ab.
6.	*nitric oxide/
7.	*breath analysis/
8.	*expired air/
9.	*biological marker/
10.	*exhalation/
11.	or/7-10
12.	6 and 11
13.	4 or 5 or 12
14.	prescription*.ti,ab.
15.	*pharmacy/
16.	*prescription/
17.	((electronic adj2 inhaler*) or smartinhaler* or smart inhaler*).ti,ab.
18.	prednisolone.ti,ab.
19.	theophylline.ti,ab.
20.	*prednisolone/
21.	*theophylline blood level/
22.	(MARS or (medication adherence adj2 scale*)).ti,ab.
23.	exp *corticosteroid/ih
24.	(inhal* and (corticosteroid* or steroid* or corticoid* or glucocorticoid* or glucocortico*)).ti,ab.
25.	or/13-24
26.	exp *monitoring/
27.	monitor*.ti,ab.
28.	or/26-27
29.	3 and (25 or 28)

Cochrane search terms

#1.	(adheren* or complian* or concordan* or nonadheren* or noncomplian*).ti,ab
#2.	[mh ^"patient compliance"]
#3.	{or #1-#2}
#4.	FeNO:ti,ab
#5.	((Fe or exhal* or fraction*) near/2 (NO or nitric or nitrogen)):ti,ab

#6.	((NO or nitric or nitrogen) near/2 (marker* or biomarker* or breath* or test* or exhal* or expir*)):ti,ab
#7.	[mh ^"Nitric Oxide"]
#8.	[mh ^"Biological Markers"]
#9.	[mh ^"Breath Tests"]
#10.	[mh ^Exhalation]
#11.	{or #8-#10}
#12.	#7 and #11
#13.	{or #4-#6, #12}
#14.	prescription*:ti,ab
#15.	[mh ^"pharmaceutical services"]
#16.	((electronic near/2 inhaler*) or smartinhaler* or smart inhaler*):ti,ab
#17.	prednisolone:ti,ab
#18.	theophylline:ti,ab
#19.	(MARS or medication adherence):ti,ab
#20.	[mh ^"adrenal cortex hormones"]
#21.	[mh "administration, inhalation"]
#22.	(inhal* and (corticosteroid* or steroid* or corticoid* or glucocorticoid* or glucocortico*)):ti,ab
#23.	#20 and #21
#24.	{or #13-#19, #22-#23}
#25.	[mh ^"Monitoring, Physiologic"]
#26.	monitor*:ti,ab
#27.	{or #25-#36}
#28.	#3 and (#24 or #27)

F.3.21 Inhaler technique

22. In people with asthma, what is the optimal frequency and method for monitoring inhaler technique?

Search constructed by combining the columns in the following table using the AND Boolean operator. Exclusion filter applied using NOT Boolean operator.

Population	Intervention or exposure	Comparison	Study design filter	Date parameters and other limits
People of all ages with asthma or suspected asthma	Monitoring inhaler technique	n/a	The following filters were used in Medline and Embase only: OBS, RCT	See Table 1 English only Exclusion filter applied in Medline and Embase

Medline search terms

1.	((nebuliser* or nebulizer* or vaporiser* or vaporizer* or atomiser* or atomizer* or inhal* or aerosol* or device*) adj5 (technique* or competen* or efficien* or inefficien* or misuse* or check* or correct* or incorrect* or evaluat* or adher*)):ti,ab.
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Embase search terms

1.	((nebuliser* or nebulizer* or vaporiser* or vaporizer* or atomiser* or atomizer* or inhal* or aerosol* or device*) adj5 (technique* or competen* or efficien* or inefficien* or misuse* or
----	--

	check* or correct* or incorrect* or evaluat* or adher*)):ti,ab.
--	---

Cochrane search terms

#1.	((nebuliser* or nebulizer* or vaporiser* or vaporizer* or atomiser* or atomizer* or inhal* or aerosol* or device*) near/5 (technique* or competen* or efficien* or inefficien* or misuse* or check* or correct* or incorrect* or evaluat* or adher*)):ti,ab
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F.3.22 Tele-healthcare

Searches for the following question were undertaken by the Cochrane Airways Group using the Cochrane Airways Group Specialised Register of trials. Full search methodology is provided in the published Cochrane review.^{1,1}

23. In people with asthma, what is the clinical and cost-effectiveness of tele-healthcare to monitor asthma control?

F.4 Health economics search

F.4.1 Health economic reviews

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

Population	Intervention or exposure	Comparison	Study design filters	Date parameters and other limits
People of all ages with asthma or suspected asthma	n/a	n/a	The following filters were used in Medline and Embase only: HE	Medline and Embase 2012–2 October 2014 CRD EED and HTA All dates to 2 October 2014 English only

Medline and Embase search terms

4.	exp asthma/
5.	asthma*.ti,ab.
6.	or/1-2

Cochrane search terms

#4.	MeSH descriptor: [Asthma] explode all trees
#5.	asthma*:ti,ab.
#6.	{or #1-#2}

CRD search terms

#1.	MeSH DESCRIPTOR Asthma EXPLODE ALL TREES
#2.	(asthma*)
#3.	#1 OR #2

HEED search terms

1.	AX=asthma*
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F.4.2 Quality of life reviews

Quality of life searches were conducted in Medline and Embase only

Population	Intervention or exposure	Comparison	Study design filters	Date parameters and other limits
People of all ages with asthma or suspected asthma	n/a	n/a	The following filters were used in Medline and Embase only: QOL	Medline 1948-02/10/2014 Embase 1980-02/10/2014 English only

F.5 References

- 1 McLean S, Chandler D, Nurmatov U, Liu JLY, Pagliari C, Car J et al. Telehealthcare for asthma. Cochrane Database of Systematic Reviews. 2010; Issue 10:CD007717. DOI:10.1002/14651858.CD007717.pub2