Appendix A. Search Strategies

The following electronic databases were searched on December 19, 2011 for citations:

- MEDLINE® (1948 to December 19, 2011) yielded 1972 records
- EMBASE® (1980 to December 19, 2011) yielded 1585 records
- The Cochrane Library (through December 19, 2011) yielded 712 records

MEDLINE

1. Rhinitis, Allergic, Perennial/
2. Rhinitis, Allergic, Seasonal/
3. Rhinitis/
4. (seasonal or allergic).tw.
5. 3 and 4
6. seasonal rhinitis.tw.
7. allergic rhinitis.tw.
8. (hay fever or hayfever).tw.
9. (sar or par).tw.
10. or/1-2,5-9
11. exp Adrenal Cortex Hormones/ or corticosteroid$.tw.
12. Betamethasone/ or (Betamethasone or Celestone).tw.
13. Cortisone/ or Cortone.tw.
14. exp Dexamethasone/ or (Dexamethasone or Baycadron or Hexadrol or Decadron or Dexium or Dexone or DexPak).tw.
15. exp Hydrocortisone/ or (Hydrocortisone or Cortef or Hydrocortone).tw.
16. Methylprednisolone/ or (Methylprednisolone or medrol).tw.
17. exp Prednisolone/ or (Prednisolone or asmalPred Plus or Millipred or Pediapred or Prelone or Veripred or Flo-Pred or Cotolone or Orapred or Prednoral).tw.
18. Prednisone/ or (Prednisone or Liquid Pred or Deltasone or Meticorten or Orasone or Prednicen or Sterapred or Prednicot).tw.
19. exp Triamcinolone/ or (Triamcinolone or Aristocort).tw.
20. or/11-17
21. exp Administration, Oral/ or oral$.tw.
22. 20 and 21
23. Beclomethasone/ or (Beclomethasone or Beconase or Vancenase).tw.
24. exp Adrenal Cortex Hormones/ or corticosteroid$.tw.
25. Budesonide/ or (Budesonide or Rhinocort).tw.
26. Pregnenediones/ or (Ciclesonide or Omnaris).tw.
27. exp Dexamethasone/ or (Dexamethasone or Dexacort).tw.
28. exp Fluocinolone Acetonide/ or (Flunisolide or Nasalide or Nasarel).tw.
29. exp Androstadienes/ or (Fluticasone or Flonase or Veramyst).tw.
30. (Mometasone or Nasonex).tw.
31. exp Triamcinolone/ or (Triamcinolone or AllerNaze or Nasocort or Tri-nasal).tw.
32. or/23-31
33. Administration, Intranasal/ or (nasal$ or intranasal$).tw.
34. 32 and 33

35. exp Histamine Antagonists/ or antihistamine$.tw.
36. Cetirizine/ or (Cetirizine or Zyrtec or Alleroff or Aller-tec).tw.
37. Loratadine/ or (Loratadine or Desloratadine or Clarinex or Claritin or Triaminic or Agistam or Alavert or Bactimicina allergy or Clear-atadine or Loradamed).tw.
38. Terfenadine/ or (Fexofenadine or Allegra).tw.
39. (Levocetirizine or Xyzal).tw.
40. or/36-39
41. exp Histamine Antagonists/ or antihistamine$.tw.
42. exp Brompheniramine/ or (Brompheniramine or Lodrane or Tridane or Bromaphen or Brovex or B-vex or Tanacof or Bidhist or Bromax or Respa or Brompsiro or Dimetane or Siltane or Vazol or Conex or J-Tan).tw.
43. Carbinoxamine.tw.
44. Pyridines/ or (Carbinoxamine or Carboxine or Cordron or Histuss or Palgic or Pediatex or Pediox or Arbinoxa).tw.
45. Chlorpheniramine/ or (Chlorpheniramine or Chlo-Amine or Chlor-Phen or Krafthist or Chlortan or Ed ChlorPed or P-Tann or Allerlief or Chlor-Al Rel or Myci Chlorped or Pediatan or Ahist or Aller-Chlor or Chlor-Mal or Chlor-Phenit or Diabetic Tussin or Ed Chlor Tan or Ridramin or Teldrin or Uni-Cortrom).tw.
46. Clemastine/ or (Clemastine or Tavist or Allerhist$ or Dayhist$).tw.
47. Cyproheptadine/ or (Cyproheptadine or Periactin).tw.
48. (Dexchlorpheniramine or Polaramine).tw.
49. exp Diphenhydramine/ or (Diphenhydramine or Benadryl or Dytan or Kids-eeze or Allergia$ or Benekraft or Diphenyl or Aler-Dryl or Altaryl or Antihist or Antituss or Beldin or Belix or Bromanate AF or Bydramine or Diphen or Diphenadryl or Diphenyl$ or Dytuss or Elixsure or Hydramine or Nu-med or Pardyl or PediaCare or Scot-Tussin or Syladryl or Silaphen or Tusstat or Theraflu or Ben Tann or Dicopanol or Allermax or Banophen or Diphedryl or Diphenhist or Nervine or Paxidorm).tw.
50. Doxylamine/ or (Doxylamine or Aldex or Doxytex).tw.
51. Promethazine/ or (Promethazine or Phenergan or Pentazine or Promacot).tw.
52. Triprolidine/ or (Triprolidine or Tripohist or Zymine).tw.
53. exp Dibenzoxepins/ or (Olopatadine or Patanase).tw.
54. exp Phthalazines/ or (Azelastine or Astelin or Astepro).tw.
55. or/41-54
56. Ipratropium/ or (Ipratropium or Atrovent).tw.
57. Cromolyn Sodium/ or (cromoglycate or Cromolyn or Nasalcrom).tw.
58. Leukotriene Antagonists/ or (Leukotriene Antagonist$ or Montelukast or Singulair).tw.
59. exp Nasal Decongestants/ or exp Phenylephrine/ or Imidazoles/ or (nasal decongestant$ or Levmetamfetamine or vapo?r inhaler$ or Naphazoline or Privine or Oxymetazoline or Afrin or (Allerest adj3 Nasal) or Dristan or Duramist plus or Four-Way or Mucinex Nasal or Nasin or Neo-Synephrine or Nostrilla or (NTZ adj3 Nasal) or Oxyfrin or Oxymeta or Sinarest or Zicam or Phenylephrine or Tetrahydrozoline or tyzine or (Alconefrin adj2 Decongestant) or Rhinall or 4-way or Sinex or Propylhexedrine or Benzedrex or Xylometazoline or Otrivin).tw.
60. (oral decongestant$ or Ah-chew$ or Gilchew or Phenyl-T or Despec or Lusonal).tw. or exp Pseudoephedrine/ or (Pseudoephedrine or Afrinol or Contac or Efidac or Suphedrine or Decofed or Elixsure or Ephed 60 or Kid Kare or Myfedrine or Q-Fed or Silfedrine or Superfed or Unifed or Entex or Nasofed or Congest Aid or Sudophed or Cenafed or Congestaclear or Pseudocot or

Pseudofed or Pseudotabs or Pseudoval or Ridafed or Seudotabs or Sudafed or Sudodrin or Sudogest or Sudrine).tw.
61. sodium chloride/ or (saline or Altamist or ENTsol or Little Noses or nasal Moist or Ocean or Pretz or Salinex or SaltAire or Deep Sea or Humist or Marine mist or sea Mist or Nasosol or Pediamist or Rhinaris or Sea Soft).tw.
62. (Accuhist or Actacin or Actagen or Actamine or Actedril or Acticon or Actifed or Alacol or Ala-Hist or Alenaze-D or Allan Tannate or Allent or Aller-Chlor or Allercon or AllerDur or Allerest or Allerfrim or Allerx or Altafed or Amerifed or Anamine or Anaplex or Andec or Andehist or Aphedrid or A-Phedrin or Aridex-D or Atridine or Atrogen or Atrohist or Benylin or B-Fedrine or Bi-Tann or BP Allergy or BPM Pseudo or Brexin or Brofed or Brom Tann or Bromadrine or Bromaline or Bromaphedrine or Bromaxefed or BROMDEC or Bromfed or Bromfenex or Bromhist$ or BROMPHEN or C Tan D or Carbaxefed or CARBIC or Carbiset or Carbodec or Carbofed or Cardec or Centergy or Cetiri-d or Chemdec or Chlor Trimeton or Chlorafed$ or Chlordrine or Chlor-Mes or Chlorphedrin or Clorfed or Codimal$ or Coldec or Colfed$ or Cophene or CP Oral or CP Tannic or C-Phed Tannate or Curaler or Cydec or Dallergy or D-Amine or Dayquil Allergy or Deconamine or Decongestamine or De-Congestine or Deconomed or Delsym or Desihist or Dexaphen or Dexophed or Dicel or Dimetapp or Diphentann or Disobrom or Disophrol or Dixaphedrine or Drexophed or Drixomed or Drixoral or D-Tann or Duomine or Duotan or Dura Ron or Durafed or Duralex or Dura-Tap or Duratuss or Dynahist or Ed A-Hist or Endafed or Entre-B or Ex?Dec or Fedahist or Hayfebrol or Hexafed or Hisdec or Histadec or Histafed or Histalet or HistamaxD or Histatab or Hista-Tabs or Histex or Hydro-Tussin or Iofed or Isophen-DF or Klerist-D or Kronofed-A or Lohist or Lortuss or Maldec or Maxichlor or Med-Hist or M-Hist or Mintex or Mooredec or NalDex or Nalfed or Nasohist or ND Clear or NeutraHist or Nohist or Norel LA or Novafed or Novahistine Elixir or Ny-Tannic or Orlenta or Pediachlor or Pharmadrine or Phenabid or PHENAMETH or PHEN-TUSS or Phenyl Chlor Tan or Phenylhistine or Prohist or Pseudoephedrine-BM or Pseubrom or Pseuclor or QDall or Q-Tapp or R?Tann$ or Relera or Rescon or Respahist or Rhinabid or RhinaHist or Ricobid or Ridifed or Rinade$ or Rinate or Robitussin Night$ or Rondamine or Rondec or Rondex or Rymed or Ryna Liquid or Rynatan or Semprex or Seradex or Shellcap or Sildec or Sinuhist or Sonahist or Suclor or SudaHist or Sudal or Sudo Chlor or Suphenamine or SuTan or Tanabid or Tanafed or Tanahist or Tekral or Time-Hist or Touro or Triafed or Triphed or Tri-Pseudo or Triptifed or Trisofed or Tri-Sudo or Trisudrine or Trynate or Ultrabrom or Vazobid or Vazotab or V-Hist or Vi-Sudo or X-Hist or XiraHist or Zinx Chlor$ or Zotex).tw.
63. or/22,34,55,62
64. 10 and 63
65. randomized controlled trial.pt.
66. random$.tw.
67. 65 or 66
68. 64 and 67
69. (animals not humans).sh.
70. 68 not 69
71. limit 70 to english language
72. ("review" or "review academic" or "review tutorial").pt.
73. (medline or medlars or embase or pubmed).tw,sh.
74. (scisearch or psychinfo or psycinfo).tw,sh.
75. (psychlit or psyclit).tw,sh.

76. cinahl.tw,sh.
77. ((hand adj2 search$) or (manual$ adj2 search$)).tw,sh.
78. (electronic database$ or bibliographic database$ or computeri?ed database$ or online database$).tw,sh.
79. (pooling or pooled or mantel haenszel).tw,sh.
80. (retraction of publication or retracted publication).pt.
81. (peto or dersimonian or der simonian or fixed effect).tw,sh.
82. or/73-81
83. 72 and 82
84. meta-analysis.pt.
85. meta-analysis.sh.
86. (meta-analys$ or meta analys$ or metaanalys$).tw,sh.
87. (systematic$ adj5 review$).tw,sh.
88. (systematic$ adj5 overview$).tw,sh.
89. (quantitativ$ adj5 review$).tw,sh.
90. (quantitativ$ adj5 overview$).tw,sh.
91. (quantitativ$ adj5 synthesis$).tw,sh.
92. (methodologic$ adj5 review$).tw,sh.
93. (methodologic$ adj5 overview$).tw,sh.
94. (integrative research review$ or research integration).tw.
95. or/84-94
96. 64 and 95
97. (animals not humans).sh.
98. 96 not 97
99. limit 98 to english language
100. placebo-controlled.tw.
101. (placebo and (control or controlled)).tw.
102. (observational or cohort or case-control or cross-sectional).tw.
103. or/100-102
104. 64 and 103
105. (animals not humans).sh.
106. 104 not 105
107. limit 106 to english language

EMBASE

1. perennial rhinitis/
2. hay fever/
3. rhinitis/
4. (seasonal or allergic).tw.
5. 3 and 4
6. seasonal rhinitis.tw.
7. allergic rhinitis.tw.
8. (hay fever or hayfever).tw.
9. (sar or par).tw.
10. or/1-2,5-9

11. exp corticosteroid/ or corticosteroid$.tw.
12. Betamethasone/ or (Betamethasone or Celestone).tw.
13. Cortisone/ or Cortone.tw.
14. Dexamethasone/ or (Dexamethasone or Baycadron or Hexadrol or Decadron or Dexium or Dexone or DexPak).tw.
15. Hydrocortisone/ or (Hydrocortisone or Cortef or Hydrocortone).tw.
16. Methylprednisolone/ or (Methylprednisolone or medrol).tw.
17. Prednisolone/ or (Prednisolone or asmalPred Plus or Millipred or Pediapred or Prelone or Veripred or Flo-Pred or Cotolone or Orapred or Prednoral).tw.
18. Prednisone/ or (Prednisone or Liquid Pred or Deltasone or Meticorten or Orasone or Prednicen or Sterapred or Prednicot).tw.
19. Triamcinolone/ or (triamcinolone or Aristocort).tw.
20. oral drug administration/ or oral$.tw.
21. or/11-19
22. 20 and 21
23. Beclometasone/ or (Beclomet?asone or Beconase or Vancenase).tw.
24. exp corticosteroid/ or corticosteroid$.tw.
25. Budesonide/ or (Budesonide or Rhinocort).tw.
26. Ciclesonide/ or (Ciclesonide or Omnaris).tw.
27. Dexamethasone/ or (Dexamethasone or Dexacort).tw.
28. Flunisolide/ or (Flunisolide or Nasalide or Nasarel).tw.
29. Fluticasone/ or (Fluticasone or Flonase or Veramyst).tw.
30. mometasone furoate/ or (Mometasone or Nasonex).tw.
31. Triamcinolone/ or (Triamcinolone or AllerNaze or Nasocort or Tri-nasal).tw.
32. intranasal drug administration/ or (nasal$ or intranasal$).tw.
33. or/23-31
34. 32 and 33
35. exp antihistaminic agent/ or antihistamine$.tw.
36. Cetirizine/ or (Cetirizine or Zyrtec or Alleroff or Aller-tec).tw.
37. Loratadine/ or (Loratadine or Desloratadine or Clarinex or Claritin or Triaminic or Agistam or Alavert or Bactimicina allergy or Clear-atadine or Loradamed).tw.
38. Fexofenadine/ or (Fexofenadine or Allegra).tw.
39. Levocetirizine/ or (Levocetirizine or Xyzal).tw.
40. Brompheniramine/ or (Brompheniramine or Lodrane or Tridane or Bromaphen or Brovex or B-vex or Tanacof or Bidhist or Bromax or Respa or Brompsiro or Dimetane or Siltane or Vazol or Conex or J-Tan).tw.
41. Carbinoxamine/ or (Carboxine or Cordron or Histuss or Palgic or Pediatex or Pediox or Arbinoxa).tw.
42. Chlorpheniramine/ or (Chlorpheniramine or Chlo-Amine or Chlor-Phen or Krafthist or Chlortan or Ed ChlorPed or P-Tann or Allerlief or Chlor-Al Rel or Myci Chlorped or Pediatan or Ahist or Aller-Chlor or Chlor-Mal or Chlor-Phenit or Diabetic Tussin or Ed Chlor Tan or Ridramin or Teldrin or Uni-Cortrom).tw.
43. Clemastine/ or (Clemastine or Tavist or Allerhist$ or Dayhist$).tw.
44. Cyproheptadine/ or (Cyproheptadine or Periactin).tw.
45. Dexchlorpheniramine/ or (Dexchlorpheniramine or Polaramine).tw.

46. Diphenhydramine/ or (Diphenhydramine or Benadryl or Dytan or Kids-eeze or Allergia$ or Benekraft or Diphenyl or Aler-Dryl or Altaryl or Antihist or Antituss or Beldin or Belix or Bromanate AF or Bydramine or Diphen or Diphenadryl or Diphenyl$ or Dytuss or Elixsure or Hydramine or Nu-med or Pardyl or PediaCare or Scot-Tussin or Syladryl or Silaphen or Tusstat or Theraflu or Ben Tann or Dicopanol or Allermax or Banophen or Diphedryl or Diphenhist or Nervine or Paxidorm).tw.
47. Doxylamine/ or (Doxylamine or Aldex or Doxytex).tw.
48. Promethazine/ or (Promethazine or Phenergan or Pentazine or Promacot).tw.
49. Triprolidine/ or (Triprolidine or Tripohist or Zymine).tw.
50. Olopatadine/ or (Olopatadine or Patanase).tw.
51. Azelastine/ or (Azelastine or Astelin or Astepro).tw.
52. ipratropium bromide/ or (Ipratropium or Atrovent).tw.
53. cromoglycate disodium/ or (cromoglycate or Cromolyn or Nasalcrom).tw.
54. leukotriene receptor blocking agent/ or (Leukotriene Antagonist$ or Montelukast or Singulair).tw.
55. Decongestive agent/ or Phenylephrine/ or (nasal decongestant$ or Levmetamfetamine or vapo?r inhaler$ or Naphazoline or Privine or Oxymetazoline or Afrin or (Allerest adj3 Nasal) or Dristan or Duramist plus or Four-Way or Mucinex Nasal or Nasin or Neo-Synephrine or Nostrilla or (NTZ adj3 Nasal) or Oxyfrin or Oxymeta or Sinarest or Zicam or Phenylephrine or (Alconefrin adj2 Decongestant) or Rhinall or 4-way or Sinex or Propylhexedrine or Benzedrex or Xylometazoline or Otrivin or tetrahydrozoline or tyzine).tw.
56. Pseudoephedrine/ or (oral decongestant$ or Ah-chew$ or Gilchew or Phenyl-T or Despec or Lusonal or Pseudoephedrine or Afrinol or Contac or Efidac or Suphedrine or Decofed or Elixsure or Ephed 60 or Kid Kare or Myfedrine.tw. or Q-Fed or Silfedrine or Superfed or Unifed or Entex or Nasofed or Congest Aid or Sudophed or Cenafed or Congestaclear or Pseudocot or Pseudofed or Pseudotabs or Pseudoval or Ridafed or Seudotabs or Sudafed or Sudodrin or Sudogest or Sudrine).tw.
57. sodium chloride/ or (saline or Altamist or ENTsol or Little Noses or nasal Moist or Ocean or Pretz or Salinex or SaltAire or Deep Sea or Humist or Marine mist or sea Mist or Nasosol or Pediamist or Rhinaris or Sea Soft).tw.
58. (Accuhist or Actacin or Actagen or Actamine or Actedril or Acticon or Actifed or Alacol or Ala-Hist or Alenaze-D or Allan Tannate or Allent or Aller-Chlor or Allercon or AllerDur or Allerest or Allerfrim or Allerx or Altafed or Amerifed or Anamine or Anaplex or Andec or Andehist or Aphedrid or A-Phedrin or Aridex-D or Atridine or Atrogen or Atrohist or Benylin or B-Fedrine or Bi-Tann or BP Allergy or BPM Pseudo or Brexin or Brofed or Brom Tann or Bromadrine or Bromaline or Bromaphedrine or Bromaxefed or BROMDEC or Bromfed or Bromfenex or Bromhist$ or BROMPHEN or C Tan D or Carbaxefed or CARBIC or Carbiset or Carbodec or Carbofed or Cardec or Centergy or Cetiri-d or Chemdec or Chlor Trimeton or Chlorafed$ or Chlordrine or Chlor-Mes or Chlorphedrin or Clorfed or Codimal$ or Coldec or Colfed$ or Cophene or CP Oral or CP Tannic or C-Phed Tannate or Curaler or Cydec or Dallergy or D-Amine or Dayquil Allergy or Deconamine or Decongestamine or De-Congestine or Deconomed or Delsym or Desihist or Dexaphen or Dexophed or Dicel or Dimetapp or Diphentann or Disobrom or Disophrol or Dixaphedrine or Drexophed or Drixomed or Drixoral or D-Tann or Duomine or Duotan or Dura Ron or Durafed or Duralex or Dura-Tap or Duratuss or Dynahist or Ed A-Hist or Endafed or Entre-B or Ex?Dec or Fedahist or Hayfebrol or Hexafed or Hisdec or Histadec or Histafed or Histalet or HistamaxD or Histatab or Hista-Tabs or Histex

or Hydro-Tussin or Iofed or Isophen-DF or Klerist-D or Kronofed-A or Lohist or Lortuss or Maldec or Maxichlor or Med-Hist or M-Hist or Mintex or Mooredec or NalDex or Nalfed or Nasohist or ND Clear or NeutraHist or Nohist or Norel LA or Novafed or Novahistine Elixir or Ny-Tannic or Orlenta or Pediachlor or Pharmadrine or Phenabid or PHENAMETH or PHEN-TUSS or Phenyl Chlor Tan or Phenylhistine or Prohist or Pseudoephedrine-BM or Pseubrom or Pseuclor or QDall or Q-Tapp or R?Tann$ or Relera or Rescon or Respahist or Rhinabid or RhinaHist or Ricobid or Ridifed or Rinade$ or Rinate or Robitussin Night$ or Rondamine or Rondec or Rondex or Rymed or Ryna Liquid or Rynatan or Semprex or Seradex or Shellcap or Sildec or Sinuhist or Sonahist or Suclor or SudaHist or Sudal or Sudo Chlor or Suphenamine or SuTan or Tanabid or Tanafed or Tanahist or Tekral or Time-Hist or Touro or Triafed or Triphed or Tri-Pseudo or Triptifed or Trisofed or Tri-Sudo or Trisudrine or Trynate or Ultrabrom or Vazobid or Vazotab or V-Hist or Vi-Sudo or X-Hist or XiraHist or Zinx Chlor$ or Zotex).tw.
59. or/22,34-58
60. 10 and 59
61. limit 60 to randomized controlled trial
62. random$.tw.
63. 60 and 62
64. 61 or 63
65. (animal$ not human$).sh,hw.
66. 64 not 65
67. limit 66 to english language
68. exp side effect/
69. side effect$.tw.
70. undesirable effect$.tw.
71. tolerability.tw.
72. exp toxicity/
73. (adverse adj2 (effect$ or reaction$ or event$ or outcome$)).ti.
74. exp adverse drug reaction/
75. or/69-74
76. 60 and 75
77. (animal$ not human$).sh,hw.
78. 76 not 77
79. limit 78 to english language
80. exp review/
81. (literature adj3 review$).ti,ab.
82. exp meta analysis/
83. exp "Systematic Review"/
84. or/80-83
85. (medline or medlars or embase or pubmed or cinahl or amed or psychlit or psyclit or psychinfo or psycinfo or scisearch or cochrane).ti,ab.
86. RETRACTED ARTICLE/
87. 85 or 86
88. 84 and 87
89. (systematic$ adj2 (review$ or overview)).ti,ab.
90. (meta?anal$ or meta anal$ or meta-anal$ or metaanal$ or metanal$).ti,ab.
91. or/88-90

92. 60 and 91
93. (animal$ not human$).sh,hw.
94. 92 not 93
95. limit 94 to english language

Cochrane Library

ID	Search
#1	MeSH descriptor Rhinitis, Allergic, Perennial, this term only
#2	MeSH descriptor Rhinitis, Allergic, Seasonal, this term only
#3	MeSH descriptor Rhinitis, this term only
#4	(seasonal or allergic):ti,ab
#5	(#3 AND #4)
#6	"seasonal rhinitis":ti,ab
#7	"allergic rhinitis":ti,ab
#8	(hay fever or hayfever):ti,ab
#9	(sar or par):ti,ab
#10	(#1 OR #2 OR #5 OR #6 OR #7 OR #8 OR #9)
#11	MeSH descriptor Adrenal Cortex Hormones explode all trees
#12	corticosteroid*:ti,ab
#13	MeSH descriptor Betamethasone, this term only
#14	(Betamethasone or Celestone):ti,ab
#15	MeSH descriptor Cortisone, this term only
#16	Cortone:ti,ab
#17	MeSH descriptor Dexamethasone explode all trees
#18	(Dexamethasone or Baycadron or Hexadrol or Decadron or Dexium or Dexone or DexPak):ti,ab
#19	MeSH descriptor Hydrocortisone explode all trees
#20	(Hydrocortisone or Cortef or Hydrocortone):ti,ab
#21	MeSH descriptor Methylprednisolone, this term only
#22	(Methylprednisolone or medrol):ti,ab
#23	MeSH descriptor Prednisolone, this term only
#24	(Prednisolone or asmalPred Plus or Millipred or Pediapred or Prelone or Veripred or Flo-Pred or Cotolone or Orapred or Prednoral):ti,ab
#25	MeSH descriptor Prednisone, this term only
#26	(Prednisone or Liquid Pred or Deltasone or Meticorten or Orasone or Prednicen or Sterapred or Prednicot):ti,ab
#27	MeSH descriptor Triamcinolone, this term only
#28	(triamcinolone or Aristocort):ti,ab
#29	MeSH descriptor Administration, Oral explode all trees
#30	oral*:ti,ab
#31	(#11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29)
#32	(#30 OR #31)
#33	(#31 AND #32)
#34	MeSH descriptor Beclomethasone, this term only

#35 (Beclomet?asone or Beconase or Vancenase):ti,ab
#36 MeSH descriptor Adrenal Cortex Hormones explode all trees
#37 corticosteroid*:ti,ab
#38 MeSH descriptor Budesonide, this term only
#39 (Budesonide or Rhinocort):ti,ab
#40 MeSH descriptor Pregnenediones, this term only
#41 (Ciclesonide or Omnaris):ti,ab
#42 MeSH descriptor Dexamethasone explode all trees
#43 (Dexamethasone or Dexacort):ti,ab
#44 MeSH descriptor Fluocinolone Acetonide explode all trees
#45 (Flunisolide or Nasalide or Nasarel):ti,ab
#46 MeSH descriptor Androstadienes explode all trees
#47 (Fluticasone or Flonase or Veramyst):ti,ab
#48 (Mometasone or Nasonex):ti,ab
#49 MeSH descriptor Triamcinolone explode all trees
#50 (Triamcinolone or AllerNaze or Nasocort or Tri-nasal):ti,ab
#51 MeSH descriptor Administration, Intranasal, this term only
#52 (nasal* or intranasal*):ti,ab
#53 (#34 OR #35 OR #36 OR #37 OR #38 OR #39 OR #40 OR #41 OR #42 OR #43 OR #44 OR #45 OR #46 OR #47 OR #48 OR #49 OR #50)
#54 (#51 OR #52)
#55 (#53 AND #54)
#56 MeSH descriptor Histamine Antagonists explode all trees
#57 antihistamine*:ti,ab
#58 MeSH descriptor Cetirizine, this term only
#59 (Cetirizine or Zyrtec or Alleroff or Aller-tec):ti,ab
#60 MeSH descriptor Loratadine, this term only
#61 (Loratadine or Desloratadine or Clarinex or Claritin or Triaminic or Agistam or Alavert or "Bactimicina allergy" or Clear-atadine or Loradamed):ti,ab
#62 MeSH descriptor Terfenadine, this term only
#63 (Fexofenadine or Allegra):ti,ab
#64 (Levocetirizine or Xyzal):ti,ab
#65 MeSH descriptor Brompheniramine explode all trees
#66 (Brompheniramine or Lodrane or Tridane or Bromaphen or Brovex or B-vex or Tanacof or Bidhist or Bromax or Respa or Brompsiro or Dimetane or Siltane or Vazol or Conex or J-Tan):ti,ab
#67 Carbinoxamine:ti,ab
#68 MeSH descriptor Pyridines, this term only
#69 (Carbinoxamine or Carboxine or Cordron or Histuss or Palgic or Pediatex or Pediox or Arbinoxa):ti,ab
#70 MeSH descriptor Chlorpheniramine, this term only
#71 (Chlorpheniramine or Chlo-Amine or Chlor-Phen or Krafthist or Chlortan or "Ed ChlorPed" or P-Tann or Allerlief or "Chlor-Al Rel" or "Myci Chlorped" or Pediatan or Ahist or Aller-Chlor or Chlor-Mal or Chlor-Phenit or "Diabetic Tussin" or "Ed Chlor Tan" or Ridramin or Teldrin or Uni-Cortrom):ti,ab
#72 MeSH descriptor Clemastine, this term only

#73 (Clemastine or Tavist or Allerhist* or Dayhist*):ti,ab
#74 MeSH descriptor Cyproheptadine, this term only
#75 (Cyproheptadine or Periactin):ti,ab
#76 (Dexchlorpheniramine or Polaramine):ti,ab
#77 MeSH descriptor Diphenhydramine explode all trees
#78 (Diphenhydramine or Benadryl or Dytan or Kids-eeze or Allergia* or Benekraft or or Bydramine or Diphen or Diphenadryl or Diphenyl* or Dytuss or Elixsure or Hydramine or Nu-med or Pardyl or PediaCare or Scot-Tussin or Syladryl or Silaphen or Tusstat or Theraflu or "Ben Tann" or Dicopanol or Allermax or Banophen or Diphedryl or Diphenhist or Nervine or Paxidorm):ti,ab
#79 MeSH descriptor Doxylamine, this term only
#80 (Doxylamine or Aldex or Doxytex):ti,ab
#81 MeSH descriptor Promethazine, this term only
#82 (Promethazine or Phenergan or Pentazine or Promacot):ti,ab
#83 MeSH descriptor Triprolidine, this term only
#84 (Triprolidine or Tripohist or Zymine):ti,ab
#85 MeSH descriptor Dibenzoxepins explode all trees
#86 (Olopatadine or Patanase):ti,ab
#87 MeSH descriptor Phthalazines explode all trees
#88 (Azelastine or Astelin or Astepro):ti,ab
#89 MeSH descriptor Ipratropium, this term only
#90 (Ipratropium or Atrovent):ti,ab
#91 MeSH descriptor Cromolyn Sodium, this term only
#92 (cromoglycate or Cromolyn or Nasalcrom):ti,ab
#93 MeSH descriptor Leukotriene Antagonists, this term only
#94 ("Leukotriene Antagonist*" or Montelukast or Singulair):ti,ab
#95 MeSH descriptor Nasal Decongestants explode all trees
#96 MeSH descriptor Phenylephrine, this term only
#97 (nasal decongestant* or Levmetamfetamine or "vapo?r inhaler*" or Naphazoline or Four-Way or "Mucinex Nasal" or Nasin or Neo-Synephrine or Nostrilla or (NTZ near/3 Nasal) or Oxyfrin or Oxymeta or Sinarest or Zicam or Phenylephrine or (Alconefrin near/2 Decongestant) or Rhinall or 4-way or Sinex or Propylhexedrine or Benzedrex or Xylometazoline or Otrivin or tetrahydrozoline or tyzine):ti,ab
#98 MeSH descriptor Pseudoephedrine, this term only
#99 oral decongestant* or Ah-chew* or Gilchew or Phenyl-T or Despec or Lusonal or Pseudoephedrine or Afrinol or Contac or Efidac or Suphedrine or Decofed or Elixsure or "Ephed 60" or "Kid Kare" or Myfedrine or Q-Fed or Silfedrine or Superfed or Unifed or Entex or Nasofed or Congest Aid or Sudophed or Cenafed or Congestaclear or Pseudocot or Pseudofed or Pseudotabs or Pseudoval or Ridafed or Seudotabs or Sudafed or Sudodrin or Sudogest or Sudrine):ti,ab
#100 MeSH descriptor Sodium Chloride, this term only
#101 (saline or Altamist or ENTsol or "Little Noses" or n"asal Moist" or Ocean or Pretz or Salinex or SaltAire or "Deep Sea" or Humist or "Marine mist" or "sea Mist" or Nasosol or Pediamist or Rhinaris or "Sea Soft"):ti,ab
#102 (Accuhist or Actacin or Actagen or Actamine or Actedril or Acticon or Actifed or Alacol or Ala-Hist or Alenaze-D or "Allan Tannate" or Allent or Aller-Chlor or Allercon or

AllerDur or Allerest or Allerfrim or Allerx or Altafed or Amerifed or Anamine or Anaplex or Andec or Andehist or Aphedrid or A-Phedrin or Aridex-D or Atridine or Atrogen or Atrohist or Benylin or B-Fedrine or Bi-Tann or "BP Allergy" or "BPM Pseudo" or Brexin or Brofed or "Brom Tann" or Bromadrine or Bromaline or Bromaphedrine or Bromaxefed or BROMDEC or Bromfed or Bromfenex or Bromhist* or BROMPHEN or "C Tan D" or Carbaxefed or CARBIC or Carbiset or Carbodec or Carbofed or Cardec or Centergy or Cetiri-d or Chemdec or "Chlor Trimeton" or Chlorafed* or Chlordrine or Chlor-Mes or Chlorphedrin or Clorfed or Codimal* or Coldec or Colfed$ or Cophene or "CP Oral" or "CP Tannic" or C-Phed Tannate or Curaler or Cydec or Dallergy or D-Amine or Dayquil Allergy or Deconamine or Decongestamine or De-Congestine or Deconomed or Delsym or Desihist or Dexaphen or Dexophed or Dicel or Dimetapp or Diphentann or Disobrom or Disophrol or Dixaphedrine or Drexophed or Drixomed or Drixoral or D-Tann or Duomine or Duotan or Dura Ron or Durafed or Duralex or Dura-Tap or Duratuss or Dynahist or Ed A-Hist or Endafed or Entre-B or Ex?Dec or Fedahist or Hayfebrol or Hexafed or Hisdec or Histadec or Histafed or Histalet or HistamaxD or Histatab or Hista-Tabs or Histex or Hydro-Tussin or Iofed or Isophen-DF or Klerist-D or Kronofed-A or Lohist or Lortuss or Maldec or Maxichlor or Med-Hist or M-Hist or Mintex or Mooredec or NalDex or Nalfed or Nasohist or "ND Clear" or NeutraHist or Nohist or "Norel LA" or Novafed or Novahistine Elixir or Ny-Tannic or Orlenta or Pediachlor or Pharmadrine or Phenabid or PHENAMETH or PHEN-TUSS or Phenyl "Chlor Tan" or Phenylhistine or Prohist or Pseudoephedrine-BM or Pseubrom or Pseuclor or QDall or Q-Tapp or R?Tann$ or Relera or Rescon or Respahist or Rhinabid or RhinaHist or Ricobid or Ridifed or Rinade* or Rinate or "Robitussin Night*" or Rondamine or Rondec or Rondex or Rymed or "Ryna Liquid" or Rynatan or Semprex or Seradex or Shellcap or Sildec or Sinuhist or Sonahist or Suclor or SudaHist or Sudal or Sudo Chlor or Suphenamine or SuTan or Tanabid or Tanafed or Tanahist or Tekral or Time-Hist or Touro or Triafed or Triphed or Tri-Pseudo or Triptifed or Trisofed or Tri-Sudo or Trisudrine or Trynate or Ultrabrom or Vazobid or Vazotab or V-Hist or Vi-Sudo or X-Hist or XiraHist or "Zinx Chlor*" or Zotex):ti,ab
#103 (#33 OR #55 OR #56 OR #57 OR #58 OR #59 OR #60 OR #61 OR #62 OR #63 OR #64 OR #65 OR #66 OR #67 OR #68 OR #69 OR #70 OR #71 OR #72 OR #73 OR #74 OR #75 OR #76 OR #77 OR #78 OR #79 OR #80 OR #81 OR #82 OR #83 OR #84 OR #85 OR #86 OR #87 OR #88 OR #89 OR #90 OR #91 OR #92 OR #93 OR #94 OR #95 OR #96 OR #97 OR #98 OR #99 OR #100 OR #101 OR #102)
#104 (#10 AND #103)

Search Strategy For Gray Literature

Regulatory Information

FDA (Drugs@FDA)

Source: http://www.accessdata.fda.gov/scripts/cder/drugsatfda/
Date searched: 4/11/2012
Search strategy: All drugs in review scope searched by generic name
Records: 0

Clinical Trial Registries

ClinicalTrials.gov

Source: http://clinicaltrials.gov/
Date searched: 4/5/2012
Search strategy: Seasonal Allergic rhinitis (category search)
Records: 32

Current Controlled Trials

Source: http://www.controlled-trials.com/
Date searched: 4/12/2012
Search strategy: “Allergic rhinitis” OR (Seasonal AND rhinitis) OR “Hay fever” OR Hayfever OR Pollen
Records: 24

WHO International Clinical Trials Registry Platform Results

Source: http://www.who.int/ictrp/en/
Date searched: 4/5/2012
Search strategy: Allergic rhinitis OR Seasonal OR Rhinitis OR “Hay fever” OR Hayfever OR Pollen
Records: 11

Conference Papers and Abstracts

Conferences and Association Meetings

Source:

- American Academy of Allergy, Asthma & Immunology (AAAAI): www.aaaai.org
- British Society for Allergy and Clinical Immunology (BSACI): www.bsaci.org/

Date searched: 4/5/2012
Search strategy: Not applicable
Records: 1

Scopus

Source: http://www.scopus.com/home.url
Date searched: 4/11/2012
Search strategy: (TITLE-ABS-KEY(seasonal W/2 rhinitis)) OR (TITLE-ABS-KEY("allergic rhinitis")) OR (TITLE-ABS-KEY("hay fever" OR hayfever)) OR (TITLE-ABS-KEY(pollen))) AND (((TITLE-ABS-KEY(corticosteroid* OR betamethasone OR celestone OR cortisone OR cortone OR dexamethasone OR baycadron OR hexadrol OR decadron OR dexium OR dexone OR dexpak OR hydrocortisone OR cortef OR hydrocortone OR methylprednisolone OR medrol OR prednisolone OR "asmalPred Plus" OR millipred OR pediapred OR prelone OR veripred OR flo-pred OR cotolone OR orapred OR prednoral OR prednisone OR liquid pred OR deltasone OR meticorten OR orasone OR prednicen OR sterapred OR prednicot OR triamcinolone OR aristocort)) OR (TITLE-ABS-KEY(beclomethasone OR beconase OR vancenase OR budesonide

OR rhinocort OR ciclesonide OR omnaris OR dexamethasone OR dexacort OR flunisolide OR nasalide OR nasarel OR fluticasone OR flonase OR veramyst OR mometasone OR nasonex OR triamcinolone orallernaze OR nasocort OR tri-nasal)) OR (TITLE-ABS-KEY(antihistamine* OR cetirizine OR zyrtec OR alleroff OR aller-tec OR loratadine OR desloratadine OR clarinex OR claritin OR triaminic OR agistam OR alavert OR bactimicina allergy OR clear-atadine OR loradamed OR fexofenadine OR allegra OR levocetirizine OR xyzal orbrompheniramine OR lodrane OR tridane OR bromaphen OR brovex OR b-vex OR tanacof OR bidhist OR bromax OR respa OR brompsiro OR dimetane OR siltane OR vazol OR conex OR j-tan)) OR (TITLE-ABS-KEY(carbinoxamine OR carboxine OR cordron OR histuss OR palgic OR pediatex OR pediox OR arbinoxa OR chlorpheniramine OR chlo-amine OR chlor-phen OR krafthist OR chlortan OR "Ed ChlorPed" OR p-tann OR allerlief OR "Chlor-Al Rel" OR "Myci Chlorped" OR pediatan OR ahist OR aller-chlor OR chlor-mal OR chlor-phenit OR "Diabetic Tussin" OR "Ed Chlor Tan" OR ridramin OR teldrin OR uni-cortrom)) OR (TITLE-ABS-KEY(clemastine OR tavist OR allerhist* OR dayhist*))) OR ((TITLE-ABS-KEY(cyproheptadine OR periactin)) OR (TITLE-ABS-KEY(diphenhydramine OR benadryl OR dytan OR kids-eeze OR allergia* OR benekraft OR diphenyl OR aler-dryl OR altaryl OR antihist OR antituss OR beldin OR belix OR "Bromanate AF" OR bydramine OR diphen OR diphenadryl OR diphenyl* OR dytuss OR elixsure OR hydramine OR nu-med OR pardyl OR pediacare OR scot-tussin OR syladryl OR silaphen OR tusstat OR theraflu OR "Ben Tann" OR dicopanol OR allermax OR banophen OR diphedryl OR diphenhist OR nervine OR paxidorm)) OR (TITLE-ABS-KEY(doxylamine OR aldex OR doxytex)) OR (TITLE-ABS-KEY(promethazine OR phenergan OR pentazine OR promacot)) OR (TITLE-ABS-KEY(triprolidine OR tripohist OR zymine))) OR ((TITLE-ABS-KEY(olopatadine OR patanase)) OR (TITLE-ABS-KEY(azelastine OR astelin OR astepro)) OR (TITLE-ABS-KEY(ipratropium OR atrovent)) OR (TITLE-ABS-KEY(ipratropium OR atrovent))) OR ((TITLE-ABS-KEY("Leukotriene Antagonist*" OR montelukast OR singulair)) OR (TITLE-ABS-KEY("nasal decongestant*" OR levmetamfetamine OR "vapo?r inhaler*" OR naphazoline OR privine OR oxymetazoline OR afrin OR dristan OR "Duramist plus" OR "Four-Way" OR "Mucinex Nasal" OR nasin OR neo-synephrine OR nostrilla OR oxyfrin OR oxymeta OR sinarest OR zicam OR phenylephrine OR tetrahydrozoline OR tyzine OR rhinall OR 4-way OR sinex OR propylhexedrine OR benzedrex OR xylometazoline OR otrivin)) OR (TITLE-ABS-KEY(allerest W/3 nasal) OR TITLE-ABS-KEY(ntz W/3 nasal) OR TITLE-ABS-KEY(alconefrin adj2 decongestant)) OR (TITLE-ABS-KEY("oral decongestant*" OR ah-chew* OR gilchew OR phenyl-t OR despec OR lusonal)) OR (TITLE-ABS-KEY(pseudoephedrine OR afrinol OR contac OR efidac OR suphedrine OR decofed OR elixsure OR "Ephed 60" OR "Kid Kare" OR myfedrine OR q-fed OR silfedrine OR superfed OR unifed OR entex OR nasofed OR "Congest Aid" OR sudophed OR cenafed OR congestaclear OR pseudocot OR pseudofed OR pseudotabs OR pseudoval OR ridafed OR seudotabs OR sudafed OR sudodrin OR sudogest OR sudrine))) OR ((TITLE-ABS-KEY("sodium chloride" orsaline OR altamist OR "ENTsol" OR "Little Noses" OR "nasal Moist" OR ocean OR pretz OR salinex OR saltaire OR "Deep Sea" OR humist OR "Marine mist" OR "sea Mist" OR nasosol OR pediamist OR rhinaris OR "Sea Soft")) OR (TITLE-ABS-KEY(accuhist OR actacin OR actagen OR actamine OR actedril OR acticon OR actifed OR alacol OR ala-hist OR alenaze-d OR "Allan Tannate" OR allent OR aller-chlor OR allercon OR allerdur OR allerest OR allerfrim OR allerx OR altafed OR amerifed OR anamine OR anaplex OR andec OR andehist OR aphedrid OR a-phedrin OR aridex-d OR atridine OR atrogen OR atrohist OR benylin OR b-fedrine OR bi-tann OR "BP Allergy" OR "BPM Pseudo" OR brexin OR brofed OR "Brom Tann" OR bromadrine OR bromaline OR

bromaphedrine OR bromaxefed OR bromdec OR bromfed OR bromfenex OR bromhist* OR bromphen OR "C Tan D" OR carbaxefed OR carbic OR carbiset OR carbodec OR carbofed OR cardec OR centergy OR cetiri-d OR chemdec OR "Chlor Trimeton" OR chlorafed* OR chlordrine OR chlor-mes OR chlorphedrin OR clorfed OR codimal* OR coldec OR colfed* OR cophene OR "CP Oral" OR "CP Tannic" OR "C-Phed Tannate" OR curaler OR cydec OR dallergy OR d-amine OR "Dayquil Allergy" OR deconamine OR decongestamine OR de-congestine OR deconomed OR delsym OR desihist OR dexaphen OR dexophed OR dicel OR dimetapp OR diphentann OR disobrom OR disophrol OR dixaphedrine OR drexophed OR drixomed OR drixoral OR d-tann OR duomine OR duotan OR "Dura Ron" OR durafed OR duralex OR dura-tap OR duratuss OR dynahist OR "Ed A-Hist" OR endafed OR entre-b OR ex?dec OR fedahist OR hayfebrol OR hexafed OR hisdec OR histadec OR histafed OR histalet OR histamaxd OR histatab OR hista-tabs OR histex OR hydro-tussin OR iofed OR isophen-df OR klerist-d OR kronofed-a OR lohist OR lortuss OR maldec OR maxichlor OR med-hist OR m-hist OR mintex OR mooredec OR naldex OR nalfed OR nasohist OR "ND Clear" OR neutrahist OR nohist OR "Norel LA" OR novafed OR "Novahistine Elixir" OR ny-tannic OR orlenta OR pediachlor OR pharmadrine OR phenabid OR phenameth OR phen-tuss OR "Phenyl Chlor Tan" OR phenylhistine OR prohist OR pse-bm OR pseubrom OR pseuclor OR qdall OR q-tapp OR r?tann* OR relera OR rescon OR respahist OR rhinabid OR rhinahist OR ricobid OR ridifed OR rinade* OR rinate OR "Robitussin Night*" OR rondamine OR rondec OR rondex OR rymed OR "Ryna Liquid" OR rynatan OR semprex OR seradex OR shellcap OR sildec OR sinuhist OR sonahist OR suclor OR sudahist OR sudal OR "Sudo Chlor" OR suphenamine OR "SuTan" OR tanabid OR tanafed OR tanahist OR tekral OR time-hist OR touro OR triafed OR triphed OR tri-pseudo OR triptifed OR trisofed OR tri-sudo OR trisudrine OR trynate OR ultrabrom OR vazobid OR vazotab OR v-hist OR vi-sudo OR x-hist OR xirahist OR "Zinx Chlor*" OR zotex)))) AND (LIMIT-TO(DOCTYPE, "cp"))
Records: 117

Government Documents

AHRQ Effective Health Care Program

Source: http://effectivehealthcare.ahrq.gov/
Date searched: 4/12/2012
Search strategy: Allergies in Health Condition
Records: 2

AHRQ Home Page

Source: http://www.ahrq.gov/
Date searched: 4/16/2012
Search strategy: “seasonal allergic”
Records: 0

NIH Reporter

Source: http://projectreporter.nih.gov/reporter.cfm
Date searched: 4/16/2012
Search strategy: Category: Allergic Rhinitis (Hay Fever), Text search: rhinitis, Text search: seasonal, Text search: "hay fever" OR hayfever

Records: 0

Manufacturer Database

Source: Sanofi
Date posted: 5/7/2012
Search strategy: Not applicable
Records: 80

Source: Merck
Date posted: 5/7/2012
Search strategy: Not applicable
Records: 57

Source: Sunovion
Date posted: 5/7/2012
Search strategy: Not applicable
Records: 39

Source: McNeil
Date posted: 5/7/2012
Search strategy: Not applicable
Records: 160

Appendix B. Excluded Studies

Appendix Table B1. Key to Study Exclusion Coding System

Code	Definition
FLA	Foreign language article
IRD	Incomplete data reported
MAC	Mixed adult and children populations
MSP	Mixed SAR and PAR populations
NDE	Not relevant design
NRC	Not relevant comparator
NRD	Not relevant disease
NRO	Not relevant outcome
UTO	Unable to obtain

Aaronson, N. J. Ehrlich, D. B. Frankel, A. A. Gutman and D. W. Aaronson. Effective oral nasal decongestion. A double-blind, crossover analysis. Annals of Allergy 1968 26(3): 145-50. NRC

Adkins, J. T. Angello, W. E. Cetnarowski, H. M. Druce, K. L. Lampl, M. L. Vandewalker and D. P. H. S. Group. Diphenydramine shows superior efficacy to loratadine in sar. Annals of Allergy, Asthma & Immunology 2001 86(): 136. NDE

Anderson, N. E. Marshall and M. C. Clark. A double-blind controlled trial of disodium cromoglycate in seasonal allergic rhinitis. The Practitioner 1972 208(247): 676-9. NDE

Anon. Azelastin nasal spray more effective than oral desloratadine. Pediatriya 2006 46(3): 65+6. FLA

Aschan. Decongestion of nasal mucous membranes by oral medication in acute rhinitis. A rhinomanometric study to demonstrate synergism between antihistamines and adrenergic substance. Acta Otolaryngol 1974 77(6): 433-8. NRC

Ashe. Oral medications in nasal decongestion. A study among industrial workers. IMS, Industrial medicine and surgery 1968 37(3): 212-4. NRC

Axelsson and B. Lindholm. The effect of triamcinolone acetonide on allergic and vasomotor rhinitis. Acta Oto-Laryngologica 1972 73(1): 64-7. NDE

Bachert and M. Maurer. Safety and efficacy of desloratadine in subjects with seasonal allergic rhinitis or chronic urticaria: Results of four postmarketing surveillance studies. Clinical Drug Investigation 2010 30(2): 109-122. NRC

Badorrek, M. Dick, A. Schauerte, H. Hecker, R. Murdoch, B. Luettig, J. M. Hohlfeld and N. Krug. A combination of cetirizine and pseudoephedrine has therapeutic benefits when compared to single drug treatment in allergic rhinitis. Int J Clin Pharmacol Ther 2009 47(2): 71-7. NDE

Bender and H. Milgrom. Comparison of the effects of fluticasone propionate aqueous nasal spray and loratadine on daytime alertness and performance in children with seasonal allergic rhinitis. Ann Allergy Asthma Immunol 2004 92(3): 344-9. MAC

Bender, D. R. McCormick and H. Milgrom. Children's school performance is not impaired by short-term administration of diphenhydramine or loratadine. J Pediatr 2001 138(5): 656-60. NDE

Bender, S. Berning, R. Dudden, H. Milgrom and Z. V. Tran. Sedation and performance impairment of diphenhydramine and second-generation antihistamines: A meta-analysis. Journal of Allergy and Clinical Immunology 2003 111(4): 770-776. NRD

Bentley, S. Walker, F. Hanotte, C. De Vos and S. R. Durham. A comparison of the effects of oral cetirizine and inhaled beclomethasone on early and late asthmatic responses to allergen and the associated increase in airways hyperresponsiveness. Clin Exp Allergy 1996 26(8): 909-17. NDE

Berger, S. M. Fineman, P. Lieberman and R. M. Miles. Double-blind trials of azelastine nasal spray monotherapy versus combination therapy with loratadine tablets and beclomethasone nasal spray in patients with seasonal allergic rhinitis. Rhinitis Study Groups. Ann Allergy Asthma Immunol 1999 82(6): 535-41. NRC

Berger. Desloratadine reduces seasonal allergic rhinitis symptoms in patients with seasonal allergenic rhinitis and asthma. Journal of Allergy and Clinical Immunology 2001 107(2): S162. NDE

Bhatia, F. M. Baroody, M. deTineo and R. M. Naclerio. Increased nasal airflow with budesonide compared with desloratadine during the allergy season. Arch Otolaryngol Head Neck Surg 2005 131(3): 223-8. NDE

Bousquet, C. Bindslev-Jensen, G. W. Canonica, W. Fokkens, H. Kim, M. Kowalski, A. Magnan, J. Mullol and P. van Cauwenberge. The ARIA/EAACI criteria for antihistamines: an assessment of the efficacy, safety and pharmacology of desloratadine. Allergy 2004 59 Suppl 77(): 4-16. NDE

Bozkurt, G. Karakaya and A. F. Kalyoncu. Seasonal rhinitis, clinical characteristics and risk factors for asthma. International Archives of Allergy and Immunology 2005 138(1): 73-79. NRC

Britton, D. W. Empey, G. C. John, K. A. McDonnell and D. T. Hughes. Histamine challenge and anterior nasal rhinometry: their use in the assessment of pseudoephedrine and triprolidine as nasal decongestants in subjects with hayfever. Br J Clin Pharmacol 1978 6(1): 51-8. NDE

Bronsky, M. Tarpay, D. A. Tinkelman and J. K. Bush. A comparison of two dosing regimens of beclomethasone dipropionate aqueous nasal spray and flunisolide nasal spray in the treatment of acute seasonal rhinitis. Immunology and Allergy Practice 1987 9(5): 165-170. NRC

Brooks. Spectrum of seasonal allergic rhinitis symptom relief with topical corticoid and oral antihistamine given singly or in combination. American Journal of Rhinology 1996 10(3): 193-199. MAC

Brown, C. Engler and J. R. English. A comparative trial of flunisolide and sodium cromoglycate nasal sprays in the treatment of seasonal allergic rhinitis. Clinical Allergy 1981 11(2): 169-73. MAC

Brozek, J. Bousquet, C. E. Baena-Cagnani, S. Bonini, G. W. Canonica, T. B. Casale, R. G. Van Wijk, K. Ohta, T. Zuberbier and H. J. Schunemann. Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines: 2010 Revision. Journal of Allergy and Clinical Immunology 2010 126(3): 466-476. NDE

Bruno, E. Errigo and G. S. Del Giacco. A multicentre study to evaluate the efficacy and safety of BW825C (Acrivastine) in the treatment of seasonal allergic rhinitis. European Review for Medical and Pharmacological Sciences 1986 8 (3)(): 305-317. NRC

Calderon Moises, P. Rodriguez del Rio and P. Demoly. Topical nasal corticosteroids versus oral antihistamines for allergic rhinitis. Calderon Moises A, Rodriguez del Rio Pablo, Demoly Pascal Topical nasal corticosteroids versus oral antihistamines for allergic rhinitis Cochrane Database of Systematic Reviews: Protocols 2010 Issue 1 John Wiley & Sons, Ltd Chichester, UK DOI: 10 1002/14651858 CD008232 2010 (1). NDE

Can, R. Tanac, E. Demir, F. Gulen and A. Veral. Is the usage of intranasal glucocorticosteroids alone in allergic rhinitis sufficient?. Allergy Asthma Proc 2006 27(3): 248-53. MAC

Carroll. Effective use of corticosteroids in allergic rhinitis. Current Therapeutics 1984 25(11): 55-60. NDE

Charpin and D. Vervloet. Treating seasonal rhinitis: Antihistamines or intranasal corticosteroids?. European Respiratory Review 1994 4(20): 256-259. NDE

Cierpiol-Tracz, H. Kawalski, G. Szpyrka, M. Mos and M. Kopacz. Comparative study of the application of sympathomimetic generally and locally as combined with loratadine in the initial therapy of allergic rhinitis in older children. New Medicine 1999 3(): 16-17. NRC

Cingi, K. Gunhan, L. Gage-White and H. Unlu. Efficacy of leukotriene antagonists as concomitant therapy in allergic rhinitis. Laryngoscope 2010 120(9): 1718-23. NRC

Coffman. A controlled trial of disodium cromoglycate in seasonal allergic rhinitis. Br J Clin Pract 1971 25(9): 403-6. NDE

Condemi and J. Lim. Triamcinolone acetonide aqueous nasal spray compared with loratadine in seasonal allergic rhinitis. Annals of Allergy, Asthma and Immunology 1997 78(): 127. Level 4, NDE

Connell, B. O. Williams, S. Allen, A. Cato and J. G. Perkins. A double-blind controlled evaluation of Actifed and its individual constituents in allergic rhinitis. J Int Med Res 1982 10(5): 341-7. NRC

Connell. Effectiveness of topical nasal decongestants. Ann Allergy 1969 27(11): 541-6. NRC

Cordray, J. B. Harjo and L. Miner. Comparison of intranasal hypertonic dead sea saline spray and intranasal aqueous triamcinolone spray in seasonal allergic rhinitis. Ear Nose Throat J 2005 84(7): 426-30. NDE

Corrado, S. Ollier and M. J. Phillips. Histamine and allergen induced changes in nasal airways resistance measured by anterior rhinomanometry: Reproducibility of the technique and the effect of topically administered antihistaminic and anti-allergic drugs. British Journal of Clinical Pharmacology 1987 24(3): 283-292. NDE

Corren. Desloratadine reduces the use of inhaled Beta²-agonists and improves asthma symptoms in patients with seasonal allergic rhinitis ans asthma. Journal of Allergy and Clinical Immunology 2001 107(2): S163. NDE

Costa, M. Amouyal, P. Lambert, D. Ryan, H. J. Schunemann, J. P. Daures, J. Bousquet and P. J. Bousquet. How representative are clinical study patients with allergic rhinitis in primary care?. J Allergy Clin Immunol 2011 127(4): 920-6 e1. NRC

Crim, L. N. Pierre and P. T. Daley-Yates. A review of the pharmacology and pharmacokinetics of inhaled fluticasone propionate and mometasone furoate. Clin Ther 2001 23(9): 1339-54. NDE

Dahl, B. Lange, G. Holtappels, K. F. Lukat and C. Bachert. Effects of cetirizine and fluticasone propionate nasal spray on symptoms and inflammatory mediators of seasonal allergic rhinitis. Allergologie 2004 27(1): 16-25. FLA

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Appendix C. Evidence Tables

Oral Selective Antihistamine Versus Oral Nonselective Antihistamine

Appendix Table C1. Trial description: oral selective antihistamine versus oral nonselective antihistamine

Author, Year	Location/ Site(s)	Enrollment/ Treatment Duration	Funding/ Author Industry Disclosures	N	Inclusion Criteria	Exclusion Criteria[a]	Rescue Medication Use	Objective Diagnosis	Run-in \Period	Pollen Counts Measured	Patient Blinding	Assessor Blinding
Dockhorn, 1987	N. America Multiple	April 1985 2 weeks	NR NR	220	Minimum SAR severity	SAR meds/- Other meds Chronic asthma Pregnancy	No	•			•	•
Harvey, 1996	N. America Multiple	2 weeks	Industry Yes	86	Minimum SAR severity	SAR meds/+ Pregnancy	Yes	•				•
Kemp, 1987	N. America Multiple	2 weeks	NR NR	209	Minimum SAR severity		No	•			•	•

N = Patients randomized to comparator groups of interest; NR = not reported; SAR = seasonal allergic rhinitis.

[a] +, -, or NR indicates whether FDA-recommended washout periods were required (+), were not required (-), or were not reported (NR) for restricted SAR medications prior to trial entry.

Appendix Table C2. Patient characteristics: oral selective antihistamine versus oral nonselective antihistamine

Author, Year	n	Drug, Dose/Day	Mean Age, years	Sex, % Female	Race, %	Disease Duration, years	Mean Baseline NSS[a]
Dockhorn, 1987	111	Loratadine 10 mg	31 Range: 12-61	21.3	White: 92.6 Other: 7.4	16 Range: 2-48	
	109	Clemastine 2 mg	33 Range: 12-65	24.8	White: 91.4 Other: 8.6	18 Range: 1-55	
Harvey, 1996	43	Cetirizine 5-10mg	35.2 Range: 16.1-64.6	55.8	White: 81.4 Black: 4.7 Hispanic: 11.6 Other: 2.3		
	43	Chlorpheniramine 16mg	34.4 Range: 16.4-68.3	60.5	White: 74.4 Black: 9.3 Hispanic: 11.6 Other: 4.7		
Kemp, 1987	108	Loratadine 10 mg	30 (11) Range :12-62	54.6	Unspecified	17 Range: 1-50	TNSS: 7.5
	101	Clemastine 2 mg	30 (12) Range: 12-64	47.5	Unspecified	16 Range: 1-42	TNSS: 7.3

n = Patients randomized to comparator groups of interest. NSS = nasal symptom score; TNSS = total nasal symptom score.

Values are presented as mean (standard deviation) unless otherwise noted.

[a] TNSS ranges from 0 to 12

Appendix Table C3. USPSTF quality assessment: oral selective antihistamine versus oral nonselective antihistamine

Author, Year	Assembled comparable groups	Maintained comparable groups	Minimal follow-up loss	Measurements equal, valid, and reliable	Interventions clearly defined	Important outcomes considered	Appropriate analysis of results	Overall USPSTF rating
Dockhorn, 1987	Yes	Yes	Yes	Yes	Yes	Yes	No	Poor
Harvey, 1996	No	Uncertain	Yes	No	Yes	Yes	No	Poor
Kemp, 1987	Yes	Uncertain	Uncertain	Yes	Yes	Yes	Yes	Fair

USPSTF = United States Preventive Services Task Force.

Appendix Table C4. Nasal symptom outcomes: change from baseline–oral selective antihistamine versus oral nonselective antihistamine

Author, Year	Drug, Dose/Day	N/n	Time, weeks	TNSS	p
Kemp, 1987	Loratadine 10 mg	108/108	2	-2.8[ab]	NS
	Clemastine 2 mg	101/101		-2.5[ab]	

N/n = Number of patients randomized to comparator groups of interest/number of patients analyzed; NS= non-significant; TNSS = total nasal symptom score. TNSS ranges from 0 to 12.

[a] Values extracted from figures using Engauge Digitizer software.

[b] Values calculated by report author.

Appendix Table C5. Quality of life outcomes– oral selective antihistamine versus oral nonselective antihistamine

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Outcome	Baseline Mean	Change from Baseline	p
Harvey, 1996	Loratadine 10 mg	43/39	2	RQLQ, 0 to 84 scale	87.0	-35.9[a]	<0.05
	Clemastine 2 mg	43/40			89.2	-23.0[a]	

N/n = Number of patients randomized to comparator groups of interest/number of patients analyzed; RQLQ = Rhinitis Quality of Life Questionnaire.

[a] Values calculated by report author.

Oral Selective Antihistamine Versus Nasal Antihistamine

Appendix Table C6. Trial description: oral selective antihistamine versus nasal antihistamine

Author, Year	Location/ Site(s)	Enrollment/ Treatment Duration	Funding/ Author Industry Disclosures	N	Inclusion Criteria	Exclusion Criteria[a]	Rescue Medication Use	Objective Diagnosis	Run-in Period	Pollen Counts Measured	Patient Blinding	Assessor Blinding
Berger, 2003	N. America Multiple	2002 2 weeks	Industry NR	219	Minimum SAR severity and duration	SAR meds/+ Chronic asthma Pregnancy Infection Deformities	No	•	•		•	•
Berger, 2006	N. America Multiple	Spring 2005 2 weeks	Industry Industry	360	Minimum SAR severity and duration	SAR meds/ Other meds Chronic asthma Pregnancy Infection Deformities	No	•	•		•	•
Charpin, 1995	Europe Multiple	2 weeks	NR Industry	136	Minimum SAR severity and duration	SAR meds/+ Other meds Chronic asthma Pregnancy Infection Deformities	No	•			•	•
Corren, 2005	N. America Multiple	2004 2 weeks	NR Industry	307	Minimum SAR severity and duration	SAR meds/ Other meds Chronic asthma Pregnancy Infection Deformities	No	•	•		•	•
Gambardella, 1993	Europe	6 weeks	NR NR	30	Minimum SAR duration		No				•	•

N = Patients randomized to comparator groups of interest; NR = not reported; SAR = seasonal allergic rhinitis.

[a] +, -, or NR indicates whether FDA-recommended washout periods were required (+), were not required (-), or were not reported (NR) for restricted SAR medications prior to trial entry.

Appendix Table C7. Patient characteristics: oral selective antihistamine versus nasal antihistamine

Author, Year	n	Drug, Dose/Day	Mean Age, years	Sex, % Female	Race, %	Disease Duration, years	Mean Baseline NSS[a]
Berger, 2003	111	Desloratadine 5mg	32.6 Range: 12-73	66.7	White: 75.7 Black: 13.5 Asian: 0.9 Other: 9.9		C: 5.12 S: 3.57 R: 4.66 I: 4.31 TNSS: 17.67[b]
	108	Azelastine 4 puffs/nostril	35.9 Range: 12-70	60.2	White: 80.6 Black: 13.0 Asian: 2.8 Other: 3.7		C: 5.07 S: 3.60 R: 4.63 I: 4.40 TNSS: 17.70[b]
Berger, 2006	175	Cetirizine 10mg	34.3 Range: 12-74	56.0	White: 77.7 Black: 8.6 Asian: 4.0 Other: 9.7	18.7	TNSS: 18.7 (3.1)[b]
	179	Azelastine 4 puffs/nostril	35.1 Range: 12-64	59.8	White: 77.7 Black: 5.0 Asian: 5.0 Other: 12.3	18.4	TNSS: 19.1 (3.2)[b]
Charpin, 1995	69	Cetirizine 10mg	30[cd]				
	67	Azelastine 2 puffs/nostril					
Corren, 2005	155	Cetirizine 10mg	35.7 Range: 12-74	60.6	White: 69.0 Black: 19.4 Asian: 3.9 Other: 7.7	20.0 Range: 2-58	C: 5.27 (0.62) S: 3.98 (1.32) R: 4.61 (0.95) I: 4.64 (0.98) TNSS: 18.50 (2.85)[b]
	152	Azelastine 4 puffs/nostril	35.6 Range: 12-74	63.2	White: 70.4 Black: 19.1 Asian: 2.0 Other: 8.6	18.8 Range: 2-51	C: 5.31 (0.62) S: 4.14 (1.25) R: 4.74 (0.97) I: 4.63 (1.14) TNSS: 18.82 (2.86)[b]
Gambardella, 1993	15	Loratadine 10mg	31[cd] Range: 18-55	16.7		Range: 2-31	
	15	Azelastine 560 mcg					

C = Congestion; I = itching; n = patients randomized to comparator groups of interest; NSS = nasal symptom score; R = rhinorrhea; S = sneezing; TNSS = total nasal symptom score.

Values are presented as mean (standard deviation) unless otherwise noted.

[a] Individual symptoms rated on a scale from 0 (no symptoms) to 6 (severe symptoms) except as noted.

[b] TNSS is a sum of AM and PM scores ranging from 0 to 24.

[c] Values are medians.

[d] Overall demographic info provided only.

Appendix Table C8. USPSTF quality assessment: oral selective antihistamine versus nasal antihistamine

Author, year	Assembled comparable groups	Maintained comparable groups	Minimal follow-up loss	Measurements equal, valid, and reliable	Interventions clearly defined	Important outcomes considered	Appropriate analysis of results	Overall USPSTF rating
Berger, 2003	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Berger, 2006	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Charpin, 1995	No	Uncertain	Yes	Yes	Yes	Uncertain	No	Poor
Corren, 2005	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Gambardella, 1993	No	Uncertain	Uncertain	Uncertain	Yes	Yes	No	Poor

USPSTF = United States Preventive Services Task Force.

Appendix Table C9. Nasal symptom outcomes: change from baseline–oral selective antihistamine versus nasal antihistamine

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Congestion	p	Rhinorrhea	p	Sneezing	p	Itching	p	TNSS[a]	p
Berger, 2003	Desloratadine 5mg	111/111	2	-0.82	NR	-0.78	NR	-0.71	NR	-0.78	NR	-3.10	NR
	Azelastine 4 puffs/nostril	108/106		-0.90		-1.00		-0.94		-1.03		-3.88	
Berger, 2006	Cetirizine 10mg	175/175	2		0.049				0.010			-3.9 (4.3)	0.140
	Azelastine 4 puffs/nostril	179/179										-4.6 (4.2)	
Charpin, 1995	Cetirizine 10mg	69[b]	2		0.002[d]		0.044[d]		NS[d]		NS[d]		
	Azelastine 2 puffs/nostril	67[b]											
Corren, 2005	Cetirizine 10mg	155/155	2	-0.96 (1.26)	0.187	-1.00 (1.40)	0.003	-1.29 (1.36)	0.065	-1.09 (1.46)	0.056	-4.32 (4.66)	0.015
	Azelastine 4 puffs/nostril	152/151		-1.13 (1.16)		-1.46 (1.39)		-1.58 (1.49)		-1.39 (1.45)		-5.56 (4.68)	

N/n = Number of patients randomized to comparator groups of interest/number of patients analyzed; NR = not reported; NS= non-significant; TNSS = total nasal symptom score.

Except as noted, entries for each symptom represents the mean change from baseline symptom score using a 0 (no symptom) to 6 (severe symptom) rating scale. Values are presented as mean (standard deviation) unless otherwise noted.

[a] TNSS is a sum of AM and PM scores ranging from 0 to 24.

[b] Only patients analyzed are reported.

[c] Symptoms scored on a 0-100 VAS.

[d] Linear regression of VAS scores over time.

Appendix Table C10. Quality of life outcomes–oral selective antihistamine versus nasal antihistamine

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Outcome	Baseline Mean	Change from Baseline	p
Berger, 2006	Cetirizine 10mg	175/175	2	RQLQ		-1.1	0.002
	Azelastine 4 puffs/nostril	179/179				-1.5	
Charpin, 1995	Cetirizine 10mg	69[a]	2	% Reporting excellent or good response to treatment		67.9[b]	0.87
	Azelastine 2 puffs/nostril	67[a]				68.5[b]	
Corren, 2005	Cetirizine 10mg	155/155	2	RQLQ	3.75 (1.03)	-1.11 (1.18)	0.049
	Azelastine 4 puffs/nostril[b]	152/151			3.69 (1.04)	-1.41 (1.25)	

N/n = Number of patients randomized to comparator groups of interest/number of patients analyzed; RQLQ = Rhinitis Quality of Life Questionnaire.

Values are presented as mean (standard deviation) unless otherwise noted.

[a] Only patients analyzed are reported.

[b] Post-treatment values.

[c] Equivalent to 4 puffs.

Oral Selective Antihistamine Versus Intranasal Corticosteroid

Appendix Table C11. Trial description: oral selective antihistamine versus intranasal corticosteroid

Author, Year	Location/ Site(s)	Enrollment/ Treatment Duration	Funding/ Author Industry Disclosures	N	Inclusion Criteria	Exclusion Criteria[a]	Rescue Medication Use	Objective Diagnosis	Run-in Period	Pollen Counts Measured	Patient Blinding	Assessor Blinding
Andrews, 2009 (Trial 1)	N. America Multi-center	2006 2 weeks	Industry Yes	623	Minimum SAR severity and duration	SAR meds/+ Chronic asthma Pregnancy Infection Deformities	No	•	•	•	•	•

Author, Year	Location/ Site(s)	Enrollment/ Treatment Duration	Funding/ Author Industry Disclosures	N	Inclusion Criteria	Exclusion Criteria[a]	Rescue Medication Use	Objective Diagnosis	Run-in Period	Pollen Counts Measured	Patient Blinding	Assessor Blinding
Andrews, 2009 (Trial 2)	N. America Multi-center	2007 2 weeks	Industry Yes	451	Minimum SAR severity and duration	SAR meds/+ Other meds Chronic asthma Pregnancy Infection Deformities	No	•	•	•	•	•
Anolik, 2008	N. America Multi-center	March 1995 15 days	NR Yes	526	Minimum SAR severity and duration	Chronic asthma Immunotherapy Infection Deformities	No	•	•	•	•	•
Bernstein, 2004	N. America Multi-center	4 weeks	Industry Yes	316	Minimum SAR severity and duration	SAR meds/NR	No	•	•		•	•
Condemi, 2000	N. America Multi-center	4 weeks	Industry Yes	351	Minimum SAR severity and duration	SAR meds/+ Other meds Pregnancy Infection Deformities	No	•	•	•	•	•
Gawchik, 1997	N. America Multi-center	4 weeks	Industry Yes	305	Minimum SAR severity and duration	SAR meds/+ Other meds Immunotherapy Pregnancy Infection		•	•	•	•	•
Gehanno, 1997	Europe Multi-center	March 1991 4 weeks	Industry Yes	114	Minimum SAR severity	SAR meds/+ Pregnancy	Yes	•			•	•
Jordana, 1996	N. America Multi-center	4 weeks	Industry Yes	242		SAR meds/- Pregnancy Infection Deformities	Yes	•	•	•	•	•
Kaszuba, 2001	N. America Single center	August 1999 4 weeks	Industry, NIH No	88	Minimum SAR duration	SAR meds/+ Pregnancy Deformities	No	•		•		
Lu, 2009 (Trial 1)	N. America Multi-center	April 1998 2 weeks	Industry Yes	289	Minimum SAR severity and duration		No	•	•		•	•
Ratner, 1998	N. America Multi-center	2 weeks	Industry Yes	450	Minimum SAR severity and duration	SAR meds/+ Pregnancy Infection Deformities	No	•	•		•	•
Schoenwetter, 1995	N. America Multi-center	4 weeks	Industry Yes	298	Minimum SAR	SAR meds/+ Other meds	No					

Author, Year	Location/ Site(s)	Enrollment/ Treatment Duration	Funding/ Author Industry Disclosures	N	Inclusion Criteria	Exclusion Criteria[a]	Rescue Medication Use	Objective Diagnosis	Run-in Period	Pollen Counts Measured	Patient Blinding	Assessor Blinding
					severity and duration	Pregnancy Infection Deformities		•	•	•	•	•
Vervloet, 1997	Europe Multi-center	3 weeks	Industry Yes	238	Minimum SAR severity	SAR meds/+ Immunotherapy Pregnancy Deformities	Yes	•		•	•	•

N = Patients randomized to comparator groups of interest; NIH = National Institutes of Health; NR = not reported; SAR = seasonal allergic rhinitis.

[a] +, -, or NR indicates whether FDA-recommended washout periods were required (+), were not required (-), or were not reported (NR) for restricted SAR medications prior to trial entry.

Appendix Table C12. Patient characteristics: oral selective antihistamine versus intranasal corticosteroid

Author, Year	Drug, Dose/Day	n	Mean Age, years	Sex, % Female	Race, %	Disease Duration, years	Mean Baseline NSS[a]
Andrews, 2009 (Trial 1)	Fexofenadrine 180 mg	311	39.6 (14.63)	64	White: 92 Black: 3 Other: 5	≥2 to <5: 11% ≥5 to <10: 22% ≥10: 67%	TNSS: 9.8 (SE: 0.09)
	Fluticasone furoate 110 mcg	312	37.8 (13.95)	67	White: 86 Black: 8 Other: 6	≥2 to <5: 14% ≥5 to <10: 18% ≥10: 67%	TNSS: 9.8 (SE: 0.09)
Andrews, 2009 (Trial 2)	Fexofenadrine 180 mg	227	34.3 (13.66)	59	White: 80 Black: 19 Other: 2	≥2-<5: 10% ≥5-<10: 19% ≥10: 71%	TNSS: 9.9 (SE: 0.11)
	Fluticasone furoate 110 mcg	224	34.0 (13.55)	68	White: 84 Black: 13 Other: 3	≥2-<5: 8% ≥5-<10: 21% ≥10: 71%	TNSS: 9.7 (SE: 0.10)
Anolik, 2008	Loratadine 10 mg	176	25 (Range: 12-65)	50.3	Unspecified	14 (Range: 2-60)	C: 2.3 S: 1.7 R: 2.1 I: 1.9 TNSS: 7.9 (2.2)
	Mometasone furoate 200 mcg	169	26 (Range: 12-71)	50.6	Unspecified	13 (Range: 2-56)	C: 2.2 S: 1.7 R: 2.1 I: 1.7 TNSS: 7.8 (2.5)
Bernstein, 2004	Loratadine 10 mg	158	80% of patients were between 18 and 64 years old[b]	58-62[b]	White: 80-89[b]		C: 78.3[c] (SE: 1.1)
	Fluticasone propionate 200 mcg	158					C: 79.0[c] (SE: 1.1)

Author, Year	Drug, Dose/Day	n	Mean Age, years	Sex, % Female	Race, %	Disease Duration, years	Mean Baseline NSS[a]
Condemi, 2000	Loratadine 10 mg	176	32 (Range: 12-69)[b]	55[c]	White: 90[b]		C: 2.3 S: 2.1 R: 2.1 I: 2.0 TNSS: 8.4
	Triamcinolone acetonide 220 mcg	175					C: 2.2 S: 2.0 R: 2.0 I: 2.0 TNSS: 8.2
Gawchik, 1997	Loratadine 10 mg	153	32.6 (12.0)	58	White: 90 Black: 8 Hispanic: 1 Asian: <1	Mean: 17.5 (11.2)	
	Triamcinolone acetonide 220 mcg	152	33.7 (13.0)	57	White: 91 Black: 6 Hispanic: <1 Asian: 2	Mean: 19.1 (12.9)	
Gehanno, 1997	Loratadine 10 mg	57	41.0 (Range: 13-80)	58	Unspecified	<2: 18% 2-5: 49% 6-10: 9% >10: 25%	
	Fluticasone propionate 200 mcg	57	37.0 (Range: 15-70)	53	Unspecified	<2: 16% 2-5: 44% 6-10: 16% >10: 25%	
Jordana, 1996	Loratadine 10 mg	119	Range: 12-17	40.3	Unspecified		
	Fluticasone propionate 200 mcg	121	Range: 12-17	47.1	Unspecified		
Kaszuba, 2001	Loratadine 10 mg[d]	44	30.0[e] (Range: 19-44)	43	White: 57		
	Fluticasone propionate 200 mcg[d]	44	27.5[e] (Range: 18-48)	52	White: 64		
Lu, 2009 (Trial 1)	Loratadine 10 mg	116	34.8 (12.4)	64.7	White: 79.3 Black: 6.9 Hispanic: 8.6 Other: 5.2	18.1 (11.0)	TNSS: 2.11
	Beclomethasone dipropionate 400 mcg[f]	173	34.1 (13.3)	61.3	White: 79.2 Black: 8.1 Hispanic: 8.1 Other: 4.6	17.9 (12.2)	TNSS: 2.03
Ratner, 1998	Loratadine 10 mg	150	40.1 (Range: 15-70)	54	White: 73 Hispanic: 19		TNSS: 300[cg]

Author, Year	Drug, Dose/Day	n	Mean Age, years	Sex, % Female	Race, %	Disease Duration, years	Mean Baseline NSS[a]
					Other: 8		
	Fluticasone propionate 200 mcg	150	40.7 (Range: 13-80)	55	White: 78 Hispanic: 15 Other: 7		TNSS: 290[cg]
Schoenwetter, 1995	Loratadine 10 mg	149	31.2 (11.3)	57	White: 89 Black: 5 Hispanic: 2 Other: <1	17.2 (11.2)	C: 2.07 S: 1.93 R: 1.85 I: 1.95 TNSS: 7.80[h]
	Triamcinolone acetonide 220 mcg	149	31.4 (11.5)	58	White: 91 Black: 4 Hispanic: 2 Other: 3	19.1 (11.6)	C: 2.12 S: 1.94 R: 1.99 I: 1.90 TNSS: 7.95[h]
Vervloet, 1997	Cetirizine 10 mg	118	30 (Range: 12-75)	49.2	Unspecified	<1: 2.54% 1-3: 13.56% 4-8: 38.14% >8: 45.76%	TNSS: 9.36[i] (2.17)
	Fluticasone propionate 200 mcg	120	28 (Range: 12-71)	47.1	Unspecified	<1: 1.68% 1-3: 18.49% 4-8: 31.93% >8: 47.9%	TNSS: 9.23[i] (2.02)

C = congestion; I = itching; n = patients randomized to comparator groups of interest; NSS = nasal symptom score; R = rhinorrhea; S = sneezing; SE = standard error; TNSS = total nasal symptom score.

Values are presented as mean (standard deviation) unless otherwise noted.

[a] Individual nasal symptoms rated on a scale from 0 (no symptoms) to 3 (severe symptoms) except as noted. TNSS ranges from 0 to 12.

[b] Overall demographic info provided only.

[c] Individual symptoms rated on a visual analog scale from 0 to 100. TNSS ranges from 0 to 400.

[d] As-needed (prn) dosing.

[e] Values are medians.

[f] Twice daily (bid) dosing.

[g] Values extracted from figures using Engauge Digitizer software.

[h] Values calculated by report author.

[i] TNSS is the sum of 5 individual symptom scores rated on a scale from 0 (none) to 3 (severe): congestion when waking, daytime congestion, rhinorrhea, sneezing, and nasal itch. TNSS ranges from 0 to 15.

Appendix Table C13. USPSTF quality assessment: oral selective antihistamine versus intranasal corticosteroid

Author, Year	Assembled comparable groups	Maintained comparable groups	Minimal follow-up loss	Measurements equal, valid, and reliable	Interventions clearly defined	Important outcomes considered	Appropriate analysis of results	Overall USPSTF rating
Andrews, 2009 (Trial 1)	Yes	Yes	Yes	Yes	Uncertain	Yes	Yes	Fair
Andrews, 2009 (Trial 2)	Yes	Yes	Yes	Yes	Uncertain	Yes	Yes	Fair
Anolik, 2008	Yes	Yes	Yes	Yes	Yes	Yes	No	Poor
Bernstein, 2004	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Condemi, 2000	No	Uncertain	Yes	Yes	Yes	Yes	Yes	Poor
Gawchik, 1997	No	Uncertain	Yes	Yes	Yes	Yes	No	Poor
Gehanno, 1997	No	Uncertain	Yes	Yes	Yes	Yes	Yes	Poor
Jordana, 1996	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Kaszuba, 2001	No	Uncertain	Yes	No	Yes	Uncertain	No	Poor
Lu, 2009 (Trial 1)	Yes	Yes	Yes	Uncertain	Yes	Yes	No	Poor
Ratner, 1998	Yes	Yes	Yes	Yes	Yes	Uncertain	Yes	Fair
Schoenwetter, 1995	Yes	Yes	Yes	Yes	Yes	Yes	No	Poor
Vervloet, 1997	Yes	Yes	Yes	Yes	Yes	No	No	Poor

USPSTF = United States Preventive Services Task Force

Appendix Table C14. Nasal symptom outcomes: change from baseline–oral selective antihistamine versus intranasal corticosteroid

Author, Year	Drug, Dose/Day	N/n	Time, Weeks	Congestion	p	Rhinorrhea	p	Sneezing	p	Itching	p	TNSS	p
Andrews, 2009 (Trial 1)	Fexofenadrine 180 mg	311/311	2										<0.001
	Fluticasone furoate 110 mcg	312/312											
Andrews, 2009 (Trial 2)	Fexofenadrine 180 mg	227/227	2										<0.001
	Fluticasone furoate 110 mcg	224/244											
Anolik, 2008	Loratadine 10 mg	181/175	2.1	-0.4	NS	-0.4	NS	-0.6	NS	-0.6	NS	-1.9 (2.2)	NS
	Mometasone furoate 200 mcg	176/166		-0.7		-0.7		-0.7		-0.6		-2.7 (2.5)	
Gawchik, 1997	Loratadine 10 mg	153/137	2									-3.6[ab]	<0.05
	Triamcinolone acetonide 220 mcg	152/142										-4.6[ab]	
Lu, 2009 (Trial 1)	Loratadine 10 mg	116/115	2									-0.53 (95%	NR

Author, Year	Drug, Dose/Day	N/n	Time, Weeks	Congestion	p	Rhinorrhea	p	Sneezing	p	Itching	p	TNSS	p
												CI -0.63, -0.42)	
	Beclomethasone dipropionate 400 mcg[c]	173/172										-0.70 (95% CI -0.78, -0.61)	
Ratner, 1998	Loratadine 10 mg	150/150	2									-90[ad]	<0.001
	Fluticasone propionate 200 mcg	150/150										-150[ad]	
Gawchik, 1997	Loratadine 10 mg	153/137	3									-4.1[ab]	NR
	Triamcinolone acetonide 220 mcg	152/142										-5.3[ab]	
Vervloet, 1997	Cetirizine 10 mg	118/118	3									-4.96[e]	<0.001
	Fluticasone propionate 200 mcg	120/119										-7.13[e]	
Bernstein, 2004	Loratadine 10 mg	158/158	4	-25.0[d] (1.9)[f]	≤0.003								
	Fluticasone propionate 200 mcg	158/158		-35.3[d] (1.9)[f]									
Condemi, 2000	Loratadine 10 mg	176/174	4	-0.8 (1.0)	<0.05	-0.9 (1.0)	NS	-0.9 (0.9)	<0.05	-0.9 (0.9)	<0.05	-3.6 (3.2)	<0.05
	Triamcinolone acetonide 220 mcg	175/174		-1.1 (0.9)		-1.1 (0.9)		-1.2 (0.9)		-1.1 (0.8)		-4.4 (2.9)	
Gawchik, 1997	Loratadine 10 mg	153/137	4		<0.02		NS		<0.02		<0.02	-4.4[ab]	<0.02
	Triamcinolone acetonide 220 mcg	152/142										-5.2[ab]	
Gehanno, 1997	Loratadine 10 mg	57/57	4										0.009
	Fluticasone propionate 200 mcg	57/57											
Jordana, 1996	Loratadine 10 mg	119/119	4		<0.001		<0.001		0.001		0.011		
	Fluticasone propionate 200 mcg	121/121											
Kaszuba, 2001	Loratadine 10 mg[g]	44[h]	4		0.02		0.02		0.009				
	Fluticasone propionate 200 mcg[g]	44[h]											
Schoenwetter,	Loratadine 10 mg	149/140	4	-0.43 (0.70)	≤0.001	-0.5 (0.72)	≤0.001	-0.68 (0.71)	≤0.001	-0.76 (0.70)	≤0.0		

Author, Year	Drug, Dose/Day	N/n	Time, Weeks	Congestion	p	Rhinorrhea	p	Sneezing	p	Itching	p	TNSS	p
1995	Triamcinolone acetonide 220 mcg	149/134		-0.89 (0.79)		-1.05 (0.70)		-1.13 (0.80)		-1.05 (0.78)	0 1		

N/n = Number of patients randomized to comparator groups of interest/number of patients analyzed; NR = not reported; NS = non- significant; TNSS = total nasal symptom score.

Except as noted, entries for each symptom represent the mean change from baseline symptom score using a 0 (no symptom) to 3 (severe symptom) rating scale. TNSS ranges from 0 to 12. Values are presented as mean (standard deviation) unless otherwise noted.

[a] Values extracted from figures using Engauge Digitizer software.

[b] Change in symptom scores calculated using end of treatment scores rather than scores averaged over the treatment interval.

[c] Twice daily (BID) dosing.

[d] Individual symptom scores rated on a visual analog scale from 0 (no symptom) to 100 (severe symptom): congestion, rhinorrhea, sneezing, and nasal itch. Maximum TNSS is 400.

[e] TNSS is the sum of 5 individual symptom scores rated on a scale from 0 (no symptom) to 3 (severe symptom): congestion when waking, congestion the rest of the day, rhinorrhea, sneezing, and nasal itch. TNSS ranges from 0 to 15.

[f] Standard error.

[g] As needed (prn) dosing.

[h] Only patients randomized are reported.

Appendix Table C15. Eye symptom outcomes–oral selective antihistamine versus intranasal corticosteroid

Author, Year	Drug, Dose/Day	N/n	Time, Weeks	Outcome	Baseline Mean	Change from Baseline	p
Andrews, 2009 (Trial 1)	Fexofenadrine 180 mg	311/311	2	TOSS	7.0 (0.08)[a]		0.106
	Fluticasone furoate 110 mcg	312/312			6.9 (0.08)[a]		
Andrews, 2009 (Trial 2)	Fexofenadrine 180 mg	227/227	2	TOSS	7.0 (0.10)[a]		0.002
	Fluticasone furoate 110 mcg	224/224			6.8 (0.10)[a]		
Anolik, 2008	Loratadine 10 mg	181/175	2	Tearing			0.04[b]
	Mometasone furoate 200 mcg	176/166					
Gawchik, 1997	Loratadine 10 mg	153/137	2	Symptoms undefined			NS
	Triamcinolone acetonide 220 mcg	152/142					
Bernstein, 2004	Loratadine 10 mg	158/158	4	TOSS	204.3[c] (3.8)[a]	-72.5[c] (5.4)[a]	0.028
	Fluticasone propionate 200 mcg	158/158			209.4[c] (3.8)[a]	-88.7[c] (5.3)[a]	
Condemi, 2000	Loratadine 10 mg	176/174	4	TOSS	1.9	-0.9 (1.0)	NS
	Triamcinolone acetonide 220 mcg	175/174			1.9	-0.9 (0.9)	
Gawchik, 1997	Loratadine 10 mg	153/137	4	Symptoms undefined			<0.02
	Triamcinolone acetonide 220 mcg	152/142					
Schoenwetter, 1995	Loratadine 10 mg	149/140	4	Symptoms undefined	1.75	-0.69 (0.69)	NS
	Triamcinolone acetonide 220 mcg	149/134			1.75	-0.80 (0.78)	

N/n = Number of patients randomized to comparator groups of interest/number of patients analyzed; NS = not significant; TOSS = total ocular symptom score.

Except as noted, TOSS is the sum of scores for 3 ocular symptoms (itching, tearing, and redness) using a 0 (no symptom) to 3 (severe symptom) rating scale. TOSS ranges from 0 to 9. Values are presented as mean (standard deviation) unless otherwise noted.

[a] Standard error

[b] Anolik, 2008 assessed ocular itching, tearing, and redness. Baseline and change from baseline values were not provided. One statistically significant result was reported as shown. For ocular itching and redness, INCS was not statistically superior to selective oral antihistamine. P-values not reported.

[c] TOSS is the sum of 3 individual eye symptom scores rated on a visual analog scale from 0 (no symptom) to 100 (severe symptom): itching, tearing, and redness. TOSS ranges from 0 to 300

Appendix Table C16. Quality of life outcomes–oral selective antihistamine versus intranasal corticosteroids

Author, Year	Drug, Dose/Day	N/n	Time, Weeks	Outcome	Baseline Mean	Change from Baseline	p
Andrews, 2009 (Trial 1)	Fexofenadrine 180 mg	311/311	2	Nocturnal RQLQ	4.3 (SE: 0.06)		<0.001
	Fluticasone furoate 110 mcg	312/312			4.2 (SE: 0.05)		
Andrews, 2009 (Trial 2)	Fexofenadrine 180 mg	227/227	2	Nocturnal RQLQ	4.2 (SE: 0.07)		<0.001
	Fluticasone furoate 110 mcg	224/224			4.1 (SE: 0.07)		
Condemi, 2000	Loratadine 10 mg	176[a]	2	RQLQ	3.79 (0.89)	-1.66[b]	<0.05
	Triamcinolone acetonide 220 mcg	175[a]			3.70 (0.89)	-1.9[b]	
Kaszuba, 2001	Loratadine 10 mg[c]	44[d]	2	RQLQ	2.0[be]	0.0[f]	<0.01
	Fluticasone propionate 200 mcg[c]	44[d]			2.4[be]	-1.0[f]	
Ratner, 1998	Loratadine 10 mg	150/150	2	RQLQ	4.1 (0.1)	-1.3 (0.1)	<0.001
	Fluticasone propionate 200 mcg	150/150			4.1 (0.1)	-2.2 (0.1)	
	Loratadine 10 mg	150/150	2	% signif, mod, or mild improve[g]	--	63.9[b]	<0.001[h]
	Fluticasone propionate 200 mcg	150/150				88.7[b]	
Vervloet, 1997	Cetirizine 10 mg	118[d]	3	PGA: scale 0-100[i]	61.45 (22.75)	-31 (31)	<0.001
	Fluticasone propionate 200 mcg	120[d]			63.50 (21.15)	-51 (26)	
	Cetirizine 10 mg	118[d]		% v. effective/effective[j]	--	64.3	<0.001
	Fluticasone propionate 200 mcg	120[d]				89.5	
Bernstein, 2004	Loratadine 10 mg	158[a]	4	RQLQ			<0.05
	Fluticasone propionate 200 mcg	158[a]					
	Loratadine 10 mg	158[a]	4	% signif, mod, or mild improve[g]	--	64	<0.001
	Fluticasone propionate 200 mcg	158[a]				82	
Condemi, 2000	Loratadine 10 mg	176[a]	4	RQLQ	3.79 (0.89)	-1.97[b]	<0.05
	Triamcinolone acetonide 220 mcg	175[a]			3.70 (0.89)	-2.22[b]	
Gehanno, 1997	Loratadine 10 mg	57/57	4	RQLQ			<0.05
	Fluticasone propionate 200 mcg	57/57					
	Loratadine 10 mg	57/57	4	% v. effective/effective[j]	--	69.2	NS
	Fluticasone propionate 200 mcg	57/57				79.2	
Kaszuba, 2001	Loratadine 10 mg[c]	44[d]	4	RQLQ	2.0[be]	-0.3[f]	<0.05
	Fluticasone propionate 200 mcg[c]	44[d]			2.4[be]	-1.2[f]	

N/n = Number of patients randomized to comparator groups of interest/number of patients analyzed; NS = non-significant; PGA = patient global assessment; RQLQ = Rhinitis Quality of Life Questionnaire; SE = standard error.

Values are presented as mean (standard deviation) unless otherwise noted.

[a] n analyzed not reported.

[b] Values extracted from figures using Engauge Digitizer software.

[c] As needed (prn) dosing.

[d] Only patients randomized reported.

[e] Median.

[f] Values calculated by report author.

[g] 7-point scale: significant, moderate, or mild improvement; no change; mild, moderate, or significant worsening.

[h] P-value calculated by report author using 2x2 chi-square at mild improvement cut point.

[i] Discomfort due to rhinitis was rated on a visual analog scale from 0 (no discomfort) to 100 (worst discomfort ever experienced).

[j] 4-point scale: very effective, effective, slightly effective, ineffective.

Oral Selective Antihistamine Versus Oral Decongestant

Appendix Table C17. Trial description: oral selective antihistamine versus oral decongestant

Author, Year	Location, Site(s)	Enrollment/ Treatment Duration	Funding/ Author Industry Disclosures	N	Inclusion Criteria	Exclusion Criteria	Rescue Medication Use	Objective Diagnosis	Run in Period	Pollen Count	Patient Blinding	Assessor Blinding
Bronsky, 1995	N. America Multiple	Fall 1989 2 weeks	Industry Yes	437	Minimum SAR severity and duration	SAR meds Other meds Chronic asthma Pregnancy Infection	No	•	•	•	•	•
Chervinsky, 2005	N. America Multiple	2 weeks	NR Yes	436	Minimum SAR severity and duration	SAR meds Pregnancy Infection	No	•	•	•	•	•
Grosclaude, 1997	Europe Multiple	March1992 2 weeks	NR Yes	454	Minimum SAR severity and duration	SAR meds Other meds Pregnancy Infection Deformities	Yes	•		•	•	•
Grubbe, 2009	N. America Multiple	2.1 weeks	Industry Yes	398	Minimum SAR severity and duration	SAR meds Chronic asthma Pregnancy Infection Deformities	No	•	•	•	•	•
Pleskow, 2005	N. America Multiple	2000 2 weeks	Industry Yes	749	Minimum SAR severity and duration	SAR meds Pregnancy Infection Deformities	No	•	•	•	•	•
Schenkel, 2002	N.America Multiple	2.1 weeks	Industry NR	682	Minimum SAR	SAR meds Chronic asthma	No	•	•		•	•

Author, Year	Location, Site(s)	Enrollment/ Treatment Duration	Funding/ Author Industry Disclosures	N	Inclusion Criteria	Exclusion Criteria	Rescue Medication Use	Objective Diagnosis	Run in Period	Pollen Count	Patient Blinding	Assessor Blinding
					duration	Pregnancy						
Sussman, 1999	N.America Multiple	2.6 weeks	Industry Yes	436	Minimum SAR severity	SAR meds Pregnancy Infection	No	•	•	•	•	•

N = Patients randomized to comparator groups of interest; NR = not reported; SAR = seasonal allergic rhinitis.

[a] +, -, or NR indicates whether FDA-recommended washout periods were required (+), were not required (-), or were not reported (NR) for restricted SAR medications prior to trial entry.

Appendix Table C18. Patient characteristics: oral selective antihistamine versus oral decongestant

Author, Year	Drug, Dose/Day	n	Mean Age, years	Sex, % female	Race, %	Disease Duration, years	Mean Baseline NSS[a]
Bronsky., 1995	Loratadine 10 mg	217	Median: 30 Range: 12-60	57.5	White: 87.3 Black: 4.2 Other: 8.5	Median: 15 Range: 1-50	
	Pseudoephedrine 240 mg	220	Median: 28 Range: 12-60	51.2	White: 92.9 Black: 1.9 Other: 5.2	Median: 15 Range: <1-50	
Chervinsky, 2005	Desloratadine 5 mg	214	37	69	Unspecified	19	C: 2.56
	Pseudoephedrine 240 mg	222	36	65	Unspecified	19	C: 2.56
Grosclaude, 1997	Cetirizine 10 mg	231	32 Range: 12-66	52	Unspecified	8	C: 2.28 R: 2.07 S: 2.02 I: 1.76
	Pseudoephedrine 240 mg	223	34 Range: 12-65	51	Unspecified	8	C: 2.24 R: 2.00 S: 1.99 I: 1.79
Grubbe, 2009	Desloratadine 5 mg	198	37 Range: 12-76	65.2	White: 77 Black: 13 Hispanic: 7 Asian: 2 Other: 2	17.9 Range: 2-56	C: 2.50
	Pseudoephedrine 240 mg	200	35 Range: 12-68	62.0	White: 82 Black: 10 Hispanic: 4 Asian: 3 Other: 2.5	18.0 Range: 2-54	C: 2.46
Pleskow, 2005	Desloratadine 5 mg	372	35 Range: 12-76	65.9	White: 80 Black: 12 Hispanic: 7	18.0 Range: 2-55	

Author, Year	Drug, Dose/Day	n	Mean Age, years	Sex, % female	Race, %	Disease Duration, years	Mean Baseline NSS[a]
					Asian: <1 Other: 0		
	Pseudoephedrine 240 mg	377	36 Range: 12-70	65.5	White: 78 Black: 10 Hispanic: 9 Asian: 1 Other: 2	17.9 Range: 2-50	
Schenke, 2002	Desloratadine 5 mg	340	34.8	60	Unspecified	18.3	C: 2.57
	Pseudoephedrine 240 mg	342	34.2	65	Unspecified	17.6	C: 2.54
Sussman, 1999	Fexofenadrine 120 mg	218	34.9 (12.35) Range: 12-64	56.9	White: 85.3 Black: 6.0 Asian: 8.3 Other: 0.5	15.2 (9.79) Range: 2.0-46.2	C: 2.36 (SE 0.03)*
	Pseudoephedrine 240 mg	218	31.7 (11.12) Range: 12-66	58.7	White: 89.0 Black: 4.1 Asian: 5.5 Other: 1.4	15.9 (10.06) Range: 1.0-46.0	C: 2.34 (SE 0.03)

C = congestion; I = itching; n = patients randomized to comparator groups of interest; NSS = nasal symptom score; R = rhinorrhea; S = sneezing; SE = standard error; TNSS = total nasal symptom score.

[a] Individual symptoms rated on a scale from 0 (no symptoms) to 3 (severe symptoms) in all cases except Sussman 1999, where the maximum was 4.

Appendix Table C19. USPSTF quality assessment: oral selective antihistamine versus oral decongestant

Author, year	Assembled comparable groups	Maintained comparable groups	Minimal follow-up loss	Measurements equal, valid, and reliable	Interventions clearly defined	Important outcomes considered	Appropriate analysis of results	Overall USPSTF rating
Bronsky, 1995	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Chervinsky, 2005	Yes	Uncertain	Yes	Yes	Yes	Yes	No	Poor
Grosclaude, 1997	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Grubbe, 2009	Yes	Yes	Yes	Yes	Yes	Yes	No	Poor
Pleskow, 2005	Yes	Yes	Yes	Yes	Yes	Yes	No	Poor
Schenkel, 2002	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Fair
Sussman, 1999	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good

USPSTF = United States Preventive Services Task Force.

Appendix Table C20. Nasal symptom outcomes: change from baseline–oral selective antihistamine versus oral decongestant

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Congestion[a]	p	Rhinorrhea	p	Sneezing	p	Itching	p	TNSS	p

Bronsky, 1995	Loratadine 10 mg	217/212	2	-0.5	NR				-2.3	NR
	Pseudoephedrine 240 mg	220/211		-0.6					-2.4	
Chervinsky, 2005	Desloratadine 5 mg	214/200	2	-0.73	NR					
	Pseudoephedrine 240 mg	222/204		-0.83						
Grosclaude, 1997	Cetirizine 10 mg	231/231	2	-0.85[b]		-0.96[b]	-1.11[b]	-0.86[b]		
	Pseudoephedrine 240 mg	223/223		-1.02[b]		-0.75[b]	-0.79[b]	-0.73[b]		
Grubbe, 2009	Desloratadine 5 mg	198[c]	2	-0.66						
	Pseudoephedrine 240 mg	200[c]		-0.75						
Pleskow, 2005	Desloratadine 5 mg	372[c]	2	-0.74	0.53					
	Pseudoephedrine 240 mg	377[c]		-0.78						
Schenkel, 2002	Desloratadine 5 mg	340/340	2	0.65	NS					
	Pseudoephedrine 240 mg	342/342		0.70						
Sussman, 1999	Fexofenadrine 120 mg	218/218	2.6	-0.4[d]	NS	-0.4[d]	-0.5[d]			
	Pseudoephedrine 240 mg	218/218		-0.5[d]		-0.3[d]	-0.3[d]			

N/n = Number of patients randomized to comparator groups of interest/number of patients analyzed; NR = not reported, NS= non-significant; TNSS = total nasal symptom score.

[a] Mean change from baseline over the entire treatment duration.

[b] Calculated by author using pre/post data.

[c] Only patient randomized are reported.

[d] Values extracted from figures using Engauge Digitizer Software.

Appendix Table C21. Eye symptom outcomes–oral selective antihistamine versus oral decongestant

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Outcome	Baseline mean	Change from baseline	P
Grosclaude, 1997	Cetirizine 10 mg	231/231	2	Itching eyes	1.83	-1.02 [a,c]	NR
	Pseudoephedrine 240 mg	223/223			1.75	-0.81 [a, c]	
Sussman, 1999	Fexofenadrine 120 mg	218/218	2.6	Itchy, watery, red eyes	NR	-0.5 [b,c]	NR
	Pseudoephedrine 240 mg	218/218			NR	-0.4 [b,c]	

N/n = Number of patients randomized to comparator groups of interest/number of patients analyzed; NR = not reported.

[a] 4-point scale: 0, absent; 1, mild; 2, moderate; 3, severe.

[b] 5-point scale: 0, absent; 1, mild; 2, moderate; 3, severe; 4, very severe.

[c] Values obtained using Engauge Digitizer Software.

Appendix Table C22. Quality of life outcomes–oral selective antihistamine versus oral decongestant

Author, year	Drug, Dose/Day	N/n	Time, weeks	Outcome	Baseline mean	End of treatment	P
Bronsky, 1995	Loratadine 10 mg	217/212	2	% Patients reporting good or excellent response to treatment[a]		47[b]	0.25[d]
	Pseudoephedrine 240 mg	220/211				52[c]	

N/n = number of patients randomized to comparator groups of interest/number of patients analyzed.

[a] 5 point scale: 1, excellent; 2, good; 3, fair; 4, poor; 5, treatment failure.

[b] 95/203

[c] 106/202

[d] P-value calculated by report author.

Oral Selective Antihistamine Versus Oral Leukotriene Receptor Antagonist

Appendix Table C23. Trial description: oral selective antihistamine versus leukotriene receptor antagonist

Author, Year	Location, Site(s)	Enrollment/ Treatment Duration	Funding/ Author Industry Disclosures	N	Inclusion Criteria	Exclusion Criteria[a]	Rescue Medication Use	Objective Dx	Run in Period	Pollen Count	Patient Blinding	Assessor Blinding
Baena-Cagnani, 2003	N. America Multiple	4 weeks	NR NR	622	Minimum SAR duration	SAR meds/NR Other meds Pregnancy Infection Deformities	Yes	•	•		•	•
Lombardo, 2006	Europe Single	4 weeks	NR NR	200	Minimum SAR severity and duration	SAR meds/NR Other meds Immunotherapyth erapy Pregnancy Infection Deformities	No	•	•		•	•
Lu, 2009 (Trial 1)	N. America Multiple	April 1998 2 weeks	Industry Yes	228	Minimum SAR severity and duration		No	•	•		•	•
Lu, 2009 (Trial 2)	N. America Multiple	April 1998 2 weeks	Industry Yes	267	Minimum SAR severity and duration		No	•	•		•	•
Meltzer, 2000	N. America Multiple	March1997 2 weeks	Industry Yes	187	Minimum SAR severity and duration	SAR meds/- Other meds Pregnancy Infection	No	•	•	•	•	•
Nayak, 2002	N. America Multiple	September 1999 2 weeks	Industry Yes	456	Minimum SAR severity and duration	SAR meds/- Other meds Pregnancy Infection Deformities	No	•	•	•	•	•
Philip, 2002	N. America Multiple	2000 2 weeks	Industry Yes	950	Minimum SAR severity and duration	SAR meds/NR Pregnancy Infection Deformities	No	•	•	•	•	•
van Adelsberg, 2003 (Trial 1)	N. America Multiple	2001 2 weeks	Industry Yes	693	Minimum SAR severity and duration	SAR meds/NR Other meds Infection Deformities	No	•	•	•	•	•

Author, Year	Location, Site(s)	Enrollment/ Treatment Duration	Funding/ Author Industry Disclosures	N	Inclusion Criteria	Exclusion Criteria[a]	Rescue Medication Use	Objective Dx	Run in Period	Pollen Count	Patient Blinding	Assessor Blinding
van Adelsberg, 2003 (Trial 2)	N. America Multiple	4 weeks	Industry NR	628	Minimum SAR severity and duration	SAR meds/NR Other meds Infection	No	•	•	•	•	•

N = patients randomized to comparator groups of interest; NR = not reported; SAR = seasonal allergic rhinitis.

[a] +, -, or NR indicates whether FDA-recommended washout periods were required (+), were not required (-), or were not reported (NR) for restricted SAR medications prior to trial entry.

Appendix Table C24. Patient characteristics: oral selective antihistamine versus leukotriene receptor antagonist

Author, Year	n	Drug Dose/Day	Mean Age, years	Sex, % female	Race, %	Disease duration, Years	Mean Baseline NSS[a]
Baena-Cagnani, 2003	311	Desloratadine 5mg	32.3 Range: 15-75	63	White: 82	16.2	
	311	Montelukast 10mg	33.7 Range: 15-71	61	White: 79	17.2	
Lombardo, 2006	96	Levocetirizine 5mg	42 (13) Range: 18-58	39.6	Unspecified	16 (12)	TNSS: 2.12 (0.38)
	104	Montelukast 10mg	Range: 20-56	43.3	Unspecified	14 (12)	TNSS: 2.02 (0.39)
Lu, 2009 (Trial 1)	116	Loratadine 10mg	34.8 (12.4)	64.7	White: 79.3 Black: 6.9 Hispanic: 8.6 Other: 5.2	18.1 (11.0)	TNSS: 2.11
	112	Montelukast 10mg	35.6 (13.1)	62.5	White: 79.5 Black: 5.4 Hispanic: 8.9 Other: 6.3	18.8 (10.7)	TNSS: 2.06
Lu, 2009 (Trial 2)	164	Loratadine 10mg	30.6(10.9)	60.4	White: 89.0 Black: 7.9 Hispanic: 2.4 Other: 0.6	17.3 (10.3)	TNSS: 1.97
	103	Montelukast 10mg	31.1(13.1)	62.1	White: 89.3 Black: 5.8 Hispanic: 1.9 Other: 2.9	19.3 (11.2)	TNSS: 2.03
Meltzer, 2000	92	Loratadine 10mg	Median: 34.5 Range: 15-66	53.3	Unspecified	19 (13)	TNSS: 2.07 (0.41)
	95	Montelukast 10mg	Median: 33 Range: 15-71	57.9	Unspecified	18 (13)	TNSS: 2.12 (0.38)
Nayak, 2002	155	Loratadine 10mg	35 (11) Range: 15-65	66	White: 83 Black: 10 Hispanic: 4	18 (13) Range: 2-60	TNSS: 2.06 (0.39)

Author, Year	n	Drug Dose/Day	Mean Age, years	Sex, % female	Race, %	Disease duration, Years	Mean Baseline NSS[a]
					Asian: 1 Other: 2		
	301	Montelukast 10mg	37 (13) Range: 15-82	64	White: 80 Black: 8 Hispanic: 8 Asian: 2 Other: 2	19 (13) Range: 2-65	TNSS: 2.09 (0.44)
Philip, 2002	602	Loratadine 10mg	36 (13) Range: 15-74	65	White: 84 Black: 6 Hispanic: 4 Other: 6	18 (12)	TNSS: 2.06 (0.41)
	348	Montelukast 10mg	37 (13) Range: 15-76	67	White: 83 Black: 6 Hispanic: 4 Other: 8	18 (12)	TNSS: 2.09 (0.44)
van Adelsberg, 2003 (Trial1)	171	Loratadine 10mg	35 (13) Range: 15-72	58	White: 82 Black: 5 Hispanic: 4 Other: 8	18 (12)	TNSS: 2.15 (0.45)
	522	Montelukast 10mg	36 (14) Range: 15-82	62	White: 82 Black: 7 Hispanic: 3 Other: 8	17 (12)	TNSS: 2.10 (0.43)
van Adelsberg, 2003 (Trial 2)	180	Loratadine 10mg	39 (13)	66	White: 81 Black: 13 Hispanic: 2 Other: 4	21 (13)	TNSS: 2.23 (0.44)
	448	Montelukast 10mg	36 (13) Range: 15-82	67	White: 82 Black: 9 Hispanic: 5 Other: 4	19 (12)	TNSS: 2.20 (0.46)

n = Patients randomized to comparator groups of interest, unless otherwise noted; NSS = nasal symptom score; TNSS = total nasal symptom score.

Values are presented as mean (standard deviation) unless otherwise noted.

[a] Individual symptoms rated on a scale from 0 (no symptoms) to 3 (severe symptoms). TNSS scores are the mean of individual symptoms with a maximum score of 3.

Appendix Table C25. USPSTF quality assessment: oral selective antihistamine versus leukotriene receptor antagonist

Author, year	Assembled comparable groups	Maintained comparable groups	Minimal follow-up loss	Measurements equal, valid, and reliable	Interventions clearly defined	Important outcomes considered	Appropriate analysis of results	Overall USPSTF rating
Baena-Cagnani, 2003	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Lombardo, 2006	No	Yes	Yes	Yes	Yes	Yes	No	Poor
Lu, 2009 (Trial 1)	Yes	Yes	Yes	Uncertain	Yes	Yes	No	Poor

Lu, 2009 (Trial 2)	Yes	Yes	Yes	Uncertain	Yes	Yes	No	Poor
Meltzer, 2000	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Nayak, 2002	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Philip, 2002	Yes	Yes	Yes	Yes	Yes	Yes	No	Poor
van Adelsberg, 2003 (Trial1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Fair
van Adelsberg, 2003 (Trial 2)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Fair

USPSTF = United States Preventive Services Task Force.

Appendix Table C26. Nasal symptom outcomes: mean change from baseline– oral selective antihistamine versus leukotriene receptor antagonist

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Congestion	p	Rhinorrhea	p	Sneezing	p	Itching	p	TNSS (95% CI)	p
Lu, 2009 (Trial 1)	Loratadine 10mg	116/115	2									-0.53 (-0.63, -0.42)	NR
	Montelukast 10mg	112/111										-0.36 (-0.46, -0.25)	
Lu, 2009 (Trial 2)	Loratadine 10mg	164/162	2									-0.40 (-0.49, -0.30)	NR
	Montelukast 10mg	103/103										-0.39 (-0.50, -0.27)	
Meltzer, 2000	Loratadine 10mg	92/90	2	-0.33	NR	-0.42	NR	-0.49	NR	-0.45	NR	-0.34 (-0.44, 0.23)	NR
	Montelukast 10mg	95/94		-0.41		-0.49		-0.47		-0.40		-0.36 (-0.47, -0.26)	
Nayak, 2002	Loratadine 10mg	155[a]	2	-0.20	NR	-0.25	NR	-0.33	NR	-0.30	NR	-0.48 (-0.57, -0.40)	NR
	Montelukast 10mg	301[a]		-0.22		-0.28		-0.21		-0.23		-0.52 (-0.58, -0.46)	
Philip, 2002	Loratadine 10mg	602[a]	2	-0.24	NR	-0.24	NR	-0.36	NR	-0.26	NR	-0.50	NR
	Montelukast 10mg	348[a]		-0.13		-0.14		-0.18		-0.12		-0.40	
van Adelsberg, 2003-1	Loratadine 10mg	171/170	2									-0.47 (-0.55, -0.39)	NR
	Montelukast 10mg	522/519										-0.38 (-0.43, -0.33)	
van Adelsberg, 2003-2	Loratadine 10mg	180[a]	2									-0.45 (-0.52, -0.37)	NR
	Montelukast 10mg	448[a]										-0.33 (-0.37, -0.28)	
Lombardo, 2006	Levocetirizine 5mg	96/96	4									-0.43 (-0.47, -0.28)	NR
	Montelukast 10mg	104/104										-0.34 (-0.39, -0.18)	
van Adelsberg, 2003-2	Loratadine 10mg	180[a]	4									-0.50 (-0.58, -0.42)	NR

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Congestion	p	Rhinorrhea	p	Sneezing	p	Itching	p	TNSS (95% CI)	p
	Montelukast 10mg	448[a]										-0.43 (-0.48, -0.38)	

CI =Confidence interval; N/n = number of patients randomized to comparator groups of interest/number of patients analyzed; NR = not reported; TNSS = total nasal symptom score.

Entries for each symptom represent the mean change from baseline symptom score using a 0 (no symptom) to 3 (severe symptom) rating scale. Lombardo, 2006 reported change from baseline using mean scores during week 4 rather than during the entire treatment period.TNSS scores are a mean of individual symptoms with a maximum score of 3 unless otherwise noted.

[a] Only patients randomized reported.

Appendix Table C27. Eye symptom outcomes–oral selective antihistamine versus leukotriene receptor antagonist

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Outcome	Baseline mean	Change from baseline (95%CI)	p
Meltzer, 2000[c]	Loratadine 10mg	92/90	2	TOSS	1.41 (0.76)	-0.25 (-0.37, 0.12)	NR
	Montelukast 10mg	95/94			1.47 (0.68)	-0.28 (-0.40, 0.15)	
van Adelsberg, 2003-1	Loratadine 10mg	171/170	2	TOSS	1.48 (0.79)	-0.40 (-0.47, -0.32)	NR
	Montelukast 10mg	522/519			1.49 (0.77)	-0.28 (-0.32, -0.23)	
van Adelsberg, 2003-2	Loratadine 10mg	180[a]	2	TOSS	1.64 (0.78)	-0.33 (-0.41, -0.26)	NR
	Montelukast 10mg	448[a]			1.64 (0.73)	-0.28 (-0.33, -0.23)	
Lombardo, 2006	Levocetirizine 5mg	96/96	4	TOSS	1.45 (0.68)	-0.38 (-0.45, -0.19)	NR
	Montelukast 10mg	104/104			1.36 (0.69)	-0.22 (-0.25, -0.10)	
van Adelsberg, 2003-2	Loratadine 10mg	180[a]	4	TOSS		-0.39 (-0.47, -0.31)	NR
	Montelukast 10mg	448[a]				-0.37 (-0.42, -0.31)	

N/n = Number of patients randomized to comparator groups of interest/number of patients analyzed; NR = not reported; TOSS = total ocular symptom score.

Values are presented as mean (standard deviation) unless otherwise noted. TOSS is the mean of scores for 4 ocular symptoms (itching, tearing, redness, and puffiness) using a 0 (no symptom) to 3 (severe symptom) rating scale. [a] Only patients randomized reported.

Appendix Table C28. Asthma outcomes–oral selective antihistamine versus leukotriene receptor antagonist

Author, year	Drug, Dose/Day	N[a]	Time, weeks	Outcome	Mean Baseline	End of treatment	Mean Change from Baseline	P
Baena-Cagnani, 2003	Desloratadine 5mg	311	2	Triamcinolone acetonide SS	5.17		-1.17	NS
	Montelukast 10mg	311			5.11		-1.26	
Baena-Cagnani, 2003	Desloratadine 5mg	311	2	Rescue medication use[b]		-13.9		0.134
	Montelukast 10mg	311				-16.3		
Baena-Cagnani, 2003	Desloratadine 5mg	311	4	Triamcinolone acetonide SS			-1.36	NS

Author, year	Drug, Dose/Day	N[a]	Time, weeks	Outcome	Mean Baseline	End of treatment	Mean Change from Baseline	P
	Montelukast 10mg	311					-1.52	
Baena-Cagnani, 2003	Desloratadine 5mg	311	4	Rescue medication use[b]		-12.1		0.078
	Montelukast 10mg	311				-15.9		
Baena-Cagnani, 2003	Desloratadine 5mg	311	4	Cough	1.64		-0.48[c]	NS
	Montelukast 10mg	311			1.61		-0.50[c]	
Baena-Cagnani, 2003	Desloratadine 5mg	311	4	Wheeze	1.70		-0.53[c]	NS
	Montelukast 10mg	311			1.71		-0.57[c]	
Baena-Cagnani, 2003	Desloratadine 5mg	311	4	Difficulty breathing	1.82		-0.56[c]	NS
	Montelukast 10mg	311			1.80		-0.62[c]	
Baena-Cagnani, 2003	Desloratadine 5mg	96[d]	4	FEV_1[d]	2.55		-0.15	NS
	Montelukast 10mg	101[d]			2.55		-0.18	

FEV_1 = Forced expired volume in 1 second; NS= non-significant; TA = Triamcinolone acetonide; TASS = total asthma symptom score.

[a] Only patients analyzed reported.

[b] Change in number of puffs of B-agonist use.

[c] Values extracted from figures using Engauge Digitizer software.

[d] In patients with baseline FEV1 <80%.

Appendix Table C29. Quality of life outcomes–oral selective antihistamine versus leukotriene receptor antagonist

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Outcome	Baseline Mean	Change from Baseline (95% CI)	P
2 week outcomes							
Meltzer, 2000[c]	Loratadine 10mg	92/90	2	RQLQ	3.00 (1.02)	-0.9	NR
	Montelukast 10mg	95/94			3.33 (0.98)	-0.9	
Nayak, 2002	Loratadine 10mg	155	2	RQLQ	3.14 (0.98)	-1.09 (-1.26, -0.92)	NR
	Montelukast 10mg	301			3.10 (1.02)	-1.06 (-1.19, 0.93)	
Philip, 2002	Loratadine 10mg	602	2	RQLQ	3.09 (1.03)	-0.99 (-1.08, -0.90)	NR
	Montelukast 10mg	348			3.12 (0.99)	-0.89 (-1.01, -0.77)	
van Adelsberg, 2003-1	Loratadine 10mg	171/170	2	RQLQ	3.24 (0.97)	-0.98 (-1.15, -0.81)	NR
	Montelukast 10mg	522/519			3.22 (1.06)	-0.90 (-1.00, -0.81)	

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Outcome	Baseline Mean	Change from Baseline (95% CI)	P
van Adelsberg, 2003-2	Loratadine 10mg	180	2	RQLQ	3.46 (1.08)	-0.85 (-1.00, -0.70)	NR
	Montelukast 10mg	448			3.41 (1.00)	-0.85 (-0.94, -0.75)	
van Adelsberg, 2003-2	Loratadine 10mg	180	2	PGA[a]		2.30[b] (2.08, 2.52)	NR
	Montelukast 10mg	448				2.43[b] (2.29, 2.57)	
4 week outcomes							
Lombardo, 2006	Levocetirizine 5mg	96/96	4	RQLQ	3.14 (0.95)	0.78	NR
	Montelukast 10mg	104/104			3.09 (0.88)	0.65	
van Adelsberg, 2003-2	Loratadine 10mg	180	4	RQLQ		-1.08 (-1.25, -0.91)	NR
	Montelukast 10mg	448				-1.12 (-1.23, -1.01)	

N/n = Number of patients randomized to comparator groups of interest/number of patients analyzed; NR = not reported; PGA = patient global assessment; RQLQ = Rhinitis Quality of Life Questionnaire.

Values are presented as mean (standard deviation) unless otherwise noted.

[a] PGA of allergic rhinitis was scored on a 0 (best) to 6 (worst) scale.

[b] Values are absolute scores at week 2.

Intranasal Corticosteroid Versus Nasal Antihistamine

Appendix Table C30. Trial description: intranasal corticosteroid versus nasal antihistamine

Author, Year	Location/ Site(s)	Enrollment/ Treatment Duration	Funding/ Author Industry Disclosures	N	Inclusion Criteria	Exclusion Criteria[a]	Rescue Medication Use	Objective Diagnosis	Run-in Period	Pollen Counts Measured	Patient Blinding	Assessor Blinding
Carr, 2012 (Trial 1)	N.America Multiple	March 2008 2 weeks	Industry Yes	415	Minimum SAR severity and duration	SAR meds/- Other meds Chronic asthma Infection Deformities	No	•	•		•	•
Carr, 2012 (Trial 2)	N.America Multiple	August 2009 2 weeks	Industry Yes	383	Minimum SAR severity and duration	SAR meds/- Other meds Chronic asthma Infection Deformities	No	•	•		•	•

Author, Year	Location/ Site(s)	Enrollment/ Treatment Duration	Funding/ Author Industry Disclosures	N	Inclusion Criteria	Exclusion Criteria[a]	Rescue Medication Use	Objective Diagnosis	Run-in Period	Pollen Counts Measured	Patient Blinding	Assessor Blinding
Carr, 2012 (Trial 3)	N.America Multiple	April 2009 2 weeks	Industry Yes	895	Minimum SAR severity and duration	SAR meds/- Other meds Chronic asthma Infection Deformities	No	•	•		•	•
Ghimire, 2007	Asia Single	4 weeks	NR NR	50		SAR meds/NR Other meds Pregnancy Deformities	No				Open Label trial	
Hampel, 2010	N.America Multiple	January 2007 2 weeks	Industry Yes	305	Minimum SAR severity and duration	SAR meds/- Other meds Infection Deformities	No	•	•		•	•
Kaliner, 2009	N.America Multiple	2 weeks	Industry Yes	130	Minimum SAR severity and duration	SAR meds/+ Other meds Chronic asthma Pregnancy Infection Deformities	No	•			Inade-quate	•
Newson-Smith, 1997	Europe Multiple	April 1991 2 weeks	NR Yes	166	Minimum SAR severity and duration	SAR meds/+ Immunotherapy Pregnancy Deformities	No		•		Inade-quate	•
Pelucchi, 1995	Europe	April 1993 6 weeks	NR NR	30	Minimum SAR duration	Chronic asthma Immunotherapy Deformities	Yes	•		•	•	•
Ratner, 2008	N.America Multiple	December 2005 2 weeks	Industry Yes	99	Minimum SAR severity and duration	SAR meds/+ Other meds	No	•	•	•	•	•

N = Patients randomized to comparator groups of interest; NR = not reported.

[a] +, -, or NR indicates whether FDA-recommended washout periods were required (+), were not required (-), or were not reported (NR) for restricted SAR medications prior to trial entry.

Appendix Table C31. Patient characteristics: intranasal corticosteroid versus nasal antihistamine

Author, Year	n	Drug, Dose/Day	Mean Age, years	Sex, % Female	Race, %	Disease Duration, years	Mean Baseline NSS[a]

Author, Year	n	Drug, Dose/Day	Mean Age, years	Sex, % Female	Race, %	Disease Duration, years	Mean Baseline NSS[a]
Carr, 2012 (Trial 1)	207	Fluticasone propionate 200mcg	38.6 (14.1)	61.4	White: 77.8	21.3 (13.5)	C: 5.0 (0.9)[b] S: 4.1 (1.2)[b] R: 4.6 (1.0)[b] I: 4.5 (1.1)[b] TNSS: 18.2 (3.2)[b]
	208	Azelastine 548mcg	36.2 (14.6)	62.5	White: 77.9	21.6 (13.6)	C: 5.1 (0.8)[b] S: 4.0 (1.3)[b] R: 4.5 (1.2)[b] I: 4.5 (1.2)[b] TNSS: 18.2 (3.5)[b]
Carr, 2012 (Trial 2)	189	Fluticasone propionate 200mcg	37.0 (13.6)	64	White: 74.1	21.1 (13.7)	C: 5.0 (0.8)[b] S: 4.2 (1.3)[b] R: 4.6 (1.0)[b] I: 4.8 (0.9)[b] TNSS: 18.6 (2.9)[b]
	194	Azelastine 548mcg	38.2 (13.5)	66	White: 78.9	19.7 (13.1)	C: 5.1 (0.8)[b] S: 4.2 (1.3)[b] R: 4.5 (1.1)[b] I: 4.7 (1.1)[b] TNSS: 18.5 (3.1)[b]
Carr, 2012 (Trial 3)	450	Fluticasone propionate 200mcg	34.2 (14.5)	62.2	White: 79.1	19.6 (12.5)	C: 5.3 (0.7)[b] S: 4.5 (1.2)[b] R: 4.8 (0.9)[b] I: 4.9 (0.9)[b] TNSS: 19.4 (2.4)[b]
	445	Azelastine 548mcg	36.4 (14.8)	60.9	White: 80.2	19.5 (12.9)	C: 5.3 (0.7)[b] S: 4.5 (1.1)[b] R: 4.8 (0.9)[b] I: 4.9 (0.9)[b] TNSS: 19.5 (2.5)[b]
Ghimire, 2007	25	Beclomethasone dipropionate 400mcg					C: 2.2 S: 2.7 R: 2.6
	25	Azelastine 1120mcg	27[cd] Range: 12-69 IQR: 20-30	48	Unspecified		C: 1.8 S: 2.6 R: 2.7
Hampel, 2010	153	Fluticasone propionate 200mcg	38.1 Range: 12-74	66.2	White: 86.1 Black: 10.6 Asian: 2.0 Other: 1.3	18.4 Range: 3-57	TNSS: 18.3[b]
	152	Azelastine 548mcg	39.5 Range: 12-74	63.8	White: 88.8 Black: 9.9 Asian: 0.0 Other: 1.3	19.0 Range: 2-61	TNSS: 18.1[b]

Author, Year	n	Drug, Dose/Day	Mean Age, years	Sex, % Female	Race, %	Disease Duration, years	Mean Baseline NSS[a]
Kaliner, 2009	65	Fluticasone propionate 200mcg	32.48 (10.83) Range: 13-60	47.6	White: 56.3 Black: 18.8 Hispanic: 12.5 Asian: 10.9 Other: 1.6		TNSS: 6.49 (1.66)
	65	Olopatadine 4 puffs/nostril	38.14 (15.25) Range: 12-73	53.1	White: 56.3 Black: 23.4 Hispanic: 12.5 Asian: 6.3 Other: 1.6		TNSS: 6.72 (1.88)
Newson-Smith, 1997	83	Beclomethasone dipropionate 400mcg					
	83	Azelastine 1120mcg	35[cd]		Unspecified		
Pelucchi, 1995	15[e]	Beclomethasone dipropionate 200mcg	26 (8)	38.5	Unspecified		
	15[e]	Azelastine 560mcg	26 (9)	30	Unspecified		
Ratner, 2008	50	Fluticasone propionate 200mcg	37.4 Range: 12-72	70	White: 64.0 Black: 4.0 Hispanic: 26.0 Asian: 6.0 Other: 0	15.7 Range: 3-51	C: 5.5 (0.4)[b] S: 4.3 (1.3)[b] R: 5.0 (1.0)[b] I: 4.8 (1.3)[b] TNSS: 19.6 (2.7)[b]
	49	Azelastine 4 puffs/nostril	38.4 Range: 12-73	55.1	White: 73.5 Black: 10.2 Hispanic: 14.3 Asian: 0 Other: 2.0	19.2 Range: 3-50	C: 5.5 (0.5)[b] S: 4.5 (1.1)[b] R: 4.9 (0.8)[b] I: 4.8 (0.8)[b] TNSS: 19.7 (2.1)[b]

C = congestion; I = itching; n = patients randomized to comparator groups of interest; NSS = nasal symptom score; R = rhinorrhea; S = sneezing; TNSS = total nasal symptom score.

Values are presented as mean (standard deviation) unless otherwise noted.

[a] Individual symptoms rated on a scale from 0 (no symptoms) to 3 (severe symptoms) except as noted. TNSS ranges from 0 to 12.

[b] Individual symptoms rated on a scale from 0 (no symptoms) to 6 (severe symptoms). TNSS is the sum of AM and PM scores and ranges from 0 to 24.

[c] Values are medians.

[d] Overall demographic info provided only.

[e] Only patients randomized are reported.

Appendix Table C32. USPSTF quality assessment: intranasal corticosteroid versus nasal antihistamine

Author	Assembled comparable groups	Maintained comparable groups	Minimal follow-up loss	Measurements equal, valid, and reliable	Interventions clearly defined	Important outcomes considered	Appropriate analysis of results	Overall USPSTF rating

Author	Assembled comparable groups	Maintained comparable groups	Minimal follow-up loss	Measurements equal, valid, and reliable	Interventions clearly defined	Important outcomes considered	Appropriate analysis of results	Overall USPSTF rating
Carr, 2012 (Trial 1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Carr, 2012 (Trial 2)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Carr, 2012 (Trial 3)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Ghimire, 2007	No	Uncertain	Uncertain	No	Yes	No	No	Poor
Hampel, 2010	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Kaliner, 2009	Yes	Uncertain	Yes	No	Yes	Yes	Yes	Poor
Newson-Smith, 1997	Yes	Yes	Uncertain	No	Yes	Yes	No	Poor
Pelucchi, 1995	No	Uncertain	Yes	Yes	Yes	Yes	No	Poor
Ratner, 2008	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good

USPSTF = United States Preventive Services Task Force.

Appendix Table C33. Nasal symptom outcomes: change from baseline– intranasal corticosteroid versus nasal antihistamine

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Congestion	p	Rhinorrhea	p	Sneezing	p	Itching	p	TNSS	p
Carr, 2012 (Trial 1)	Fluticasone propionate 200mcg	207/207	2	-1.2 (1.3)	NR	-1.3 (1.4)	NR	-1.5 (1.4)	NR	-1.3 (1.3)	NR	-5.0 (4.7)[a]	NR
	Azelastine 548mcg	208/208		-0.9 (1.3)		-1.1 (1.4)		-1.3 (1.3)		-0.9 (1.3)		-4.1 (4.6)[a]	
Carr, 2012 (Trial 2)	Fluticasone propionate 200mcg	189/189	2	-1.1 (1.5)	NR	-1.3 (1.5)	NR	-1.4 (1.5)	NR	-1.2 (1.4)	NR	-5.0 (5.2)[a]	NR
	Azelastine 548mcg	194/194		-1.0 (1.3)		-1.0 (1.3)		-1.3 (1.5)		-1.1 (1.3)		-4.4 (4.6)[a]	
Carr, 2012 (Trial 3)	Fluticasone propionate 200mcg	450/450	2	-1.1 (1.2)	NR	-1.3 (1.4)	NR	-1.5 (1.5)	NR	-1.2 (1.3)	NR	-5.1 (4.7)[a]	NR
	Azelastine 548mcg	445/445		-1.0 (1.2)		-1.2 (1.4)		-1.4 (1.5)		-1.1 (1.4)		-4.5 (4.8)[a]	
Ghimire, 2007	Beclomethasone dipropionate 400mcg	25[bc]	2	-1.8[d]	NR	-2.2[d]	NR	-2.3[d]	NR				
	Azelastine 1120mcg	25[bc]		-1d		-2.2[d]		-2.2[d]					
Hampel, 2010	Fluticasone propionate 200mcg	153/151	2	-0.86	NR	-1.15	NR	-0.98	NR	-0.91	NR	-3.84 (4.76)[a]	NR
	Azelastine 548mcg	152/152		-0.75		-0.87		-0.86		-0.82		-3.25 (4.16)[a]	
Kaliner, 2009	Fluticasone propionate 200mcg	65/65	2	-29.3[e]	NS	-40.3[e]	NS	-41[e]	NS	-42.8[e]	NS	3.1[d]	0.68
	Olopatadine 4 puffs/nostril	65/65		-22.4[e]		-38.7[e]		-53.9[e]		-29.4[e]		3.2[d]	
Newson-	Beclomethasone	83[bc]	2	0.8	NS	1	NS	1	NS	0.9	NS		

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Congestion	p	Rhinorrhea	p	Sneezing	p	Itching	p	TNSS	p
Smith, 1997	dipropionate 400mcg												
	Azelastine 1120mcg	83[bc]		0.3		0.6		0.6		0.5			
Pelucchi, 1995	Beclomethasone dipropionate 200mcg	15/13	2										NS
	Azelastine 560mcg	15/10											
Ratner, 2008	Fluticasone propionate 200mcg	50/49	2	1.1 (1.2)	NR	1.3 (1.2)	NR	1.5 (1.5)	NR	1.3 (1.5)	NR	5.2 (4.6)[a]	NR
	Azelastine 4 puffs/nostril	49/49		1.1 (1.5)		1.1 (1.4)		1.5 (1.0)		1.1 (1.4)		4.8 (4.3)[a]	
Ghimire, 2007	Beclomethasone dipropionate 400mcg	25[bc]	3	0.3[f]	NR	0.3[f]	NR	0.2[f]	NR				
	Azelastine 1120mcg	25[bc]		0.8[f]		0.3[f]		0.2[f]					
Pelucchi, 1995	Beclomethasone dipropionate 200mcg	15/13	3									3.4[g]	NS
	Azelastine 560mcg	15/10										4.5[g]	
Ghimire, 2007	Beclomethasone dipropionate 400mcg	25[bc]	4	0.1[h]	NR	0.1[h]	NR	0.1[h]	NS				
	Azelastine 1120mcg	25[bc]		0.6[h]		0.1[h]		0.1[h]					
Pelucchi, 1995	Beclomethasone dipropionate 200mcg	15/13	4									2.7[i]	NS
	Azelastine 560mcg	15/10										3.7[i]	
Pelucchi, 1995	Beclomethasone dipropionate 200mcg	15/13	5									2.1[j]	NS
	Azelastine 560mcg	15/10										3.5[j]	

N/n = Number of patients randomized/number of patients analyzed; NR = not reported; NS = non-significant; TNSS = total nasal symptom score.

Except as noted, entries for each symptom represent the mean change from baseline symptom score using a 0 (no symptom) to 3 (severe symptom) rating scale. TNSS ranges from 0 to 12.

Values in parentheses are standard deviations.

[a] TNSS is a sum of AM and PM scores ranging from 0 to 24.

[b] Overall demographic info provided only.

[c] Only patients randomized are reported.

[d] Values calculated by report author.

[e] Percent change from baseline.

[f] Endpoint for third week.

[g] Average for third week.

[h] Endpoint for fourth week.

[i] Average for fourth week.

[j] Average for fifth week.

Appendix Table C34. Eye symptom outcomes– intranasal corticosteroid versus nasal antihistamine

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Outcome	Baseline Mean (SD)	Change from Baseline	p
Carr, 2012 (Trial 1)	Fluticasone propionate 200mcg	207/207	2	TOSS[a]	11.4 (4.4)	-2.6 (3.5)	NR
	Azelastine 548mcg	208/208			11.5 (4.5)	-2.8 (3.8)	
Carr, 2012 (Trial 2)	Fluticasone propionate 200mcg	189/189	2	TOSS[a]	12.0 (3.8)	-2.7 (3.6)	NR
	Azelastine 548mcg	194/194			11.8 (3.9)	-3.0 (3.3)	
Carr, 2012 (Trial 3)	Fluticasone propionate 200mcg	450/450	2	TOSS[a]	12.3 (3.6)	-2.8 (3.5)	NR
	Azelastine 548mcg	445/445			12.4 (4.0)	-3.0 (3.8)	
Hampel, 2010	Fluticasone propionate 200mcg	153/151	2	TOSS[a]		-2.17	NR
	Azelastine 548mcg	152/152				-2.62	
Kaliner, 2009	Fluticasone propionate 200mcg	65/65	2	TOSS	4.18 (1.84)	-1.7[b]	0.6064
	Olopatadine 4 puffs/nostril	65/65			4.25 (2.05)	-1.64[b]	

N/n = Number of patients randomized to comparator groups of interest/number of patients analyzed; NR = not reported; TOSS = total ocular symptom score.

Values in parentheses are standard deviations.Except as noted, TOSS is the sum of scores for 3 ocular symptoms (itching, tearing, and redness) using a 0 (no symptom) to 3 (severe symptom) rating scale. TOSS ranges from 0 to 9.

[a] TOSS is the sum of scores for 3 ocular symptoms recorded twice daily in the morning and evening. TOSS ranges from 0 to 18.

[b] Values calculated by report author.

Appendix Table C35. Quality of life outcomes– intranasal corticosteroid versus nasal antihistamine

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Outcome	Baseline Mean (SD)	Change from Baseline	p
Hampel, 2010	Fluticasone propionate 200mcg	153/151	2	RQLQ		-1.43	NR
	Azelastine 548mcg	152/152				-1.17	
Ratner, 2008	Fluticasone propionate 200mcg	50/49	2	RQLQ	3.95 (1.14)	-1.47	NR
	Azelastine 4 puffs/nostril	49/49			3.66 (1.13)	-1.21	

N/n = Number of patients randomized to comparator groups of interest/number of patients analyzed; NR = not reported; RQLQ = Rhinitis Quality of Life Questionnaire.

Intranasal Corticosteroid Versus Nasal Chromone

Appendix Table C36. Trial description: intranasal corticosteroid versus nasal chromone

Author, Year	Location, Site(s)	Enrollment/ Treatment Duration	Funding/ Disclosures	N	Inclusion Criteria	Exclusion Criteria[a]	Rescue Medication Use	Objective Diagnosis	Run in Period	Pollen Count	Patient Blinding	Assessor Blinding
Bjerrum, 1985	Europe Single	3 weeks	Industry NR	43	Minimum SAR duration	Other meds Chronic asthma Pregnancy Infection Deformities	Yes	•	•		•	•
Bousquet, 1993	Europe Multiple	6 weeks	NR Yes	218	Minimum SAR duration	SAR meds/- Pregnancy Infection	Yes	•		•	•	•
Lange, 2005	Europe Single	May 2003 4 weeks	Industry NR	83	Minimum SAR severity and duration	SAR meds/+ Other meds Chronic asthma Infection Deformities	Yes	•	•	•	Open label trial	Open label trial
Welsh, 1987	N.America	July 1984 8 weeks	Industry NR	90	Minimum SAR duration	Pregnancy Deformities	Yes	•	•	•		•

N = Patients randomized to comparator groups of interest; NR = not reported; SAR = seasonal allergic rhinitis.

[a] +, -, or NR indicates whether FDA-recommended washout periods were required (+), were not required (-), or were not reported (NR) for restricted SAR medications prior to trial entry.

Appendix Table C37. Patient characteristics: intranasal corticosteroid versus nasal chromone

Author, Year	Drug Dose/Day	N	Mean Age, years	Sex, % female	Race, %	Disease Duration, Years	Mean Baseline TNSS[a]

Bjerrum, 1985	Budesonide 400 mcg[b]	22	29 Range: 15-55	48.9[C]	Unspecified	1.99
	Cromolyn 26 mg[d]	21				3.29
Bousquet, 1993	Fluticasone propionate, 200 mcg[g]	110	32 (12)		Unspecified	
	Cromolyn 20.8 mg [e]	108	32 (12)		Unspecified	
Lange, 2005	Mometasone furoate 200 mcg[e]	41	35.5 (9.6)	56.1	Unspecified	
	Cromolyn 22.4 mg[f]	42	33.5 (8.2)	66.7	Unspecified	
Welsh, 1987	Beclomethasone dipropionate 336 mcg[b]	30	27 Range: 13-50	30.0	Unspecified	
	Flunisolide 200 mcg[b]	30	27 Range: 14-44	26.7	Unspecified	
	Cromolyn 41.6 mg [e]	30	30 Range: 12-48	33.3	Unspecified	

N = Patients randomized to comparator groups of interest; TNSS = total nasal symptom score.

Values are presented as mean (standard deviation) unless otherwise noted.

[a] Individual symptoms rated on a scale from 0 (no symptoms) to 3 (severe symptoms). TNSS ranges from 0 to 12.

[b] Twice daily.

[C] Overall demographic info provided only.

[d] Five times daily.

[e] Once daily.

[f] Four times daily.

[g] Every morning.

Appendix Table C38. USPSTF quality assessment: intranasal corticosteroid versus nasal chromone

Author, year	Assembled comparable groups	Maintained comparable groups	Minimal follow-up loss	Measurements equal, valid, and reliable	Interventions clearly defined	Important outcomes considered	Appropriate analysis of results	Overall USPSTF rating
Bjerrum, 1985	No	Yes	Yes	Yes	Yes	Yes	Yes	Poor
Lange, 2005	Yes	Yes	Yes	No	Yes	Yes	Yes	Poor
Bousquet, 1993	No	No	No	Yes	No	Yes	No	Poor

Welsh, 1987	Yes	No	No	No	No	Yes	Yes	Poor

USPSTF = United States Preventive Services Task Force.

Appendix Table C39. Nasal Symptom Outcomes: Change from Baseline– Intranasal Corticosteroid versus Nasal Chromone

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Congestion	p	Rhinorrhea	p	Sneezing	p	Itching	p	TNSS	p
Bjerrum, 1985	Budesonide 400 mcg[a]	22/21	2	-0.22[a]	<0.05	-0.35[a]	<0.01	-0.10[a]	<0.01	-0.06[a]	<0.01	-0.73[a]	<0.01
	Cromolyn 26 mg[c]	21/21		0.13[a]		0.24[a]		0.28[a]		0.15[a]		0.80[a]	
Bjerrum, 1985	Budesonide 400 mcg[a]	22/21	3	-0.15[a]	NS	-0.24[a]	<0.05	-0.01[a]	<0.02	-0.01[a]	<0.02	-0.39[a]	<0.01
	Cromolyn 26 mg[c]	21/21		0.13[a]		0.25[a]		0.26[a]		-0.16[a]		0.80[a]	
Lange, 2005	Mometasone furoate 200 mcg[d]	41/40	4		0.05[b]		<0.01[b]		<0.01[b]		<0.01[b]		<0.01[b]
	Cromolyn, 22.4 mg[e]	42/42											
Bousquet, 1993	Fluticasone propionate 200 mcg[f]	110/73	6		0.01		0.01		0.02		0.03		
	Cromolyn 20.8 mg[e]	108/87											

N/n = Number of patients randomized/number of patients analyzed; NS, not significant; TNSS = total nasal symptom score.

Entries for each symptom represent the mean change from baseline symptom score using a 0 (no symptom) to 3 (severe symptom) rating scale. TNSS ranges from 0 to 12.

[a] Calculated by report author using pre/post data.

[b] Comparisons are between final outcome scores, not change in scores.

Appendix Table C40. Quality of life outcomes: intranasal corticosteroid versus nasal chromone

Author, year	Drug, Dose/Day	N/n	Time, weeks	PGA	Result	p
Lange, 2005	Mometasone furoate 200 mcg	41/40	4	% reporting very good/good treatment efficacy[a]	92.3	<0.001[b]
	Cromolyn 22.4 mg	42/42			62.4	
Welsh, 1987	Beclomethasone dipropionate 336 mcg	30/28	8	% reporting substantial symptom control[c]	75.0	<0.001[b]
	Flunisolide 200 mcg	30/30			80.0	

Cromolyn 41.6 mg	30/28		55.2

N/n = Number of patients randomized/number of patients analyzed; PGA = patient global assessment.

[a] 4-point scale: very good, good, slight, insufficient.

[b] Statistical testing is over all PGA categories.

[c] 3-point scale: substantial, some, none.

Intranasal Corticosteroid Versus Oral Leukotriene Receptor Antagonist

Appendix Table C41. Trial description: intranasal corticosteroid versus leukotriene receptor antagonist

Author, Year	Location/ Site(s)	Enrollment/ Treatment Duration	Funding/ Author Industry Disclosures	N	Inclusion Criteria	Exclusion Criteria[a]	Rescue Medication Use	Objective Diagnosis	Run-in Period	Pollen Counts Measured	Patient Blinding	Assessor Blinding
Lu, 2009 (Trial 1)	N.America Multiple	April 1998 2 weeks	Industry/ Industry	285	Minimum SAR severity and duration		No	•	•		•	•
Martin, 2006	N.America Multiple	December 2001 2 weeks	Industry/ Industry	736	Minimum SAR severity and duration	SAR meds/NR Other meds Pregnancy Deformities	No	•	•		•	•
Nathan, 2005	N.America Multiple	4 weeks	Industry/ Industry	573	Minimum SAR severity and duration	SAR meds/+ Pregnancy Infection Deformities	Yes	•	•		•	•
Pullerits, 2002	Europe	03/1999 7.1 weeks	Industry/	29	Minimum SAR duration	Other meds Pregnancy Infection	Yes	•	•	•	•	•
Ratner, 2003	N.America Multiple	December 2001 2.1 weeks	Industry/ Industry	705	Minimum SAR severity and duration	SAR meds Other meds Pregnancy Deformities	No	•	•		•	•

N = patients randomized to comparator groups of interest; SAR = seasonal allergic rhinitis.

[a] +, -, or NR indicates whether FDA-recommended washout periods were required (+), were not required (-), or were not reported (NR) for restricted SAR medications prior to trial entry.

Appendix Table C42. Patient characteristics: intranasal corticosteroid versus leukotriene receptor antagonist

Author, Year	n	Drug Dose/Day	Mean Age, years	Sex, % Female	Race, %	Disease Duration, years	Mean Baseline NSS
Lu, 2009	173	Beclomethasone dipropionate 400 mcg	34.1(13.3)	61.3	White: 79.2	17.9 (12.2)	TNSS: 2.03[a]

Author, Year	n	Drug Dose/Day	Mean Age, years	Sex, % Female	Race, %	Disease Duration, years	Mean Baseline NSS
(Trial 1)					Black: 8.1 Hispanic: 8.1 Other: 4.6		
	112	Montelukast 10 mg	35.6 (13.1)	62.5	White: 79.5 Black: 5.4 Hispanic: 8.9 Other: 6.3	18.8 (10.7)	TNSS: 2.06[a]
Martin, 2006	367	Fluticasone propionate 200 mcg	39.1 (14.0)	64	Unspecified	15.1 (11.0)	C: 78.0 (0.8)[b] R: 74.9 (0.9)[b] S: 71.9 (1.0)[b] I: 73.3 (0.9)[b] TNSS: 298.2 (2.8)[c]
	369	Montelukast 10 mg	40.3 (13.9)	62	Unspecified	15.2 (11.8)	C: 78.7 (0.8)[b] R: 76.3 (0.9)[b] S: 72.2 (1.0)[b] I: 74.3 (0.9)[b] TNSS: 301.5 (2.8)[c]
Nathan, 2005	291	Fluticasone propionate 200 mcg	35.8 (12.6)	67	White: 76 Black: 11 Hispanic: 11 Asian: 1 Other: 1		C: 71.5 (1.3)[b] R: 65.7 (1.5)[b] S: 59.8 (1.6)[b] I: 63.7 (1.5)[b] TNSS: 260.7 (4.6)[c]
	282	Montelukast 10 mg	34.4 (13.3)	66	White: 77 Black: 11 Hispanic: 8 Asian: 2 Other: 1		C: 73.0 (1.3)[b] R: 66.6 (1.5)[b] S: 62.7 (1.7)[b] I: 66.8 (1.6)[b] TNSS: 269.1 (4.7)[c]
Pullerits, 2002	13	Fluticasone propionate 200 mcg	28.4 (6.4)	46.2	Unspecified	≤5 years: 8% >5 years: 92%	TNSS: 1.5 (1.4)[d]
	16	Montelukast 10 mg	28.3 (8.0)	37.5	Unspecified	≤5 years: 25% >5 years: 75%	TNSS: 1.9 (2.1)[d]
Ratner, 2003	353	Fluticasone propionate 200 mcg	38.3 (13.3)	61	Unspecified	Mean: 15.7 (11.8)	C: 77.5 (0.8)[b] R: 75.2 (0.9)[b] S: 71.0 (1.0)[b] I: 72.6 (0.9)[b] TNSS: 296.2 (2.7)[c]
	352	Montelukast 10 mg	38.1 (13.3)	63	Unspecified	Mean: 15.4 (12.1)	C: 78.3 (0.8)[b] R: 75.9 (0.9)[b] S: 72.0 (1.0)[b] I: 72.7 (0.9)[b] TNSS: 298.9 (2.7)[c]

C = Congestion; I = itching; n = patients randomized to comparator groups of interest; R = rhinorrhea; S = sneezing; TNSS = total nasal symptom score.

Values are presented as mean (standard deviation) unless otherwise noted.

[a] TNSS scale 0 (no symptoms) to 3 (severe symptoms) using symptom categories for each symptom, which were then averaged by the investigators.

[b] Individual symptoms scored 0 (no symptoms) to 100 (severe symptoms) using a VAS.

[c] TNSS scored 0-400, sum of each individual 0 to 100 VAS score.

[d] TNSS scored 0 to 16, a summation of each individual symptom scored 0 (no symptoms) to 4 (severe symptoms).

Appendix Table C43. Quality of life outcomes: intranasal corticosteroid versus leukotriene receptor antagonist

Author, year	Drug, Dose/Day	N/n	Time, weeks	Outcome	Baseline mean	End of treatment	p
Martin, 2006	Fluticasone propionate 200 mcg	367/364	2	% patients reporting significant or better improvement[a]		42	<0.001
Martin, 2006	Montelukast 10 mg	369/366				24	
Ratner, 2003	Fluticasone propionate 200 mcg	353/353	2	% patients reporting significant improvement[a]		43	<0.001
Ratner, 2003	Montelukast 10 mg	352/352				25	
Nathan, 2005	Fluticasone propionate 200 mcg	291/291	4	% reporting satisfied or better with treatment[a]		69	<0.001
Nathan, 2005	Montelukast 10 mg	282/282				55	

N/n = Number of patients randomized/number of patients analyzed. [a] 7-point Likert Scale.

Appendix Table C44. Nasal symptom outcomes: change from baseline– intranasal corticosteroid versus leukotriene receptor antagonist

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Congestion	p	Rhinorrhea	p	Sneezing	p	Itching	p	TNSS	p
Lu, 2009 (Trial 1)	Beclomethasone dipropionate 400 mcg	173/172	2									-0.7 (-0.78, -0.61)	≤0.01
	Montelukast 10 mg	112/111	2									-0.36 (-0.46, -0.25)	
Martin, 2006	Fluticasone propionate 200 mcg	367/364	2	-31.1 (1.2)	<0.01	-32.9 (1.2)	<0.01	-33.5 (1.2)	<0. 01	-32.8 (1.2)	<0.001	-130.2 (4.7)	<0.01
	Montelukast 10 mg	369/366	2	-23.1 (1.2)		-23.5 (1.2)		-24.9 (1.2)		-25.0 (1.2)		-96.6 (4.7)	
Nathan, 2005	Fluticasone propionate 200 mcg	291/291	2	-24.0 (1.6)	<0.01	-26.5 (1.6)	<0.01	-25.4 (1.6)	<0.01	-24.0 (1.6)	<0.001	-99.1 (5.8)	<0.01
	Montelukast 10 mg	282/282	2	-16.7 (1.6)		-18.7 (1.7)		-19.1 (1.7)		-18.7 (1.6)		-73.0 (6.0)	
Pullerits, 2002	Fluticasone propionate 200 mcg	13[a]	2									-0.1 [c]	NS
	Montelukast 10 mg	16[a]	2									0.7 [c]	
Ratner, 2003	Fluticasone propionate 200 mcg	353/353	2	-31.4 (1.2)	<0.01	-32.6 (1.2)	<0.01	-33.7 (1.2)	<0.01	-32.7 (1.2)	<0.001	-130.3 (4.7)	<0. 01

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Congestion	p	Rhinorrhea	p	Sneezing	p	Itching	p	TNSS	p
	Montelukast 10 mg	352/352	2	-22.7 (1.2)		-24.3 (1.2)		-23.7 (1.2)		-23.2 (1.2)		-94.0 (4.7)	
Nathan, 2005	Fluticasone propionate 200 mcg	291/291	4	-29.0 (1.7)	<0.01	-30.7 (1.7)	<0.01	-29.3 (1.7)	<0.01	-28.8 (1.7)	<0.001	-117.0 (6.2)	<0.01
	Montelukast 10 mg	282/282	4	-20.7 (1.7)		-22.7 (1.7)		-23.1 (1.7)		-22.8 (1.7)		-89.1 (6.4)	
Pullerits, 2002	Fluticasone propionate 200 mcg	13[a]	5 [b]									1.1 [d]	NS
	Montelukast 10 mg	16[a]	5[b]									2.5 [d]	
Pullerits, 2002	Fluticasone propionate 200 mcg	13[a]	8 [c]									-0.4 [d]	<0.05
	Montelukast 10 mg	16[a]	8[c]									0.3 [d]	

N/n = Number of patients randomized/number of patients analyzed; NS = non-significant; TNSS = total nasal symptom score.

Values are mean (standard error) change from baseline. Entries for each outcome represent the mean change from baseline symptom score. Martin, 2006, Nathan, 2005, and Ratner, 2003 used a 0 (no symptoms) to 100 (most severe symptoms) VAS to rate each symptom, then summed the symptom scores for TNSS (maximum, 400). Pullerits, 2002 used a 0 (no symptoms) to 4 (severe symptoms) categorical scale for each symptom, then summed the scores for TNSS (maximum, 16). Lu, 2009 used a 0 (no symptoms) to 3 (severe symptoms) to rate each symptom, then averaged the symptom scores for TNSS (maximum, 3).

[a] Only patients randomized are reported.

[b] Average for interval from 3-5 weeks.

[c] Average for interval from 6-8 weeks.

[d] Calculated by report author from pre/post data reported.

Appendix Table C45. Asthma outcomes– intranasal corticosteroid versus leukotriene receptor antagonist

Author, year	Drug, Dose/Day	N/n	Time, weeks	Outcome	Baseline mean (SE)	End of treatment	Mean Change from Baseline	p
Nathan, 2005	Fluticasone propionate 200 mcg	291/291	4	Morning Peak Expiratory Flow, L/min	361.3 (7.4)		+ 34.0 (4.3)	NS
	Montelukast 10 mg	282/282			367.2 (7.4)		+ 31.6 (4.3)	
Nathan, 2005	Fluticasone propionate 200 mcg	291/291	4	Evening Peak Expiratory Flow, L/min	375.3 (7.7)		+ 24.9 (4.0)	NS

Author, year	Drug, Dose/Day	N/n	Time, weeks	Outcome	Baseline mean (SE)	End of treatment	Mean Change from Baseline	p
	Montelukast 10 mg	282/282			380.8 (7.7)		+ 23.1 (4.0)	
Nathan, 2005	Fluticasone propionate 200 mcg	291/291	4	Symptom Free Days, %	5.3 (1.0)	20.6 (3.3)		NS
	Montelukast 10 mg	282/282			6.8 (1.0)	23.4 (3.2)		
Nathan, 2005	Fluticasone propionate 200 mcg	291/291	4	Days Free of Albuterol Rx, %	17.4 (2.2)	34.8 (3.5)		NS
	Montelukast 10 mg	282/282			18.3 (2.3)	36.4 (3.5)		

N/n = Number of patients randomized/number of patients analyzed; NS = non-significant; SE = standard error.

Combination Oral Selective Antihistamine Plus Intranasal Corticosteroid Versus Oral Selective Antihistamine

Appendix Table C46. Trial description: combination oral selective antihistamine plus intranasal corticosteroid versus oral selective antihistamine

Author, Year	Location, Site(s)	Enrollment/ Treatment Duration	Funding/ Author Industry Disclosures	N	Inclusion Criteria	Exclusion Criteria	Rescue Rx	Objective Diagnosis	Run in Period	Pollen Count	Patient Blinding	Assessor Blinding
Anolik, 2008	N.America Multiple	March 1995 2.1 weeks	NR Industry	350	Minimum SAR severity and duration	Chronic asthma Immunotherapy Infection Deformities	No	•	•	•	•	•
Ratner, 1998	N.America Multiple	2 weeks	Industry Industry	300	Minimum SAR severity and duration	SAR meds/+ Pregnancy Infection Deformities	No	•	•		•	•
Wilson, 2000	Europe Single	June 1998 4 weeks	Academia NR	27	Minimum SAR severity	Infection	No	•	•	•	•	

N = Patients randomized to comparator groups of interest; NR = not reported.

[a] +, -, or NR indicates whether FDA-recommended washout periods were required (+), were not required (-), or were not reported (NR) for restricted SAR medications prior to trial entry.

Appendix Table C47. Patient characteristics: combination oral selective antihistamine plus intranasal corticosteroid versus oral selective antihistamine

Author, Year	Drug, Dose/Day	N	Mean Age, years	Sex, % female	Race, %	Disease Duration, years	Mean Baseline NSS[a]
Anolik, 2008	Loratadine 10 mg/ Mometasone furoate	169	26 Range: 11-62	50.3	Unspecified	Mean: 14 Range: 2-51	C: 2.3 R: 2.1

Author, Year	Drug, Dose/Day	N	Mean Age, years	Sex, % female	Race, %	Disease Duration, years	Mean Baseline NSS[a]
	200 mcg						S: 1.8 I: 1.8 TNSS: 7.9 (2.0)
	Loratadine 10 mg	181	25 Range: 12-65	50.3	Unspecified	Mean: 14 Range: 2-60	C: 2.3 R: 2.1 S: 1.7 I: 1.9 TNSS: 7.9 (2.2)
Ratner, 1998	Loratadine 10 mg/ Fluticasone propionate 200 mcg	150	42.2 Range: 15-78	51	White: 80 Hispanic: 17 Other: 3		TNSS: 290
	Loratadine 10 mg	150	40.1 Range: 15-70	54	White: 73 Hispanic: 19 Other: 8		TNSS: 300
Wilson, 2000	Cetirizine 10 mg/ Mometasone furoate 200 mcg	14	31 (2.7)	64.3	Unspecified		TNSS: 4.8 (0.7)
	Cetirizine 10 mg	13	30 (2.5)	76.9	Unspecified		TNSS: 5.3 (0.8)

C = Congestion; I = itching; n= patients randomized or assigned to comparator groups of interest; NSS = nasal symptom score; R = rhinorrhea; S = sneezing; TNSS = total nasal symptom score.

Values are presented as mean (standard deviation) unless otherwise noted.

[a] Individual symptoms rated on a scale from 0 (no symptoms) to 3 (severe symptoms) for each individual symptom. Morning and evening scores were summed (maximum individual symptom = 6, maximum TNSS = 24).

Appendix Table C48. USPSTF quality assessment: combination oral selective antihistamine plus intranasal corticosteroid versus oral selective antihistamine

Author, year	Assembled comparable groups	Maintained comparable groups	Minimal follow-up loss	Measurements equal, valid, and reliable	Interventions clearly defined	Important outcomes considered	Appropriate analysis of results	Overall USPSTF rating
Anolik, 2008	Yes	Yes	Yes	Yes	Yes	Yes	No	Poor
Ratner, 1998	Yes	Yes	Yes	Yes	Yes	Uncertain	Yes	Fair
Wilson, 2000	Yes	Yes	Uncertain	Yes	Yes	Yes	Yes	Fair

USPSTF = United States Preventive Services Task Force.

Appendix Table C49. Nasal symptom outcomes: change from baseline- combination oral selective antihistamine plus intranasal corticosteroid versus oral selective antihistamine

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Congestion[a]	p versus Combo	Rhinorrhea[a]	p versus Combo	Sneezing[a]	p versus Combo	Itching[a]	p versus Combo	TNSS[a]	p versus Combo
Anolik, 2008	Loratadine 10 mg/ Mometasone	169/166	2[b]	-0.7		-0.7		-0.8		-0.7		-3.0 (2.0)	

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Congestion[a]	p versus Combo	Rhinorrhea[a]	p versus Combo	Sneezing[a]	p versus Combo	Itching[a]	p versus Combo	TNSS[a]	p versus Combo
	furoate 200 mcg												
	Loratadine 10 mg	181/175		-0.4	<0.05	-0.4	<0.05	-0.6	<0.05	-0.6	<0.05	-1.9 (2.2)	<0.01
Ratner, 1998	Loratadine 10 mg/ Fluticasone propionate 200 mcg	150/150	2[c]									-180[e]	
	Loratadine 10 mg	150/150										-90[e]	<0.001
Wilson, 2000	Cetirizine 10 mg/ Mometasone furoate 200 mcg	14	2[c]									-3.0[e]	
	Cetirizine 10 mg	13										-1.8[e]	NS
Wilson, 2000	Cetirizine 10 mg/ Mometasone furoate 200 mcg	14	4[d]									-3.7[e]	
	Cetirizine 10 mg	13										-2.8[e]	NS

N/n = Number of patients randomized/number of patients analyzed; TNSS = total nasal symptom score.

[a]All analyses are mean change from baseline.

[b] All symptom assessments averaged over the treatment duration.

[c] Analysis compares change from baseline to symptom assessments averaged over the second week of treatment.

[d] Analysis compares change from baseline to symptom assessments averaged over the fourth week of treatment.

[e] Calculated by study authors from reported means.

Appendix Table C50. Eye symptom outcomes: change from baseline- combination oral selective antihistamine plus intranasal corticosteroid versus oral selective antihistamine

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Outcome	Baseline mean	Change from baseline	p versus Combo
Anolik, 2008	Loratadine 10 mg/ Mometasone furoate 200 mcg	169/166	2	Individual symptoms [a]	NR	NR	
	Loratadine 10 mg	181/175			NR	NR	<0.05

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Outcome	Baseline mean	Change from baseline	p versus Combo
Wilson, 2000	Cetirizine 10 mg/ Mometasone furoate 200 mcg	14	2	TOSS	1.6	-1[b]	
	Cetirizine 10 mg	13			2.4	-1.2[b]	NS
Wilson, 2000	Cetirizine 10 mg/ Mometasone furoate 200 mcg	14	4	TOSS	1.6	-1.2[b]	
	Cetirizine 10 mg	13			2.4	-1.4[b]	NS

N/n = Number of patients randomized/number of patients analyzed; NR = not reported; NS = non-significant; TOSS = total ocular symptom score.

[a] Includes itchy eyes, watery eyes and red eyes, assessed daily by patients on a 0 (no symptoms) to 3 (severe symptoms) scale. With the exception of stating that all symptoms were and were not statistically different from combination therapy, no assessment means or p values were reported.

[b] Mean differences calculated by study authors.

Appendix Table C51. Quality of life outcomes: combination oral selective antihistamine plus intranasal corticosteroid versus oral selective antihistamine

Author, year	Drug, Dose/Day	N/n	Time, weeks	Outcome	Baseline mean	Change from Baseline	p versus Combo
Ratner, 1998	Loratadine 10 mg/ Fluticasone propionate 200 mcg	150/150	2	RQLQ[a]	4.0 (0.1)	-2.3 (0.1)	<0.001
	Loratadine 10 mg	150/150			4.1 (0.1)	-1.3 (0.1)	
Ratner, 1998	Loratadine 10 mg/ Fluticasone propionate 200 mcg	150/150	2	Global Assessment[b]		75	<0.001
	Loratadine 10 mg	150/150				43	
Wilson, 2000	Cetirizine 10 mg/ Mometasone furoate 200 mcg	14/	8	Global Assessment[c]	NR	NR	NS
	Cetirizine 10 mg	13/			NR	NR	

N/n = Number of patients randomized/number of patients analyzed; NR = not reported; NS = non-siginificant; RQLQ = Rhinitis Quality of Life Questionnaire.

[a] Scores range from 0 (no impairment) to 6 (severely impaired). The minimum clinically important difference is 0.5 points.

[b] Patient rated overall response to therapy after two weeks of treatment. Percent reporting moderate or significant improvement. P value describes overall test comparing groups over the full 7 point Likert scale.

[c] Patients recorded extent to which their symptoms interfered with their daily activity on an 11-point scale (0 = no interference , 10 = maximal interference)

Combination Oral Selective Antihistamine Plus Intranasal Corticosteroid Versus Intranasal Corticosteroid

Appendix Table C52. Trial description: oral selective antihistamine plus intranasal corticosteroid versus intranasal corticosteroid

Author, Year	Location, Site(s)	Enrollment/ Treatment Duration	Funding/ Author Industry Disclosures	N	Inclusion Criteria	Exclusion Criteria[a]	Rescue Medication Use	Objective Diagnosis	Run in Period	Pollen Count	Patient Blinding	Assessor Blinding
Anolik, 2008	N.America Multiple	March 1995 2.1 weeks	NR Industry	345	Minimum SAR severity and duration	Chronic asthma Immunotherapy Infection Deformities	No	•	•	•	•	•
Barnes, 2006	Europe Single	June 2004 2 weeks	Academia Industry	62		SAR meds/- Pregnancy Deformities	Yes	•	•	•	•	•
Benincasa, 1994	Europe Multiple	May 1990 8 weeks	Industry Industry	454	Minimum SAR severity and duration	SAR meds/+ Other meds Pregnancy Infection Deformities	Yes				•	•
Di Lorenzo, 2004	Europe Multiple	April 2001 6 weeks	Health system[b] NR	40	Minimum SAR severity and duration	SAR meds/+ Chronic asthma Pregnancy Infection Deformities	Yes	•		•	•	•
Ratner, 1998	N.America Multiple	2 weeks	Industry Industry	300	Minimum SAR severity and duration	SAR meds/+ Pregnancy Infection Deformities	No	•	•		•	•

N = Patients randomized to comparator groups of interest; NR = not reported; SAR = seasonal allergic rhinitis.

[a] +, -, or NR indicates whether FDA-recommended washout periods were required (+), were not required (-), or were not reported (NR) for restricted SAR medications prior to trial entry.

[b] Ministero Italiano Universita` e Ricerca (MIUR).

Appendix Table C53. Patient characteristics: oral selective antihistamine plus intranasal corticosteroid versus intranasal corticosteroid

Author, Year	Drug, Dose/Day	N	Mean Age, years	Sex, % female	Race, %	Disease Duration, years	Mean Baseline NSS[a]
Anolik, 2008	Loratadine 10 mg/ Mometasone furoate 200 mcg	169	26 Range: 11-62	50.3	Unspecified	14 Range: 2-51	C: 2.3 R: 2.1 S: 1.8 I: 1.8 TNSS: 7.9 (2.0)
	Mometasone furoate 200 mcg	176	26 Range: 12-71	50.6	Unspecified	13 Range: 2-56	C: 2.2 R: 2.1

Author, Year	Drug, Dose/Day	N	Mean Age, years	Sex, % female	Race, %	Disease Duration, years	Mean Baseline NSS[a]
							S: 1.7 I: 1.7 TNSS: 7.8 (2.5)
Barnes, 2006	Levocetirizine 5 mg/ Fluticasone propionate 200 mcg	31	44.9	59.3	Unspecified		C: 1.24 (0.79) R: 1.00 (0.78) S: 1.31 (0.72) I: 1.16 (0.79) TNSS: 4.56 (2.58)
	Fluticasone propionate 200 mcg	31	44.9	59.3	Unspecified		C: 1.24 (0.79) R: 1.00 (0.78) S: 1.31 (0.72) I: 1.16 (0.79) TNSS: 4.56 (2.58)
Benincasa, 1994	Cetirizine 10 mg/ Fluticasone propionate 200 mcg	227	30 Range: 12-66	56	Unspecified	<10: 48% >10: 52%	
	Fluticasone propionate 200 mcg	227	31 Range: 12-80	58	Unspecified	<10: 46% >10: 54%	
Di Lorenzo, 2004	Cetirizine 10 mg/ Fluticasone propionate 200 mcg	20	32.8 Range: 14-48	60	Unspecified	2-4 years: 55% 5-9 years: 30% 10+ years:15%	
	Fluticasone propionate 200 mcg	20	30.5 Range: 15-50	40	Unspecified	2-4 years: 55% 5-9 years: 25% 10+ years:20%	
Ratner, 1998	Loratadine 10 mg/ Fluticasone propionate 200 mcg	150	42.2 Range: 15-78	51	White: 80 Hispanic: 17 Other: 3		TNSS: 290[b]
	Fluticasone propionate 200 mcg	150	40.7 Range: 13-80	55	White: 78 Hispanic: 15 Other: 7		TNSS: 290[b]

C = Congestion; I = itching; n= patients randomized or assigned to comparator groups of interest; NSS = nasal symptom score; R = rhinorrhea; S = sneezing; TNSS = total nasal symptom score.

Values are presented as mean (standard deviation) unless otherwise noted.

[a] Except as noted, individual symptoms rated on a scale from 0 (no symptoms) to 3 (severe symptoms). Scores were summed (maximum individual symptom = 3, maximum TNSS = 12).

[b] Individual symptoms scored on a 0-100 VAS. TNSS scale is 0-400.

Appendix Table C54. USPSTF quality assessment: oral selective antihistamine plus intranasal corticosteroid versus intranasal corticosteroid

Author, year	Assembled comparable groups	Maintained comparable groups	Minimal follow-up loss	Measurements equal, valid, and reliable	Interventions clearly defined	Important outcomes considered	Appropriate analysis of results	Overall USPSTF rating
Anolik, 2008	Yes	Yes	Yes	Yes	Yes	Yes	No	Poor
Barnes, 2006	Yes	Yes	Yes	Yes	Yes	Yes	No	Poor
Benincasa, 1994	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good

Author, year	Assembled comparable groups	Maintained comparable groups	Minimal follow-up loss	Measurements equal, valid, and reliable	Interventions clearly defined	Important outcomes considered	Appropriate analysis of results	Overall USPSTF rating
Di Lorenzo, 2004	No	Yes	Yes	Yes	Yes	Yes	Yes	Poor
Ratner, 1998	Yes	Yes	Yes	Yes	Yes	Uncertain	Yes	Fair

USPSTF = United States Preventive Services Task Force.

Appendix Table C55. Nasal symptom outcomes: change from baseline- oral selective antihistamine plus intranasal corticosteroid versus intranasal corticosteroid

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Congestion[a]	p versus Combo	Rhinorrhea[a]	p versus Combo	Sneezing[a]	p versus Combo	Itching[a]	p versus Combo	TNSS[a]	p versus Combo
Anolik, 2008	Loratadine 10 mg/ Mometasone furoate 200 mcg	169/ 166	2[b]	-0.7		-0.7		-0.8		-0.7		-3.0 (2.0)	
	Mometasone furoate 200 mcg	176/ 166		-0.7	NS	-0.7	NS	-0.7	NS	-0.6	NS	-2.7 (2.5)	NS
Barnes, 2006	Levocetirizine 5 mg/ Fluticasone propionate 200 mcg	31/ 27	2[c]	-0.49 (-0.74, -0.24)		-0.40 (-0.66, -0.14)		-0.66 (-0.96, -0.36)		-0.58 (-0.88, -0.28)		-2.13 (-3.04, -1.23)	
	Fluticasone propionate 200 mcg	31/ 27		-0.60 (-0.63, -0.10)	0.005	-0.37 (-0.63, -0.23)	0.1	-0.51 (-0.79, -0.23)	0.54	-0.55 (-0.85, -0.25)	0.06	-2.02 (-2.91, -1.13)	<0.05
Ratner, 1998	Loratadine 10 mg/ Fluticasone propionate 200 mcg	150/ 150	2[c]									-180[e]	
	Fluticasone propionate 200 mcg	150/ 150										-150[e]	<0.05
Di Lorenzo, 2004	Cetirizine 10 mg/ Fluticasone propionate 200 mcg	20/ 20	6[b]										
	Fluticasone propionate 200 mcg	20/ 20			NS		NS		NS		0.003	[f]	0.04
Benincasa, 1994	Cetirizine 10 mg/ Fluticasone	227 /227	8[b]									[f]	

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Congestion[a]	p versus Combo	Rhinorrhea[a]	p versus Combo	Sneezing[a]	p versus Combo	Itching[a]	p versus Combo	TNSS[a]	p versus Combo
	propionate 200 mcg												
	Fluticasone propionate 200 mcg	227 /227										[f]	NS

N/n = Number randomized/number analyzed; NS = non-significant; TNSS = total nasal symptom score.

[a] All analyses are mean change from baseline.

[b] All symptom assessments averaged over the treatment duration.

[c] Analysis compares change from baseline to symptom assessments averaged over the second week of treatment.

[d] Analysis compares change from baseline to symptom assessments averaged over the fourth week of treatment.

[e] Calculated by study authors from reported means.

[f] Comparative treatment effects were reported, no treatment level change from baseline provided. See Summary table for comparative treatment effects.

Appendix Table C56. Eye symptom outcomes- change from baseline- oral selective antihistamine plus intranasal corticosteroid versus intranasal corticosteroid

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Outcome	Baseline mean	Change from baseline	p versus Combo
Anolik, 2008	Loratadine 10 mg/ Mometasone furoate 200 mcg	169/166	2	Individual symptoms[a]	NR	NR	
	Mometasone furoate 200 mcg	176/166			NR	NR	NS
Benincasa, 1994	Cetirizine 10 mg/ Fluticasone propionate 200 mcg	227/227	8	TOSS		[c]	
	Fluticasone propionate 200 mcg	227/227				[c]	NS

N/n = number randomized/number analyzed; NR = not reported; NS = non-significant; TOSS = total ocular symptom score.

[a] Includes itchy eyes, watery eyes and red eyes, assessed daily by patients on a 0 (no symptoms) to 3 (severe symptoms) scale. With the exception of stating that all symptoms were and were not statistically different from combination therapy, no assessment means or p-values were reported.

[b] Mean differences calculated by study authors.

[c] Comparative treatment effects were reported, no treatment level change from baseline provided. See Summary table for comparative treatment effects.

Appendix Table C57. Quality of life outcomes- change from baseline- oral selective antihistamine plus intranasal corticosteroid versus intranasal corticosteroid

Author, year	Drug, Dose/Day	N/n	Time, weeks	Outcome	Baseline mean	Change from Baseline	p versus Combo
Barnes, 2006	Levocetirizine 5 mg/	31/27	2	Mini RQLQ[a]	2.5 (0.22)	-0.4	NS

	Fluticasone propionate 200 mcg						
	Fluticasone propionate 200 mcg	31/27			2.5 (0.22)	-0.5	
Ratner, 1998	Loratadine 10 mg/ Fluticasone propionate 200 mcg	150/150	2	RQLQ[b]	4.0 (0.1)	-2.3 (0.1)	
	Fluticasone propionate 200 mcg	150/150			4.1 (0.1)	-2.2 (0.1)	NS
Ratner, 1998	Loratadine 10 mg/ Fluticasone propionate 200 mcg	150/150	2	Global Assessment[c]		75	
	Fluticasone propionate 200 mcg	150/150				71	NS

N/n = Number randomized/number analyzed; NS = non-significant; RQLQ = Rhinitis Quality of Life Questionnaire.

Values are presented as mean (standard deviation) unless otherwise noted.

[a] Scores range from 0 (no trouble) to 6 (extremely troubled). Average of 14 questions in 5 domains (activity, practical problems, nose symptoms, eye symptoms and other symptoms).

[b] Scores range from 0 (no impairment) to 6 (severely impaired). The minimum clinically important difference is 0.5 points.

[c] Patient rated overall response to therapy after two weeks of treatment. Percent reporting moderate or significant improvement. P value describes overall test comparing groups over the full 7 point Likert scale.

[d] Patients recorded extent to which their symptoms interfered with their daily activity on an 11-point scale (0 = no interference, 10 = maximal interference).

Combination Intranasal Corticosteroid Plus Nasal Antihistamine Versus Intranasal Corticosteroid and Nasal Antihistamine

Appendix Table C58. Trial description: combination nasal selective antihistamine plus intranasal corticosteroid versus intranasal corticosteroid and nasal antihistamine

Author, Year	Location, Site(s)	Enrollment/ Treatment Duration	Funding/ Author Industry Disclosures	N	Inclusion Criteria	Exclusion Criteria[a]	Rescue Rx	Objective Diagnosis	Run in Period	Pollen Count	Patient Blinding	Assessor Blinding
Carr, 2012 (Trial 1)	N.America Multiple	March 2008 2 weeks	Industry Yes	622	Minimum SAR severity and duration	SAR meds/- Other meds Chronic asthma Infection Deformities	No	•	•		•	•
Carr, 2012 (Trial 2)	N.America Multiple	August 2008 2 weeks	Industry Yes	576	Minimum SAR severity and duration	SAR meds/- Other meds Chronic asthma Infection Deformities	No	•	•		•	•
Carr, 2012 (Trial 3)	N.America Multiple	April 2009 2 weeks	Industry Yes	1343	Minimum SAR severity	SAR meds/- Other meds Chronic asthma	No	•	•		•	•

Author, Year	Location, Site(s)	Enrollment/ Treatment Duration	Funding/ Author Industry Disclosures	N	Inclusion Criteria	Exclusion Criteria[a]	Rescue Rx	Objective Diagnosis	Run in Period	Pollen Count	Patient Blinding	Assessor Blinding
					and duration	Infection Deformities						
Hampel, 2010	N.America Multiple	January 2007 2 weeks	Industry Yes	459	Minimum SAR severity and duration	SAR meds/- Other meds Infection Deformities	No	•	•		•	•
Ratner, 2008	N.America Multiple	December 2005 2 weeks	Industry Yes	151	Minimum SAR severity and duration	SAR meds/+ Other meds	No	•	•	•	•	•

N = patients randomized to comparator groups of interest; SAR = seasonal allergic rhinitis.

[a] +, -, or NR indicates whether FDA-recommended washout periods were required (+), were not required (-), or were not reported (NR) for restricted SAR medications prior to trial entry.

Appendix Table C59. Patient characteristics: combination nasal selective antihistamine plus intranasal corticosteroid versus intranasal corticosteroid and nasal antihistamine

Author, Year	Drug, Dose/Day	N	Mean Age, years	Sex, % female	Race, %	Disease Duration, years	Mean Baseline NSS[a]
Carr, 2012 (Trial 1)	Azelastine 548 mcg/ Fluticasone propionate 200 mcg	207	37.3 (14.1)	68.6	White: 78.3	21.7 (13.2)	C: 5.1 (0.8) R: 4.5 (1.0) S: 4.0 (1.3) I: 4.6 (1.0) TNSS: 18.3 (3.0)
	Azelastine 548 mcg	208	36.2 (14.6)	62.5	White: 77.9	21.6 (13.6)	C: 5.1 (0.8) R: 4.5 (1.2) S: 4.0 (1.3) I: 4.5 (1.2) TNSS: 18.2 (3.5)
	Fluticasone propionate 200 mcg	207	38.6 (14.1)	61.4	White: 77.8	21.3 (13.5)	C: 5.0 (0.9) R: 4.6 (1.0) S: 4.1 (1.2) I: 4.5 (1.1) TNSS: 18.2 (3.2)
Carr, 2012 (Trial 2)	Azelastine 548 mcg/ Fluticasone propionate 200 mcg	193	38.8 (14.1)	65.3	White: 79.8	21.5 (13.5)	C: 5.1 (0.9) R: 4.5 (1.1) S: 4.1 (1.3) I: 4.5 (1.1) TNSS: 18.2 (3.3)
	Azelastine 548 mcg	194	38.2 (13.5)	66.0	White: 78.9	19.7 (13.1)	C: 5.1 (0.8) R: 4.5 (1.1) S: 4.2 (1.3) I: 4.7 (1.1) TNSS: 18.5 (3.1)

Author, Year	Drug, Dose/Day	N	Mean Age, years	Sex, % female	Race, %	Disease Duration, years	Mean Baseline NSS[a]
	Fluticasone propionate 200 mcg	189	37.0 (13.6)	64.0	White: 74.1	21.1 (13.7)	C: 5.0 (0.8) R: 4.6 (1.0) S: 4.2 (1.3) I: 4.8 (0.9) TNSS: 18.6 (2.9)
Carr, 2012 (Trial 3)	Azelastine 548 mcg/ Fluticasone propionate 200 mcg	448	35.6 (14.5)	61.8	White: 81.3	20.4 (13.0)	C: 5.3 (0.7) R: 4.7 (1.0) S: 4.5 (1.2) I: 4.9 (0.9) TNSS: 19.4 (2.4)
	Azelastine 548 mcg	445	36.4 (14.8)	60.9	White: 80.2	19.5 (12.9)	C: 5.3 (0.7) R: 4.8 (0.9) S: 4.5 (1.1) I: 4.9 (0.9) TNSS: 19.5 (2.5)
	Fluticasone propionate 200 mcg	450	34.2 (14.5)	62.2	White: 79.1	19.6 (12.5)	C: 5.3 (0.7) R: 4.8 (0.9) S: 4.5 (1.2) I: 4.9 (0.9) TNSS: 19.4 (2.4)
Hampel, 2010	Azelastine 548 mcg/ Fluticasone propionate 200 mcg	153	39.5 Range: 12-73	63.4	White: 86.3 Black: 9.8 Asian: 2.6 Other: 1.3	18.7 Range: 3-64	TNSS: 18.8 (9-24)[b]
	Azelastine 548 mcg	152	39.5 Range: 12-74	63.8	White: 88.8 Black: 9.9 Asian: 0.0 Other: 1.3	19.0 Range: 2-61	TNSS: 18.1 (10-24)[b]
	Fluticasone propionate 200 mcg	153	38.1 Range: 12-74	66.2	White: 86.1 Black: 10.6 Asian: 2.0 Other: 1.3	18.4 Range: 3-57	TNSS: 18.3 (8-24)[b]
Ratner, 2008	Azelastine 8 puffs/ Fluticasone propionate 200 mcg	52	36.0 Range: 13-70	63.5	White: 78.8 Black: 3.8 Hispanic: 15.4 Asian: 1.9 Other: 0	16.2 Range: 4-40	C: 5.4 (0.6) R: 4.9 (1.0) S: 4.5 (1.2) I: 4.7 (1.0) TNSS: 19.5 (3.0)
	Azelastine 8 puffs	49	38.4 Range: 12-73	55.1	White: 73.5 Black: 10.2 Hispanic: 14.3 Asian: 0 Other: 2.0	19.2 Range: 3-50	C: 5.5 (0.5) R: 4.9 (0.8) S: 4.5 (1.1) I: 4.8 (0.8) TNSS: 19.7 (2.1)
	Fluticasone propionate 200 mcg	50	37.4 Range: 12-72	70.0	White: 64.0 Black: 4.0 Hispanic: 26.0 Asian: 6.0 Other: 0	15.7 Range: 3-51	C: 5.5 (0.4) R: 5.0 (1.0) S: 4.3 (1.3) I: 4.8 (1.3) TNSS: 19.6 (2.7)

C = Congestion; I = itching; n= patients randomized or assigned to comparator groups of interest; NSS = nasal symptom score; R = rhinorrhea; S = sneezing; TNSS = total nasal symptom score.

Values are presented as mean (standard deviation) unless otherwise noted.

[a] Individual symptoms rated on a scale from 0 (no symptoms) to 3 (severe symptoms) for each individual symptom. Morning and evening scores were summed (maximum individual symptom = 6, maximum TNSS = 24).

[b] Interquartile range.

Appendix Table C60. USPSTF quality assessment: combination nasal selective antihistamine plus intranasal corticosteroid versus intranasal corticosteroid and nasal antihistamine

Author, year	Assembled comparable groups	Maintained comparable groups	Minimal follow-up loss	Measurements equal, valid, and reliable	Interventions clearly defined	Important outcomes considered	Appropriate analysis of results	Overall USPSTF rating
Carr, 2012 (Trial 1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Carr, 2012 (Trial 2)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Carr, 2012 (Trial 3)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Hampel, 2010	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good
Ratner, 2008	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Good

USPSTF = United States Preventive Services Task Force.

Combination Oral Selective Antihistamine Plus Oral Decongestant Versus Oral Selective Antihistamine

Appendix Table C61. Trial description: combination oral selective antihistamine plus oral decongestant versus oral selective antihistamine

Author, Year	Location, Site(s)	Enrollment/ Treatment Duration	Funding/Author Industry Disclosures	N	Inclusion Criteria	Exclusion Criteria	Rescue Medication Use	Objective Diagnosis	Run in Period	Pollen Count	Patient Blinding	Assessor Blinding
Bronsky, 1995	N.America Multiple	Fall 1989 2 weeks	Industry Yes	438	Minimum SAR severity and duration	SAR meds Other meds Chronic asthma Pregnancy Infection	No	•	•	•	•	•
Chervinsky, 2005	N.America Multiple	2 weeks	NR Yes	428	Minimum SAR severity and duration	SAR meds Pregnancy Infection	No	•	•	•	•	•
Grosclaude, 1997	Europe Multiple	March1992 2 weeks	NR Yes	458	Minimum SAR	SAR meds Other meds	Yes	•		•	•	•

Author, Year	Location, Site(s)	Enrollment/ Treatment Duration	Funding/Author Industry Disclosures	N	Inclusion Criteria	Exclusion Criteria	Rescue Medication Use	Objective Diagnosis	Run in Period	Pollen Count	Patient Blinding	Assessor Blinding
					severity and duration	Pregnancy Infection Deformities						
Grubbe, 2009	N.America Multiple	2.1 weeks	Industry Yes	398	Minimum SAR severity and duration	SAR meds Chronic asthma Pregnancy Infection Deformities	No	•	•	•	•	•
Pleskow, 2005	N.America Multiple	2000 2 weeks	Industry Yes	744	Minimum SAR severity and duration	SAR meds Pregnancy Infection Deformities	No	•	•	•	•	•
Schenkel, 2002	N.America Multiple	2.1 weeks	Industry NR	676	Minimum SAR duration	SAR meds Chronic asthma Pregnancy	No	•	•		•	•
Sussman, 1999	N.America Multiple	2.4 weeks	Industry Yes	433	Minimum SAR severity	SAR meds Pregnancy Infection	No	•	•	•	•	•

N = patients randomized to comparator groups of interest; NR = not reported; SAR = seasonal allergic rhinitis.

Appendix Table C62. Patient characteristics: combination oral selective antihistamine plus oral decongestant versus oral selective antihistamine

Author, Year	Drug, Dose/Day	N	Mean Age, years	Sex, % female	Race, %	Disease Duration, years	Mean Baseline NSS[a]
Bronsky, 1995	Loratadine 10 mg/ Pseudoephedrine 240 mg	221	Median: 30 Range: 12-82	53.8	White: 87.3 Black: 5.7 Other: 7.1	Median: 15 Range: 2-47	
	Loratadine 10 mg	217	Median: 30 Range: 12-60	57.5	White: 87.3 Black: 4.2 Other: 8.5	Median: 15 Range: 1-50	
Chervinsky, 2005	Desloratadine 5 mg/ Pseudoephedrine 240 mg	214	36	64	Unspecified	18	C: 2.55
	Desloratadine 5 mg	214	37	69	Unspecified	19	C: 2.56
Grosclaude, 1997	Cetirizine 10 mg/ Pseudoephedrine 240 mg	227	31 Range: 9-65	47	Unspecified	9	C: 2.29 R: 1.99 S: 1.93 I: 1.71
	Cetirizine 10 mg	231	32 Range: 12-66	52	Unspecified	8	C: 2.28 R: 2.07 S: 2.02 I: 1.76

Author, Year	Drug, Dose/Day	N	Mean Age, years	Sex, % female	Race, %	Disease Duration, years	Mean Baseline NSS[a]
Grubbe, 2009	Desloratadine 5 mg/ Pseudoephedrine 240 mg	200	34.9 Range: 12-74	60.5	White: 81 Black: 12 Hispanic: 4 Asian: 2 Other: 2	19.6 Range: 2-69	C: 2.47
	Desloratadine 5 mg	198	37 Range: 12-76	65.2	White: 77 Black: 13 Hispanic: 7 Asian: 2 Other: 2	17.9 Range: 2-56	C: 2.50
Pleskow, 2005	Desloratadine 5 mg/ Pseudoephedrine 240 mg	372	34 Range: 12-78	59.4	White: 77 Black: 11 Hispanic: 8 Asian: 3 Other: <1	16.5 Range: 2-51	
	Desloratadine 5 mg	372	35 Range: 12-76	65.9	White: 80 Black: 12 Hispanic: 7 Asian: <1 Other: 0	18.0 Range: 2-55	
Schenkel, 2002	Desloratadine 5 mg Pseudoephedrine 240 mg	336	34.2	64	Unspecified	17.5	C: 2.56
	Desloratadine 5 mg	340	34.8	60	Unspecified	18.3	C: 2.57
Sussman, 1999	Fexofenadrine 120 mg/ Pseudoephedrine 240 mg	215	33.0 (11.41) Range: 13-66	57.7	White: 86.5 Black: 6.0 Asian: 5.6 Other: 1.9	14.9 (9.65) Range: 2.0-55.0	C: 2.32 (SE: 0.03)
	Fexofenadrine 120 mg	218	34.9 (12.35) Range: 12-64	56.9	White: 85.3 Black: 6.0 Asian: 8.3 Other: 0.5	15.2 (9.79) Range: 2.0-46.2	C: 2.36 (SE: 0.03)

C = Congestion; I = itching; n= patients randomized to comparator groups of interest; NSS = nasal symptom score; R = rhinorrhea; S = sneezing, SE = standard error.

Values are presented as mean (standard deviation) unless otherwise noted.

[a] Individual symptoms rated on a scale from 0 (no symptoms) to 3 (severe symptoms) in all cases except Sussman (1999) where the maximum was 4.

Comparative Harms

Appendix Table C63. Comparative harms: oral selective antihistamine versus oral nonselective antihistamine

Author, Year	Treatment Group	N/n	Sedation	Headache
Dockhorn, 1987	Loratadine 10 mg	111/108	MOD: 6.3	MOD: 10.8

Author, Year	Treatment Group	N/n	Sedation	Headache
			SEV: 0	
	Clemastine 2 mg	109/105	MOD: 19.3	MOD: 9.2
			SEV: 2.8	
Harvey, 1996	Cetirizine 5-10mg	43/39	11.6	
	Chlorpheniramine 16mg	43/40	40.5	
Kemp, 1987	Loratadine 10 mg	108/108	15	11.3
	Clemastine 2 mg	101/101	23	6.8

N/n = Number of patients randomized/number of patients analyzed.

Symptom severity is an unspecified percentage unless otherwise noted, or MILD, MOD = moderate, or SEV = severe.

Appendix Table C64. Comparative harms: oral selective antihistamine versus nasal selective antihistamine

Author, year	Treatment Group	N/n	Sedation	Headache	Nasal Discomfort	Bitter Aftertaste	Hypertension	Insomnia	Nosebleeds
Berger, 2003[a]	Desloratadine 5mg[b]	111/111	1	3		0			
	Azelastine 4 puffs/nostril[c]	108/106	2	0		11			
Berger, 2006	Cetirizine 10mg	175/175	SEV: 0	SEV: 0			SEV: 0		
			2	2		0			2
	Azelastine 4 puffs/nostril	179/179	SEV: 0.6	SEV: 0.6			SEV: 0.6		
			2	2		7.7			2
Charpin, 1995	Cetirizine 10mg	69[b]	SEV: 1						
			7	1					
	Azelastine 2 puffs/nostril	67[b]	2	1					
Corren, 2005	Cetirizine 10mg	155/155	SEV: 0.6						
			1.9	1	1	1			1
	Azelastine 4 puffs/nostril	152/151						SEV: 0.7	
			1.3	2.6	1.3	3.3			2
Gambardella, 1993	Loratadine 10mg[d]	15	SEV: 0						
	Azelastine 560 mcg[e]	15	SEV: 6.7						

N/n = Number of patients randomized/number of patients analyzed.

Symptom severity is an unspecified percentage unless otherwise noted, or MILD, MOD = moderate, or SEV = severe.

[a] Other: Chest pain: 0.9, Lightheadedness: 0.9.

[b] 4 discontinuations due to events (headache, pregnancy, cough, elevated blood pressure, fatigue).

[c] 1 AE discontinuation (vomiting and GI distress).

[d] Paper reported that adverse events were not serious but nasal congestion in this group caused 1 person to withdraw from study.

[e] Paper reported that adverse events were not serious but epigastralgia and urticaria in this group caused 1 person to withdraw from study.

Appendix Table C65. Comparative harms: oral selective antihistamine versus intranasal corticosteroids

Author, Year	Treatment Group	N/n	Sedation	Headache	Atrophy	Burning	Anxiety	Nosebleeds	Odor	Fungal
Anolik, 2008	Loratadine 10 mg	181/175	MOD: 2	MOD: 8		MOD: 0		MOD:1		
	Mometasone furoate 200 mcg	176/166	MOD: 1	MOD: 6		MOD: 0		MOD: 1		
Bernstein, 2004	Loratadine 10 mg	158		18						
	Fluticasone propionate 200 mcg	158		17						
Condemi, 2000	Loratadine 10 mg[a]	174		15.3						
	Triamcinolone acetonide 220 mcg[b]	174		14.3						
Gawchik, 1997	Loratadine 10 mg	150/150		18			MOD: NR	MILD: NR		
	Triamcinolone acetonide 220 mcg	150/150		22			MOD: 0.7	MILD: 0.7		
Jordana, 1996	Loratadine 10 mg[c]	119/119		25	0			4		0
	Fluticasone propionate 200 mcg[d]	121/121		42	0			7		0
Ratner, 1998[e]	Loratadine 10 mg	150/150						≤1		
	Fluticasone propionate 200 mcg	150/150								
Schoenwetter, 1995	Loratadine 10 mg	149/140		35						
	Triamcinolone acetonide 220 mcg	149/134		43						

Vervloet, 1997[f]	Cetirizine 10 mg	118	5.1				0.8
	Fluticasone propionate 200 mcg	120			0.8		

N/n = Number of patients randomized/number of patients analyzed; NR = not reported.

Symptom severity is an unspecified percentage unless otherwise noted, or MILD, MOD = moderate, or SEV = severe.

[a] 4 patients discontinued the study. They reported 6 adverse events; three of these events (headache, rhinitis, and chest pain) were classified as possibly or probably related to study drug and occurred in one patient.

[b] Three loratadine patients withdrew due to adverse events. They reported one adverse event each, none of which were related to study drug.

[c] Headache separated out as mild/mod/severe but they are n reports, not n patients. There were statistically more headache in Fluticasone propionate group (p=0.003, test type not specified).

[d] Headache separated out as mild/mod/severe but they are n reports, not n patients. There were statistically more headache in Fluticasone propionate group (p=0.003, test type not specified).

[e] Adverse events not reported by treatment group.

[f] Number of reports.

Appendix Table C66. Comparative harms: oral selective antihistamine versus oral decongestant

Author, Year	Treatment Group	N/n	Sedation	Headache	Palpitations	Insomnia	Anxiety
Bronsky, 1995	Loratadine 10 mg	217/212	4	23		1	1
	Pseudoephedrine 240 mg	220/211	5	26		9	4
Chervinsky, 2005[a]	Desloratadine 5 mg	214/200		8		2	
	Pseudoephedrine 240 mg	222/204		6		11	
Grosclaude, 1997	Cetirizine 10 mg	231/231	6.1	4.3		0	0
	Pseudoephedrine 240 mg	226/226	3.1	7.1		11.1	2.2
Grubbe, 2009	Desloratadine 5 mg [bc]	198		7.1		3.0	
	Pseudoephedrine 240 mg[de]	200		12.0		14.0	
Pleskow, 2005	Desloratadine 5 mg	372	4	6	1	1	1
	Pseudoephedrine 240 mg	377	5	6	3	7	3
Schenkel, 2002[f]	Desloratadine 5 mg	340/340	2.1	1.5		0.6	0.6
	Pseudoephedrine 240 mg	342/342	2.0	3.2		7.9	0.9
Sussman, 1999[g]	Fexofenadrine 120 mg	218/218	0	7.3	0	1.8	0

Pseudoephedrine 240 mg	218/218	1.4	12.4	2.8	12.8	1.4

N/n = Number of patients randomized/number of patients analyzed.

Symptom severity is an unspecified percentage unless otherwise noted, or MILD, MOD = moderate, or SEV = severe.

[a] Unclear if proportions of patients, or reports.

[b] Other: no increased heart rate reported.

[c] No serious or unexpected adverse events reported; 9 patients discontinued due to adverse events.

[d] Other: increased heart rate: 3.0 BPM.

[e] No serious or unexpected adverse events reported; 4 patients discontinued due to adverse events.

[f] Number of reports.

[g] Number of reports.

Appendix Table C67. Comparative harms: oral selective antihistamine versus leukotriene receptor antagonist

Author, year	Treatment Group	N/n	Headache
Baena-Cagnani, 2003	Desloratadine 5mg	311	3.5
	Montelukast 10mg	311	3.5
Nayak, 2002	Loratadine 10mg	155	3
	Montelukast 10mg	301	4
Meltzer, 2000	Loratadine 10mg	92/90	8.7
	Montelukast 10mg	95/94	5.3
Philip, 2002	Loratadine 10mg	602	3.5
	Montelukast 10mg	348	3.2

N/n = Number of patients randomized/number of patients analyzed.

Symptom severity is an unspecified percentage unless otherwise noted, or MILD, MOD = moderate, or SEV = severe.

Appendix Table C68. Comparative harms: intranasal corticosteroids versus nasal selective antihistamine

Author, Year	Treatment Group	N/n	Sedation	Headache	Dryness	Burning	Nasal Discomfort	Bitter Aftertaste	Nosebleeds
Carr, 2012 (Trial 1)	Fluticasone propionate 200mcg	207/207		2.4			1	1	2.4
	Azelastine 548mcg	208/208		0.5			1.9	3.4	1

Author, Year	Treatment Group	N/n	Sedation	Headache	Dryness	Burning	Nasal Discomfort	Bitter Aftertaste	Nosebleeds
Carr, 2012 (Trial 2)	Fluticasone propionate 200mcg	189/189		2.1			0	0.5	1.6
	Azelastine 548mcg	194/194		2.1			1	7.2	1.6
Carr, 2012 (Trial 3)	Fluticasone propionate 200mcg	450/450	0	1.3				0.2	1.1
	Azelastine 548mcg	445/445	0.4	2				5	1.1
Ghimire, 2007	Azelastine 1120mcg	25			4	4	16	4	
	Beclomethasone dipropionate 400mcg	25			12	0	8	0	
Hampel, 2010	Azelastine 548mcg	152/152	0.7	1.3			0	2	2
	Fluticasone propionate 200mcg	153/153	0.7	3.9			0.7	0	3.9
Kaliner, 2009	Olopatadine 4 puffs/nostril	65/65	1.5					3.1	4.6
	Fluticasone propionate 200mcg[a]	65/65	0					0	0
Newson-Smith, 1997	Azelastine 1120mcg[bc]	83		2.4		1.2	0	6	2.4
	Beclomethasone dipropionate 400mcg[de]	83		7.2		2.4	1.2	0	1.2
Ratner, 2008[f]	Azelastine 4 puffs/nostril	49/49		4.1				8.2	
	Fluticasone propionate 200mcg	50/49		4				2	

N/n = Number of patients randomized/number of patients analyzed.

Symptom severity is an unspecified percentage unless otherwise noted, or MILD, MOD = moderate, or SEV = severe.

[a] Other: Ocular injection: 1.5.

[b] Number of reports. Only bitter aftertaste considered tx-related.

[c] Other: Loss of smell: 0.

[d] Number of reports.

[e] Other: Loss of smell: 1.2.

[f] Sample of reports.

Appendix Table C69. Comparative harms: intranasal corticosteroid versus nasal chromone

Author, year	Treatment Group	N/n	Sedation	Headache	Stinging	Dryness	Burning	Nasal Discomfort	Bitter Aftertaste	Nosebleeds
Bjerrum, 1985	Budesonide 400 mcg	22/21		MILD: 4.5		MILD: 4.5		MILD: 0		MILD: 4.5

Author, year	Treatment Group	N/n	Sedation	Headache	Stinging	Dryness	Burning	Nasal Discomfort	Bitter Aftertaste	Nosebleeds
				SEV: 4.5				SEV: 14.3		SEV: 4.5
	Cromolyn 26 mg	21/21		MILD: 0		MILD: 19		MILD: 14.3		MILD: 0
					SEV: 19		SEV:14.3			
Bousquet, 1993[a]	Fluticasone propionate 200 mcg	110/73					1.4	2.7		
	Cromolyn 20.8 mg	108/87				1.1		1.1		
Lange, 2005[b]	Mometasone furoate 200 mcg	41/40	2.4	43.9				7.3		
	Cromolyn 22.4 mg	42/42	0	40.5				11.9		
Welsh, 1987	Cromolyn 41.6 mg	30/28		16.7		0	0	3.3		3.3
	Flunisolide 200 mcg	30/30		3.3	26.7	3.3	3.3		0	0
	Beclomethasone dipropionate 336 mcg	30/28		16.7	0	0	3.3	3.3		0

N/n = Number of patients randomized/number of patients analyzed.

Symptom severity is an unspecified percentage unless otherwise noted, or MILD, MOD = moderate, or SEV = severe.

[a] Number of reports.

[b] Percent of events, not patients.

Appendix Table C70. Comparative harms: intranasal corticosteroid versus leukotriene receptor antagonist

Author, Year	Treatment Group	N/n	Headache	Palpitations	Anxiety	Nosebleeds
Martin, 2006	Fluticasone propionate 200 mcg	367/364	MOD: 4			MOD: 3
				SEV: 0.3	SEV: 0.3	
	Montelukast 10 mg	369/366	MOD: 6			MOD: 4
			SEV: 0.3	SEV: 0		
Nathan, 2005	Fluticasone propionate 200 mcg[a]	291/291	9			3
	Montelukast 10 mg[b]	282/282	14			2
Ratner, 2003	Fluticasone propionate 200 mcg[c]	353/353	MOD: 5			MOD: 2
	Montelukast 10 mg[c]	352/352	MOD: 7			MOD: 1

N/n = Number of patients randomized/number of patients analyzed.

Symptom severity is an unspecified percentage unless otherwise noted, or MILD, MOD = moderate, or SEV = severe.

[a] Adrenal: geometric mean urinary cortisol @ week 4 = 15.67 mcg/24h (n=58).

[b] Adrenal: geometric mean urinary cortisol @ week 4 = 11.99 mcg/24h (n=51).

[c] Nasal signs and symptoms were not captured as adverse events. Most adverse events reported were mild to moderate Sample, these are adverse events reported in >1% in either group. No deaths or serious AEs reported (discontinuations not broken down by treatment allocations).

Appendix Table C71. Comparative harms: combination oral selective antihistamine plus intranasal corticosteroid versus intranasal corticosteroid

Author, Year	Treatment Group	N/n	Sedation	Headache	Burning	Nosebleeds
Anolik, 2008	Mometasone furoate 200 mcg/ Loratadine 10 mg	169/169	MOD: 2	MOD: 4	MOD: 2	MOD: 4
	Mometasone furoate 200 mcg	176/176	MOD: 1	MOD: 6	MOD: 0	MOD: 1
Barnes, 2006	Fluticasone propionate 200 mcg	31/27	3.7			
	Fluticasone propionate 200 mcg / Levocetirizine 5 mg	31/27				MILD: 3.7
Benincasa, 1994[a]	Fluticasone propionate 200 mcg	227/227	SEV: 0.9	SEV: 0.4		
	Fluticasone propionate 200 mcg/ Cetirizine 10 mg	227/227	SEV: 1.3	SEV: 0.4		SEV: 0.4
Ratner, 1998	Loratadine 10 mg	150/150				≤1[b]
	Fluticasone propionate 200 mcg	150/150				
	Loratadine 10 mg/ Fluticasone propionate 200 mcg	150/150				

N/n = Number of patients randomized/number of patients analyzed.

Symptom severity is an unspecified percentage unless otherwise noted, or MILD, MOD = moderate, or SEV = severe.

[a] Number of reports.

[b] Across all treatment groups. Adverse events are not otherwise broken down by group.

Appendix Table C72. Comparative harms: combination oral selective antihistamine plus intranasal corticosteroid versus oral selective antihistamine

Author, Year	Treatment Group	N/n	Sedation	Headache	Burning	Nosebleeds
Anolik, 2008	Mometasone furoate 200 mcg/ Loratadine 10 mg	169/166	MOD: 2	MOD: 4	MOD: 2	MOD: 4
	Loratadine 10 mg	181/175	MOD: 2	MOD: 8	MOD: 0	MOD: 1
Benincasa, 1994[a]	Fluticasone propionate 200 mcg	227/227	SEV: 1.3	SEV: 0.4		SEV: 0.4
	Fluticasone propionate 200 mcg/ Cetirizine 10 mg	227/227				

Ratner, 1998	Loratadine 10 mg	150/150	≤1[b]
	Fluticasone propionate 200 mcg	150/150	
	Loratadine 10 mg/ Fluticasone propionate 200 mcg	150/150	

N/n = Number of patients randomized/number of patients analyzed.

Symptom severity is an unspecified percentage unless otherwise noted, or MILD, MOD = moderate, or SEV = severe.

[a] Number of reports.

[b] Across all treatment groups. Adverse events are not otherwise broken down by group.

Appendix Table C73. Comparative harms: combination intranasal corticosteroid plus nasal antihistamine versus intranasal corticosteroid

Author, Year	Drug, Dose/Day	N/n	Sedation	Headache	Nasal Discomfort	Bitter Aftertaste	Nosebleeds
Carr, 2012 (Trial 1)	Azelastine 548 mcg/ Fluticasone propionate 200 mcg	207/ 207		0.5	1	2.4	1
	Fluticasone propionate 200 mcg	207/ 207		2.4	1	1	2.4
Carr, 2012 (Trial 2)	Azelastine 548 mcg/ Fluticasone propionate 200 mcg	193/ 193		2.6	0.5	2.1	1.5
	Fluticasone propionate 200 mcg	189/ 189		2.1	0	0.5	1.6
Carr, 2012 (Trial 3)	Azelastine 548 mcg/ Fluticasone propionate 200 mcg	448/ 448	1.1	1.3		4.7	1.8
	Fluticasone propionate 200 mcg	450/ 450	0	1.3		0.2	1.1
Hampel, 2010	Azelastine 548 mcg/ Fluticasone propionate 200 mcg	153/ 153	0.7	2.6	1.3	7.2	3.9
	Fluticasone propionate 200 mcg	153/ 153	0.7	3.9	0.7	0	3.9
Ratner, 2008[a]	Azelastine 8 puffs/ Fluticasone propionate 200 mcg	52/ 52		5.8		13.5	
	Fluticasone propionate 200 mcg	50/ 49		4		2	

N/n = Number of patients randomized/number of patients analyzed.

Symptom severity is an unspecified percentage unless otherwise noted, or MILD, MOD = moderate, or SEV = severe.

[a] Sample of reports.

Appendix Table C74. Comparative harms: combination intranasal corticosteroid plus nasal antihistamine versus nasal antihistamine

Author, Year	Drug, Dose/Day	N/n	Sedation	Headache	Nasal Discomfort	Bitter Aftertaste	Nosebleeds
Carr, 2012 (Trial 1)	Azelastine 548 mcg/ Fluticasone propionate 200 mcg	207/ 207		0.5	1	2.4	1

	Azelastine 548 mcg	208/ 208		0.5	1.9	3.4	1.9
Carr, 2012 (Trial 2)	Azelastine 548 mcg/ Fluticasone propionate 200 mcg	193/ 193		2.6	0.5	2.1	1.5
	Azelastine 548 mcg	194/ 194		2.1	1	7.2	1.6
Carr, 2012 (Trial 3)	Azelastine 548 mcg/ Fluticasone propionate 200 mcg	448/ 448	1.1	1.3		4.7	1.8
	Azelastine 548 mcg	445/ 445	0.4	2		5.1	1.1
Hampel, 2010	Azelastine 548 mcg/ Fluticasone propionate 200 mcg	153/ 153	0.7	2.6	1.3	7.2	3.9
	Azelastine 548 mcg	152/ 152	0.7	1.3	0	2	2.6
Ratner, 2008[a]	Azelastine 8 puffs/ Fluticasone propionate 200 mcg	52/ 52		5.8		13.5	
	Azelastine 8 puffs	49/ 49		4.1		8.2	

N/n = Number of patients randomized/number of patients analyzed.

Symptom severity is an unspecified percentage unless otherwise noted, or MILD, MOD = moderate, or SEV = severe.

[a] Sample of reports.

Appendix Table C75. Comparative harms: combination oral selective antihistamine plus oral decongestant versus oral selective antihistamine

Author, Year	Treatment Group	N	Sedation	Headache	Palpitations	Insomnia	Anxiety	Other: Chest Pain
Bronsky, 1995	Loratadine 10 mg/ Pseudoephedrine 240 mg	221/212	6	25		5	5	
	Loratadine 10 mg	217/212	4	23		1	1	
Chervinsky, 2005[a]	Desloratadine 5 mg/ Pseudoephedrine 240 mg	214/200		8		10		
	Desloratadine 5 mg	214/200		8		2		
	Pseudoephedrine 240 mg	222/204		6		11		
Grosclaude, 1997	Cetirizine 10 mg/ Pseudoephedrine 240 mg	230/230	6.1	4.3		0	0	
	Cetirizine 10 mg	231/231	3.1	7.1		11.1	2.2	
Grubbe, 2009	Desloratadine 5 mg/ Pseudoephedrine 240 mg[bc]	200		6.5		9.5		
	Desloratadine 5 mg[de]	198		7.1		3.0		
Pleskow, 2005	Desloratadine 5 mg/ Pseudoephedrine 240 mg	372	6	5	1	5	2	
	Desloratadine 5 mg	372	4	6	1	1	1	
Schenkel, 2002[f]	Desloratadine 5 mg/ Pseudoephedrine 240 mg	336/336	3	3		4.8	2.7	0.3[g]

	Desloratadine 5 mg	340/340	2.1	1.5		0.6	0.6
Sussman, 1999[h]	Fexofenadrine 120 mg/ Pseudoephedrine 240 mg	215/215	0	7.3	0	1.8	0
	Fexofenadrine 120 mg	218/218	1.4	12.4	2.8	12.8	1.4

N/n = Number of patients randomized/number of patients analyzed.

Symptom severity is an unspecified percentage unless otherwise noted, or MILD, MOD = moderate, or SEV = severe.

[a] Unclear if proportions of patients, or reports.

[b] Other: Increased heart rate 3.9 BPM.

[c] No serious or unexpected adverse events reported; 7 patients discontinued due to adverse events.

[d] Other: no increased heart rate reported.

[e] No serious or unexpected adverse events reported; 9 patients discontinued due to adverse events.

[f] Number of reports.

[g] Assigned Severe category by abstractor.

[h] Number of reports.

Appendix Table C76. Comparative harms: pediatric oral nonselective antihistamine versus oral selective antihistamine

Author, Year	Treatment Group	N/n	Sedation	Headache	Nosebleeds
Tinkelman, 1996	Cetirizine 10 mg	62/62	MOD: 3.6	MOD: 3.2	
	Chlorpheniramine 2 mg	63/63	MOD: 7.9	MOD: 6.3	
Boner, 1989	Loratadine 5 mg	21			MOD: 9.5
			0		
	Dexchlorpheniramine 3 mg	19			MILD: 10.5
			21.1		

N/n = Number of patients randomized/number of patients analyzed.

Symptom severity is an unspecified percentage unless otherwise noted, or MILD, MOD = moderate, or SEV = severe.

Comparative Effectiveness and Harms of SAR Treatments in Children Younger than 12 Years of Age

Appendix Table C77. Trial description: oral selective antihistamine versus oral nonselective antihistamine

Author, Year	Location/ Site(s)	Enrollment/ Treatment Duration	Funding/ Author Industry Disclosures	N	Inclusion Criteria	Exclusion Criteria[a]	Rescue Medication Use	Objective Diagnosis	Run-in \Period	Pollen Counts Measured	Patient Blinding	Assessor Blinding
Tinkelman, 1996	N. America Multiple	2 weeks	Industry NR	126	Minimum SAR severity	SAR meds/NR Other meds Infection Deformities	No	•			Open Label trial	
Boner, 1989	Europe	April 1986 2 weeks	Industry Yes	40	Minimum SAR severity	SAR meds/- Chronic asthma Immunotherapy Deformities	No	•		•		

N = Patients randomized to comparator groups of interest; NR = not reported; SAR = seasonal allergic rhinitis.

[a] +, -, or NR indicates whether FDA-recommended washout periods were required (+), were not required (-), or were not reported (NR) for restricted SAR medications prior to trial entry.

Appendix Table C78. Patient characteristics: oral selective antihistamine versus oral nonselective antihistamine

Author, Year	n	Drug, Dose/Day	Mean Age, years	Sex, % Female	Race, %	Mean Disease Duration, years	Mean Baseline NSS
Tinkelman, 1996	126	Cetirizine 10 mg[a]	8.6 Range: 6-11	35.5	White: 87.1 Other: 12.9	5.8 (2.6)	NR
		Chlorpheniramine 2 mg	8.7 Range: 6-11	30.2	White: 77.8 Other: 22.2	5.2 (2.6)	NR
Boner, 1989	40	Loratadine 5 mg[a]	7.6 (2.9)	33.3	Unspecified	3.2 (1.3)	NR
		Dexchlorpheniramine 3 mg[a]	7.8 (3.0)	36.8	Unspecified	2.5 (1.8)	NR

n = Patients randomized to comparator groups of interest; NR = not reported; NSS = nasal symptom score.

Values are presented as mean (standard deviation) unless otherwise noted.

[a] Doses were determined based on body weight.

Appendix Table C79. USPSTF quality assessment: oral selective antihistamine versus oral nonselective antihistamine

Author, year	Assembled comparable groups	Maintained comparable groups	Minimal follow-up loss	Measurements equal, valid, and reliable	Interventions clearly defined	Important outcomes considered	Appropriate analysis of results	Overall USPSTF rating

Author, year	Assembled comparable groups	Maintained comparable groups	Minimal follow-up loss	Measurements equal, valid, and reliable	Interventions clearly defined	Important outcomes considered	Appropriate analysis of results	Overall USPSTF rating
Tinkelman, 1996	Yes	Yes	Yes	No	Yes	Uncertain	No	Poor
Boner, 1989	No	Uncertain	Yes	No	Yes	Yes	No	Poor

USPSTF = United States Preventive Services Task Force.

Appendix Table C80. Nasal symptom outcomes: change from baseline–oral selective antihistamine versus oral nonselective antihistamine

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Congestion	p	Sneezing	p
Tinkelman, 1996	Cetirizine 10 mg[a]	62/62	2	-0.7	NS	-0.5	NS
	Chlorpheniramine 2 mg	63/63		-0.8		-0.5	

N/n = Number of patients randomized to comparator groups of interest/number of patients analyzed; NS= non-significant.

[a] Dose was determined based on body weight.

Appendix Table C81. Eye symptom outcomes–oral selective antihistamine versus oral nonselective antihistamine

Author, Year	Drug, Dose/Day	N/n	Time, weeks	Itching eyes	p	Watering eyes	p
Tinkelman, 1996	Cetirizine 10 mg	62/62	2	-0.6	NS	-0.2	NS
	Chlorpheniramine 2 mg	63/63		-0.7		-0.3	

N/n = number of patients randomized to comparator groups of interest/number of patients analyzed; NS = non-significant.

Appendix D. Data Abstraction Form Elements

Population Form

- Is the reference about adults, children or pregnant women?
    - Adults
    - Children
    - Pregnant women

Study Characteristics Form

- First Author (last name, first name)
- Publication Year
- Study Location
    - North America
    - Europe
    - Asia
    - Other (specify)
    - Multicontinental
- Does the reference have a single or multiple sites?
    - Single
    - Multiple
- Enrollment month, year- XX/XXXX
- Funding
    - Industry
    - Academia
    - Academia
    - Not reported
    - Other
- Were author industry relationships disclosed/identified?
    - Yes
    - No
    - Not Reported
- Study Design
    - RCT
    - Quasi-RCT
    - Controlled (non-randomized) clinical trial
    - Population-based cohort study
    - Case-control study
    - SR/MA
- Intervention N:
    - Total number of patients randomized:
    - Total number of patients analyzed:

- SAR diagnosis objectively confirmed?
    - Yes
    - No
- Inclusion criteria:
    - Minimum SAR severity:
    - Minimum SAR duration:
    - Both:
- Exclusion criteria:
    - SAR medication restrictions
    - Other medication restrictions
    - Chronic asthma
    - Immunotherapy
    - Pregnancy
    - Respiratory infection
    - Anatomical deformities
    - Sleep apnea
    - Other:
- Other symptom-relieving medications allowed?
    - Yes
    - No
- Duration of treatment (weeks)
- Duration of follow-up (weeks)
    - Number of weeks
    - Not reported
- Were pollen counts measured
    - Yes
    - No
- Blinding
    - Patient
    - Assessor
    - Inadequate patient blinding
    - Inadequate assessor blinding
    - Open-label trial (not blinded)
    - Not reported
- Was a VAS scale used?
- Interval NSS definitions
    - Mild
    - Moderate
    - Severe
- Total nasal symptom scale used
    - Sum
    - Mean
- TNSS daily maximum score

Group Characteristics Form

- Group
  - Group One
  - Group Two
  - Group Three
  - Group Four
- Component 1
  - Drug class
    - Intranasal corticosteroid
    - Selective antihistamine, oral
    - Selective antihistamine, nasal
    - Non-selective antihistamine, oral
    - Intranasal anticholinergic
    - Intranasal mast cell stabilizer
    - Oral decongestant
    - Intranasal decongestant
    - Oral LRA
    - Nasal saline
  - Drug dose
  - Frequency
  - Total daily dose
- Component 2
  - Drug class
    - Intranasal corticosteroid
    - Selective antihistamine, oral
    - Selective antihistamine, nasal
    - Non-selective antihistamine, ora
    - Intranasal anticholinergic
    - Intranasal mast cell stabilizer
    - Oral decongestant
    - Intranasal decongestant
    - Oral LRA
    - Nasal saline
  - Drug dose
  - Frequency
  - Total daily dose

Patient Characteristics Form

- Group
  - Group One
  - Group Two
  - Group Three

    - Group Four
- Patient population
- Age
    - Mean
    - Median
    - Range
    - SD
    - IQR
- % Female- XX.X
- % Race- XX.X
    - Mean
    - Median
    - Range
    - SD
    - IQR
    - Other
- Disease duration (years)
    - Mean
    - Median
    - Range
    - SD
    - IQR
    - Other

Symptom Outcomes Form

- Group
    - Group One
    - Group Two
    - Group Three
    - Group Four
- Total number of patients randomized:
- Total number of patients analyzed:
- Outcome measurement type
    - Reflective
    - Instantaneous
    - AM
    - PM
    - Reflective -AM
    - Reflective -PM
    - Instantaneous -AM
    - Instantaneous -PM
    - Other
    a. Not specified
- Time Point
    - 2 weeks

    - 3 weeks
    - 4 weeks
    - 2 months
    - 3 months
    - 4 months
    - 6 months
    - Other
    - Not specified
- Label
    - Endpoint
    - Overall/Mean
    - Relative
    - Interval/Mean
    - Uncertain
- Outcome
    - NSS, congestion
    - NSS, rhinorrhea
    - NSS, sneezing
    - NSS, nasal itching
    - TNSS
    - Asthma
    - TOSS
    - School performance
    - Other medication/rescue med use
- Outcome measure
    - Pre Mean (SD)
    - Pre Median (range)
    - Post Mean (SD)
    - Post Median (range)
    - Change Mean (SD)
    - Change 95% CI
- Cough mentioned?
    - Yes
    - No
- Adherence assessed?
    - Yes (% adherence)
    - No
- Are other outcomes available?

Function and Quality of Life Outcomes Form

- Group
    - Group One
    - Group Two
    - Group Three
    - Group Four

- QoL outcomes mentioned?
    - Yes
    - No
- Total number of patients randomized:
- Total number of patients analyzed:
- Time Point
    - 2 weeks
    - 3 weeks
    - 4 weeks
    - 2 months
    - 3 months
    - 4 months
    - 6 months
    - Other
    - Not specified
- Quality of Life outcomes
    - RQLQ
    - Mini-RQLQ
    - Rhinasthma QLQ
    - Nocturnal RQLQ
    - SF-36
    - PGA
    - Epworth
- Outcome measure
    - Pre Mean (SD)
    - Pre Median (range)
    - Post Mean (SD)
    - Post Median (range)
    - Change Mean (SD)
    - Change 95% CI

Comparisons Form

- Is a statistical test performed?
    - Yes
    - No
- Statistical Test
    - Kruskal-Wallis
    - Mann Whitney U
    - ANOVA
    - Wilcoxon rank sum test
    - Chi-square
    - T-test
    - ANCOVA
    - Other
- Outcome measurement type

    - Reflective
    - Instantaneous
    - AM
    - PM
    - Reflective -AM
    - Reflective -PM
    - Instantaneous -AM
    - Instantaneous -PM
    - Other
    - Not specified
- Time point
    - Pre
    - 2 weeks
    - 3 weeks
    - 4 weeks
    - 2 months
    - 3 months
    - 4 months
    - 6 months
    - Other
    - Not specified
- Label
    - Endpoint
    - Overall/Mean
    - Relative
    - Interval/Mean
    - Uncertain
- Comparison between groups
    - 1 vs. 2
        - p-value
    - 1 vs. 3
        i. p-value
    - 2 vs. 3
        ii. p-value
    - Multiple group comparisons
        - p-value
- Outcome
    - NSS, congestion Mean difference (95% CI)
    - NSS, sneezing Mean difference (95% CI)
    - NSS, rhinorrhea Mean difference (95% CI)
    - NSS, nasal itching Mean difference (95% CI)
    - TNSS
    - Rescue med use Ratio (95% CI)
    - TOSS Mean difference (95% CI)

Function and QoL Comparisons Form

- Is a statistical test performed?
    - Yes
    - No
- Statistical Test
    - Kruskal-Wallis
    - Mann Whitney U
    - ANOVA
    - Wilcoxon rank sum test
    - Chi-square
    - T-test
    - ANCOVA
    - Other
- Time point
    - Pre
    - 2 weeks
    - 3 weeks
    - 4 weeks
    - 2 months
    - 3 months
    - 4 months
    - 6 months
    - Other
    - Not specified
- Comparison between groups
    - 1 vs. 2
        - p-value
    - 1 vs. 3
        - p-value
    - 2 vs. 3
        - p-value
    - Multiple group comparisons
        - p-value
- Quality of Life outcomes
    - Test result (95% CI)
    - Mini-RQLQ Test result (95% CI)
    - RQLQ Rhinasthma QLQ Test result (95% CI)
    - Nocturnal RQLQ Test result (95% CI)
    - SF-36 Test result (95% CI)
    - PGA Test result (95% CI)
    - Epworth Test result (95% CI)

Adverse Events Form

- Group
    - Group One

    - Group Two
    - Group Three
    - Group Four
- AEs mentioned?
    - Yes
    - No
- N (number analyzed)
- Type of adverse event by severity
    - Mild AEs reported -- % XX.X
    - Moderate AEs reported -- % XX.X
    - Severe AEs reported -- % XX.X
    - Unspecified severity AEs reported -- % XX.X
        - Sedation
        - Headache
        - Stinging
        - Dryness
        - Burning
        - Impaired work/school performance
        - Odor abnormalities
        - Bitter aftertaste
        - Hypertension
        - Palpitations
        - Insomnia
        - Anxiety
        - Nosebleeds
        - Rhinitis medicamentosa
        - Increased intraocular pressure
        - Cataract formation
        - Nasal septal atrophy
        - Fungal infection
        - Adrenal suppression
        - Hyperglycemia
        - Bone demineralization/fracture
        - Growth delay in children
        - Traffic accidents
        - Nasal discomfort

Study Quality

RCT Quality Assessment (USPSTF)

- Power calculation reported?
    - Yes
    - No

- Assembly of comparable groups
  - Yes
  - No
- Maintenance of comparable groups (includes attrition, crossovers, adherence, and contamination)
  - Yes
  - No
  - Uncertain
- Minimal loss to followup (<20% each treatment arm)
  - Yes
  - No
- Interventions comparable/ clearly defined
  - Yes
  - No
  - Uncertain
- All important outcomes considered
  - Yes
  - No
- Appropriate analysis of results (adjustment for potential confounders and intention-to-treat analysis)
  - Yes
  - No
- Overall Rating
  - Good
  - Fair
  - Poor

AE reporting Quality Assessment, McMaster

- Were the harms pre-defined using standardized or precise definitions?
  - Yes
  - No
  - Uncertain
- Were serious events precisely defined?
  - Yes
  - No
  - Uncertain
- Were severe events precisely defined?
  - Yes
  - No
  - Uncertain
- Was the mode of harms collection specified as active?
  - Yes
  - No
  - Uncertain
- Was the mode of harms collection specified as passive?

    - Yes
    - No
    - Uncertain
- Did the study specify who collected the harms?
    - Yes
    - No
    - Uncertain
- Did the study specify the training or background of who ascertained the harms?
    - Yes
    - No
    - Uncertain
- Did the study specify the timing and frequency of collection of the harms?
    - Yes
    - No
    - Uncertain
- Did the author(s) use standard scale(s) or checklist(s) for harms collection?
    - Yes
    - No
    - Uncertain
- Did the authors specify if the harms reported encompass all the events collected or a selected sample?
    - Yes
    - No
    - Uncertain
- Was the number of participants that withdrew or were lost to follow-up specified for each study group?
    - Yes
    - No
    - Uncertain
- Was the total number of participants affected by harms specified for each study arm?
    - Yes
    - No
    - Uncertain
- Did the author(s) specify the number for each type of harmful event for each study group?
    - Yes
    - No
    - Uncertain
- Did the author(s) specify the type of analyses undertaken for harms data?
    - Yes
    - No
    - Uncertain

Appendix E. United States Preventive Services Task Force (USPSTF) Criteria for Randomized Controlled Trials (RCTs)

Good: Meets all criteria outlined below.

Fair: Generally comparable groups are assembled initially but some question remains whether some (although not major) differences occurred with follow-up; measurement instruments are acceptable (although not the best) and generally applied equally; some but not all important outcomes are considered; and some but not all potential covariates are accounted for. Intention to treat analysis is performed.

Poor: Studies will be graded "poor" if any of the following flaws exists: groups assembled initially are not close to being comparable or maintained throughout the trial; unreliable or invalid measurement instruments are used or not applied at all equally among groups (including not masking outcome assessment); and key covariates are given little or no attention. Intention to treat analysis is lacking.

Criteria

- Initial assembly of comparable groups:
  - For RCTs: potential covariates appropriately distributed
  - For cohort studies: potential confounders controlled
- Maintenance of comparable groups ≈ < 20% loss to follow-up in each arm
- Measurements equal, reliable, and valid
- Interventions comparable and clearly defined
- All important outcomes considered
- Analysis:
  - For RCTs: intention-to-treat, covariate adjustment
  - For cohort studies: adjustment for potential confounders for cohort studies
- Other aspects of analyses appropriate (e.g. missing data, sensitivity analyses)

Appendix F. McMaster Quality Assessment Scale for Harms (McHarm)

Rating

1. Were the harms PRE-DEFINED using standardized or precise definitions?
   - Yes
   - No
   - Unsure
2. Were SERIOUS events precisely defined?
   - Yes
   - No
   - Unsure
3. Were SEVERE events precisely defined?
   - Yes
   - No
   - Unsure
4. Were the number of DEATHS in each study group specified OR were the reason(s) for not specifying them given?
   - Yes
   - No
   - Unsure
5. Was the mode of harms collection specified as ACTIVE?
   - Yes
   - No
   - Unsure
6. Was the mode of harms collection specified as PASSIVE?
   - Yes
   - No
   - Unsure
7. Did the study specify WHO collected the harms?
   - Yes
   - No
   - Unsure
8. Did the study specify the TRAINING or BACKGROUND of who ascertained the harms?
   - Yes
   - No
   - Unsure
9. Did the study specify the TIMING and FREQUENCY of collection of the harms?
   - Yes
   - No
   - Unsure

10. Did the author(s) use STriamcinolone acetonide NDARD scale(s) or checklist(s) for harms collection?
    - Yes
    - No
    - Unsure
11. Did the authors specify if the harms reported encompass ALL the events collected or a selected SAMPLE?
    - Yes
    - No
    - Unsure
12. Was the NUMBER of participants that withdrew or were lost to follow-up specified for each study group?
    - Yes
    - No
    - Unsure
13. Was the TOTriamcinolone acetonide L NUMBER of participants affected by harms specified for each study arm?
    - Yes
    - No
    - Unsure
14. Did the author(s) specify the NUMBER for each TYPE of harmful event for each study group?
    - Yes
    - No
    - Unsure
15. Did the author(s) specify the type of analyses undertaken for harms data?
    - Yes
    - No
    - Unsure