

Supplementary material- Search strategies

Information sources: OVID MEDLINE, Embase, the Cochrane Central Register of Controlled Trials (CENTRAL) and The Cochrane Database of Systematic Reviews (CDSR)

Search date: 1st April 2026

Acknowledgements- With thanks to Eleanor Kotas, Senior Information Specialist, Royal College of Surgeons of England Library and Archives Team, for conducting the literature searches

Table 1: Search strategy for Ovid MEDLINE(R)

Database:	Ovid MEDLINE(R) ALL <1946 to March 31, 2026>	Results per line:
Date:	01/04/2026	
1	croup/ or viral croup/	1273
2	croup*.ti,ab,kf,kw.	2217
3	(laryngotracheobronch* or laryngo tracheo bronchit* or laryngo tracheobronchit* or laryngotracheit*).ti,ab,kf,kw.	1582
4	or/1-3	3805
5	corticosteroid/ or beclometasone/ or budesonide/ or fluticasone/ or glucocorticoid/ or mometasone furoate/ or ciclesonide/	154391
6	((corticoid* or corticosteroid*) adj4 (inhale* or inhaling or inhalator* or inhalation)).ti,ab,kf,kw.	14199
7	(adrenal* adj2 cortex* adj2 hormone*).ti,ab,kf,kw.	10691
8	(glucocorticoid* or glucocorticoidsteroid* or glucocorticosteroid* or glucocortoid* or glyocorticoid* or glyocorticosteroid*).ti,ab,kf,kw.	93782
9	(beclomethasone* or beclometasone* or beclomethasone dipropionate* or beconase* or becloforte* or becotide* or propaderm* or becodisk* or sanasthmyl* or beclorcort* or beclamet* or qvar* or nasobec aqueous* or ecobec* or beclazone* or respocort* or prolair* or filair* or aerobec* or ventolair* or apo-beclomethasone* or beclo azu* or beclo asma* or aldecin* or viarin* or asmabec clickhaler* or ascocortonyl* or beclovent* or beclomet* or bemedrex easyhaler* or vancenase* or vanceril* or beclorhinol* or becloturmant* or sanasthmax* or bronchocort* or junik* or 4419-39-0 or 5534-09-8 or 5b307s63b2).ti,ab,kf,kw.	3437
10	(budesonide* or pulmicort* or rhinocort* or horacort* or budesonide* or tarpeyo* or 51372-28-2 or 51372-29-3).ti,ab,kf,kw.	7095

11	(fluticasone* or flixotide* or flonase* or flovent* or flixonase* or cutivate propionate* or flovent hfa* or o2gmz0lf5w).ti,ab,kf,kw.	4841
12	(alvesco* or aservo* or "b 9207 015" or "b 9207015" or "b9207 015" or "b9207015" or "by 9010" or "by9010" or omnaris* or zetonna* or zetonna nasal aerosol* or "126544-47-6").ti,ab,kf,kw.	44
13	(aleric spray* or allerge momelind* or allermex aqueous* or aphiasone* or arinit* or asmanex* or azocutan* or belloseta* or bloctimo* or breso* or brexcort* or brusonex* or calimix* or clarinaze allergy control or clarinaze hayfever relief or cutticom* or demoson* or dermotasone* or dermove* or desdek* or ecural* or edelan* or elica* or elitasone* or elocom* or elocon* or elocyn* or elomet* or eloson* or emmarin* or "eso 101" or eso101* or exicort* or eztom* or flumeta* or fremomet* or frondava* or hitaxa metmin spray or ivoxel* or kalmente* or konex* or "las 41002" or las41002* or logren* or lorome* or "lyr 210" or "lyr 220" or lyr210* or lyr220* or makiren* or mefurosan* or metacort* or metaspray* or metmin* or metsandia* or mipasu* or mofuder* or mofunder* or mofur* or momanose* or momate* or mome aiwa* or momeallerg* or momecort* or momecutan* or momederm* or momegalen* or momegen* or momekort* or momenex* or momepax* or momesonex* or momespir* or momester* or mometadex* or mometahexal* or mometason* or mometaxon* or mometeva* or mometop* or momil* or mommox* or monovel* or monovo* or morecort* or motaderm* or movesan* or mundoson* or muofuder* or muzanlo* or nasamet* or nasehaler* or nasoaldo* or nasomentin* or nasomet* or nasonex* or nasotasone* or nenoxin* or netonox* or niciane* or novasone* or orimox* or ovison* or ovixan* or pharmecort* or pronasal* or rhinex relief or rhinizill* or rinalgit* or rinelon* or rinoff* or rinometasone* or rivelon* or "sch 32088" or "sch32088" or sebanex* or sinuva* or sonalox* or temon* or uniclar* or vividrin* or zhekort* or zodgane* or "105102-22-5" or "83919-23-7").ti,ab,kf,kw.	2489
14	metered dose inhalers/ or inhalation spacers/	1933
15	(meter* adj4 inhaler*).ti,ab,kf,kw.	4184
16	spinhaler*.ti,ab,kf,kw.	83
17	(space adj4 inhaler*).ti,ab,kf,kw.	5
18	nebulizers and vaporizers/	10923
19	(atomi?er* or inhalation device* or inhaler* or inhalator* or nebuli?er* or vaporiz?er*).ti,ab,kf,kw.	20849
20	or/5-19	245942
21	4 and 20	312
22	limit 21 to (english language and yr="2006 -Current")	116

Table 2: Search strategy for Embase

Database:	Embase <1974 to 2026 Week 13>	Results per line:
Date:	01/04/2026	
1	croup/ or viral croup/	2434
2	croup*.ti,ab,kf,kw.	2450
3	(laryngotracheobronch* or laryngo tracheo bronchit* or laryngo tracheobronchit* or laryngotracheit*).ti,ab,kf,kw.	1528
4	laryngotracheobronchitis/	818
5	or/1-4	4815
6	corticosteroid/ or beclometasone/ or budesonide/ or fluticasone/ or glucocorticoid/ or mometasone furoate/ or ciclesonide/	489361
7	((corticoid* or corticosteroid*) adj4 (inhale* or inhaling or inhalator* or inhalation)).ti,ab,kf,kw.	24757
8	(adrenal* adj2 cortex* adj2 hormone*).ti,ab,kf,kw.	551
9	(glucocorticoid* or glucocorticoidsteroid* or glucocorticosteroid* or glucocortoid* or glycocorticoid* or glycocorticosteroid*).ti,ab,kf,kw.	133647
10	(beclomethasone* or beclometasone* or beclomethasone dipropionate* or beconase* or becloforte* or becotide* or propaderm* or becodisk* or sanasthmyl* or beclocort* or beclamet* or qvar* or nasobec aqueous* or ecobec* or beclazone* or respocort* or prolair* or filair* or aerobec* or ventolair* or apo-beclomethasone* or beclo azu* or beclo asma* or aldecin* or viarin* or asmabec clickhaler* or ascocortonyl* or beclovent* or beclomet* or bemedrex easyhaler* or vancenase* or vanceril* or beclorhinol* or becloturmant* or sanasthmax* or bronchocort* or junik* or 4419-39-0 or 5534-09-8 or 5b307s63b2).ti,ab,kf,kw.	5494
11	(budesonide* or pulmicort* or rhinocort* or horacort* or budesonide* or tarpeyo* or 51372-28-2 or 51372-29-3).ti,ab,kf,kw.	13424
12	(fluticasone* or flixotide* or flonase* or flovent* or flixonase* or cutivate propionate* or flovent hfa* or o2gmz0lf5w).ti,ab,kf,kw.	9882
13	(alvesco* or aservo* or "b 9207 015" or "b 9207015" or "b9207 015" or "b9207015" or "by 9010" or "by9010" or omnaris* or	82

	zetonna* or zetonna nasal aerosol* or "126544-47-6").ti,ab,kf,kw.	
14	(aleric spray* or allerge momelind* or allermox aqueous* or aphiasone* or arinit* or asmanex* or azocutan* or belloseta* or bloctimo* or breso* or brexcort* or brusonex* or calimix* or clarinaze allergy control or clarinaze hayfever relief or cutticom* or demoson* or dermotasone* or dermovel* or desdek* or ecural* or edelan* or elica* or elitasone* or elocom* or elocon* or elocyn* or elomet* or eloson* or emmarin* or "eso 101" or eso101* or exicort* or eztom* or flumeta* or fremomet* or frondava* or hitaxa metmin spray or ivoxel* or kalmente* or konex* or "las 41002" or las41002* or logren* or lorome* or "lyr 210" or "lyr 220" or lyr210* or lyr220* or makiren* or mefurosan* or metacort* or metaspray* or metmin* or metsandia* or mipasu* or mofuder* or mofunder* or mofur* or momanose* or momate* or mome aiwa* or momeallerg* or momecort* or momecutan* or momederm* or momegalen* or momegen* or momekort* or momenex* or momepax* or momesonex* or momespir* or momester* or mometadex* or mometahexal* or mometason* or mometaxon* or mometeva* or mometop* or momil* or mommox* or monovel* or monovo* or morecort* or motaderm* or movesan* or mundoson* or muofuder* or muzanlo* or nasamet* or nasehaler* or nasoaldo* or nasomentin* or nasomet* or nasonex* or nasotasone* or nenoxin* or netonox* or niciane* or novasone* or orimox* or ovixon* or ovixan* or pharmecort* or pronasal* or rhinex relief or rhinizill* or rinalgit* or rinelon* or rinoff* or rinometasone* or rivelon* or "sch 32088" or "sch32088" or sebanex* or sinuva* or sonalox* or temon* or uniclar* or vividrin* or zhekort* or zodgane* or "105102-22-5" or "83919-23-7").ti,ab,kf,kw.	3978
15	metered dose inhaler/ or breath-actuated metered dose inhaler/	9373
16	(meter* adj4 inhaler*).ti,ab,kf,kw.	6818
17	spinhale*.ti,ab,kf,kw.	119
18	(space adj4 inhaler*).ti,ab,kf,kw.	12
19	nebulizer/ or medical nebulizer/	14929
20	(atomi?er* or inhalation device* or inhaler* or inhalator* or nebuli?er* or vaporiz?er*).ti,ab,kf,kw.	36863
21	or/6-20	588954
22	5 and 21	725
23	limit 22 to (english language and yr="2006 -Current")	376

Table 3: Search strategy for Cochrane Central Register of Controlled Trials (CENTRAL) and Cochrane Database of Systemic Reviews (CDSR)

Database:	Cochrane Central Register of Controlled Trials (CENTRAL) and Cochrane Database of Systematic Reviews (CDSR)	Results per line:
Date:	01/04/2026	
#1	[mh croup] OR [mh "viral croup"]	92
#2	croup*:ti,ab,kw	260
#3	(laryngotracheobronch* OR laryngo NEXT trachea NEXT bronchit* OR laryngo NEXT tracheobronchit* OR laryngotracheit*):ti,ab,kw	43
#4	#1 OR #2 OR #3	282
#5	[mh corticosteroid] OR [mh beclometasone] OR [mh budesonide] OR [mh fluticasone] OR [mh glucocorticoid] OR [mh "mometasone furoate"] OR [mh ciclesonide]	23293
#6	((corticoid* OR corticosteroid*) NEAR/4 (inhale* OR inhaling OR inhalator* OR inhalation)):ti,ab,kw	6109
#7	(adrenal* NEAR/2 cortex* NEAR/2 hormone*):ti,ab,kw	3834
#8	(glucocorticoid* OR glucocorticoidsteroid* OR glucocorticosteroid* OR glucocortoid* OR glycocorticoid* OR glycocorticosteroid*):ti,ab,kw	12317
#9	(beclomethasone* OR beclometasone* OR beclomethasone NEXT dipropionate* OR beconase* OR becloforte* OR becotide* OR propaderm* OR becodisk* OR sanasthmyl* OR beclorcort* OR beclamet* OR qvar* OR nasobec NEXT aqueous* OR ecobec* OR beclazone* OR respocort* OR prolair* OR filair* OR aerobec* OR ventolair* OR apo-beclomethasone* OR beclo NEXT azu* OR beclo NEXT asma* OR aldecin* OR viarin* OR asmabec NEXT clickhaler* OR ascocortonyl* OR beclovent* OR beclomet* OR bemedrex NEXT easyhaler* OR vancenase* OR vanceril* OR beclorhinol* OR becloturmant* OR sanasthmax* OR bronchocort* OR junik* OR "4419-39-0" OR "5534-09-8" OR "5b307s63b2"):ti,ab,kw	2719
#10	(budesonide* OR pulmicort* OR rhinocort* OR horacort* OR tarpeyo* OR "51372-28-2" OR "51372-29-3"):ti,ab,kw	5788
#11	(fluticasone* OR flixotide* OR flonase* OR flovent* OR flixonase* OR cutivate NEXT propionate* OR Flovent NEXT hfa* OR "o2gmz0lf5w"):ti,ab,kw	6048
#12	(alvesco* OR aservo* OR "b 9207 015" OR "b 9207015" OR "b9207 015" OR "b9207015" OR "by 9010" OR by9010 OR omnaris* OR zetonna* OR zetonna NEXT nasal NEXT aerosol* OR "126544-47-6"):ti,ab,kw	55

#13	(aleric NEXT spray* OR allegro NEXT momelind* OR allerman NEXT aqueous* OR aphiasone* OR arinit* OR asmanex* OR azocutan* OR belloseta* OR bloctimo* OR breso* OR brexcort* OR brusonex* OR calimix* OR "clarinaze allergy control" OR "clarinaze hayfever relief" OR cutticom* OR demoson* OR dermatasone* OR dermovel* OR desdek* OR ecural* OR edelan* OR elica* OR elitasone* OR elocom* OR elocon* OR elocyn* OR elomet* OR eloson* OR emmarin* OR "eso 101" OR eso101* OR exicort* OR eztom* OR flumeta* OR fremomet* OR frondava* OR "hitaxa metmin spray" OR ivoxel* OR kalmente* OR konex* OR "las 41002" OR las41002* OR logren* OR lorome* OR "lyr 210" OR "lyr 220" OR lyr210* OR lyr220* OR makiren* OR mefurosan* OR metacort* OR metaspray* OR metmin* OR metsandia* OR mipasu* OR mofuder* OR mofunder* OR mofur* OR momanose* OR momate* OR mome NEXT aiwa* OR momeallerg* OR momecort* OR momecutan* OR momederm* OR momegalen* OR momegen* OR momekort* OR momenex* OR momepax* OR momesonex* OR momespir* OR momester* OR mometadex* OR mometahexal* OR mometason* OR mometaxon* OR mometeva* OR mometop* OR momil* OR mommox* OR monovel* OR monovo* OR morecort* OR motaderm* OR movesan* OR mundoson* OR muofuder* OR muzanlo* OR nasamet* OR nasehaler* OR nasoaldo* OR nasomentin* OR nasomet* OR nasonex* OR nasotasone* OR nenoxin* OR netonox* OR niciane* OR novasone* OR orimox* OR ovison* OR ovixan* OR pharmecort* OR pronasal* OR "rhinex relief" OR rhinizill* OR rinalgit* OR rinelon* OR rinoff* OR rinometasone* OR rivelon* OR "sch 32088" OR sch32088* OR sebanex* OR sinuva* OR sonalox* OR temon* OR uniclar* OR vividrin* OR zhekort* OR zodgane* OR "105102-22-5" OR "83919-23-7"):ti,ab,kw	1898
#14	[mh "Metered Dose Inhalers"] OR [mh "Inhalation Spacers"]	542
#15	(meter* NEAR/4 inhaler*):ti,ab,kw	2985
#16	spinhale*:ti,ab,kw	36
#17	(space NEAR/4 inhaler*):ti,ab,kw	2
#18	[mh "Nebulizers and Vaporizers"]	2862
#19	(atomi?er* OR inhalation NEXT device* OR inhaler* OR inhalator* OR nebuli?er* OR vaporiz?er*):ti,ab,kw	11516
#20	#5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19	47664
#21	#4 AND #20 with Cochrane Library publication date from Jan 2006 to present, in Cochrane Reviews	5
#22	#4 AND #20 with Publication Year from 2006 to present, in Trials	28