

# Asthma Living Guideline Search Narrative - Pharmacological Management

February 2003

Searches were carried out by SIGN. The strategies are included below.

## *Searches were carried out on the key questions.*

1. Are inhaled short acting  $\beta_2$  agonists best given as required or on a regular basis in adults and in children above or below 5 years of age?
2. In infants and young children are the following drugs of value as bronchodilators?
  - Inhaled short-acting  $\beta_2$  agonists
  - Ipratropium bromide
  - Oral  $\beta_2$  agonist tablets or syrup
  - Theophyllines
3. Subsidiary question having identified which work, which is the most effective?
4. Which of the following drugs prevent exercise-induced asthma in adults and in children above or below 5 years of age?
  - Inhaled steroids
  - Short-acting  $\beta_2$  agonists
  - Long-acting  $\beta_2$  agonists
  - Theophyllines
  - Oral  $\beta_2$  agonists
  - Anticholinergics
  - Leukotriene receptor antagonists
  - Cromones
5. Subsidiary question having identified which work, which is the most effective?
6. Which criteria should be used to indicate the need for the introduction of anti-inflammatory treatment in adults and in children above or below 5 years of age?
  - Relief inhaler needed more than once daily, once weekly, three times a week
  - Symptoms e.g. nocturnal asthma
  - Exacerbations
7. In adults and in children above or below 5 years of age taking inhaled short-acting  $\beta_2$  agonists alone are the following interventions of value in terms of:
  - (1). Improving pulmonary function
  - (2). Decreasing symptoms
  - (3). Decreasing exacerbations
    - Inhaled steroids
    - Long-acting  $\beta_2$  agonists
    - Theophyllines
    - Leukotriene receptor antagonists
    - Cromones

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8. Subsidiary question having identified which work, which is the most effective?
9. In adults and in children above or below 5 years of age taking inhaled steroids are the following interventions of value in terms of:
  - (1). Improving pulmonary function
  - (2). Decreasing symptoms
  - (3). Decreasing exacerbations
    - Increasing the dose of inhaled steroids
    - Long-acting  $\beta_2$  agonists
    - Short-acting  $\beta_2$  agonists
    - Theophyllines
    - Oral  $\beta_2$  agonists
    - Anticholinergics
    - Leukotriene receptor antagonists
    - Cromones
10. Subsidiary question having identified which work, which is the most effective?
11. Having examined above at what dose of inhaled steroid should alternative strategies be considered?
12. Which treatments can reduce the dose of oral steroids in adults and in children above or below 5 years of age?
  - Inhaled steroids
  - Long-acting  $\beta_2$  agonists
  - Short-acting  $\beta_2$  agonists
  - Theophyllines
  - Oral  $\beta_2$  agonists
  - Anticholinergics
  - Leukotriene receptor antagonists
  - Cromones
  - Immunosuppressive agents
13. In patients on oral steroids which drugs/intervention are needed/effective in preventing or treating the following?
  - Osteoporosis
  - Growth in children
  - Hypertension
14. Are inhaled steroids best given once daily, twice daily, four times daily in adults and in children above or below 5 years of age?
15. Is there any evidence that high dose step down is more effective than step up in adults and in children above or below 5 years of age?
16. Are there differences between inhaled steroid preparations in their ability to control asthma in adults and in children above or below 5 years of age?

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Searches were carried out in Medline, Embase and the Cochrane Library CD Issue 1 2003. Searches were carried out from 2001-2003. Searches were combined with the RCT filters and in some cases the observational studies filter if that level of evidence had been reached in the previous searches.

## Main strategy

### Database: MEDLINE < 1996 to January Week 2 2003 >

Search Strategy:

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-----
1      exp ASTHMA/ (19546)
2      asthma.tw. (20836)
3      1 or 2 (24558)
4      exp ASTHMA/dt [Drug Therapy] (5997)
5      exp Anti-Asthmatic Agents/ (45063)
6      exp Adrenergic beta-Agonists/ (14832)
7      exp THEOPHYLLINE/ (3432)
8      exp Cholinergic Antagonists/ (10413)
9      exp Cromolyn Sodium/ (402)
10     exp Leukotriene Antagonists/ (719)
11     exp Immunosuppressive Agents/ (41251)
12     or/5-11 (97044)
13     steroid$.tw. (31625)
14     (beta2 agonist$ or beta 2-agonist$).tw. (1201)
15     anticholinergic$.tw. (1481)
16     anti-cholinergic$.tw. (59)
17     exp Bronchodilator Agents/ (40535)
18     inhaler$.tw. (1525)
19     bronchodilator$.tw. (1758)
20     exp "Nebulizers and Vaporizers"/ (2231)
21     exp Administration, Inhalation/ (6891)
22     exp Anti-Inflammatory Agents/ (61413)
23     exp Dose-Response Relationship, Drug/ (68205)
24     theophylline$.tw. (2157)
25     or/13-24 (187619)
26     12 or 25 (229728)
27     exp Histamine Agonists/ (371)
28     histamine h2 agonists.tw. (3)
29     exp Gastroesophageal Reflux/ (4485)
30     exp Antifungal Agents/ (28405)
31     anti-fungal drug$.tw. (24)
32     (antifungal drug$ or anti fungal drug$).tw. (618)
33     exp ASPIRIN/ (5890)
34     aspirin.tw. (6472)
35     exp ASPERGILLOSIS, ALLERGIC BRONCHOPULMONARY/ (293)
36     ((bronchopulmonary adj2 aspergillosis) and allergic).tw. (240)
37     exp PREDNISOLONE/ (7033)
38     prednisolone.tw. (3477)
39     deflazacort.tw. (88)
40     exp Triamcinolone Acetonide/ (429)
41     kenalog.tw. (15)
42     antihistamin$3.tw. (1592)
43     exp Histamine H1 Antagonists/ (4056)
44     anti-histamin$3.tw. (75)
45     exp KETOTIFEN/ (157)
46     ketotifen.tw. (201)
47     or/27-46 (55018)

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48 26 or 47 (256029)  
 49 3 and 48 (9332)  
 50 4 and 48 (5175)  
 51 49 or 50 (9332)  
 Set 51 combined with RCT filter

**Database: EMBASE < 1996 to 2003 Week 6 >**

Search Strategy:

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-----
1   exp ASTHMA/ (25947)
2   asthma.tw. (21355)
3   1 or 2 (28579)
4   exp ASTHMA/dt [Drug Therapy] (9788)
5   exp Cholinergic Receptor Affecting Agent/ (33317)
6   exp Anticholinergic Effect/ (866)
7   exp Beta Adrenergic Receptor Stimulating Agent/ (26873)
8   exp THEOPHYLLINE/ (5505)
9   exp Inhalational Drug Administration/ (7374)
10  exp Leukotriene Receptor Blocking Agent/ (2653)
11  exp Cromoglycate Disodium/ (2403)
12  exp Adrenergic Receptor Stimulating Agent/ (58479)
13  exp Antiasthmatic Agent/ (29726)
14  exp INHALER/ (2117)
15  exp Antiinflammatory Agent/ (147128)
16  exp Immunosuppressive Agent/ (77441)
17  exp Bronchodilating Agent/ (21284)
18  exp Dose Response/ (70710)
19  exp NEBULIZER/ (1214)
20  exp CORTICOSTEROID/ (95234)
21  or/5-20 (327315)
22  steroid$.tw. (33438)
23  (beta2 agonist$ or beta 2-agonist$).tw. (1054)
24  anticholinergic$.tw. (1794)
25  anti-cholinergic$.tw. (67)
26  inhaler$.tw. (1802)
27  theophylline$.tw. (2480)
28  bronchodilator$.tw. (1932)
29  or/22-28 (40909)
30  exp Histamine Agonist/ (6865)
31  histamine h2 agonist.tw. (4)
32  exp Gastroesophageal Reflux/ (5741)
33  exp Antifungal Agent/ (39302)
34  anti-fungal drug$.tw. (24)
35  (antifungal drug$ or anti fungal drug$).tw. (684)
36  exp Acetylsalicylic Acid/ (21550)
37  aspirin.tw. (10064)
38  exp Lung Aspergillosis/ (687)
39  ((bronchopulmonary adj2 aspergillosis) and allergic).tw. (247)
40  exp PREDNISOLONE/ (13125)
41  prednisolone.tw. (3628)
42  exp DEFLAZACORT/ (349)
43  deflazacort.tw. (109)
44  exp Triamcinolone Acetonide/ (1380)
45  kenalog.tw. (103)
46  antihistamin$3.tw. (2034)
47  exp Antihistaminic Agent/ (25802)
48  anti-histamin$3.tw. (125)
49  exp Histamine H1 Receptor Antagonist/ (13884)
  
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50 exp KETOTIFEN/ (608)  
 51 ketotifen.tw. (270)  
 52 or/30-51 (105562)  
 53 21 or 29 or 52 (389869)  
 54 53 and 3 (14431)  
 55 53 and 4 (9207)  
 56 54 or 55 (14431)

Set 56 combined with RCT strategy.

## Q2 Children

### Database: Medline <1993 to Present>

```
-----
1 exp asthma/ 17984
2 asthma.tw. 18455
3 1 or 2 22230
4 exp asthma/dt 5566
5 child$3.tw. 123719
6 infant$3.tw. 45653
7 paediatric$.tw. 5881
8 pediatric$.tw. 26683
9 or/5-8 170291
10 exp Adrenergic beta-agonists/ 16541
11 exp Ipratropium/ 356
12 (beta2 agonist$ or beta 2-agonist$).tw. 1132
13 exp Theophylline/ 4389
14 ipratropium bromide.tw. 300
15 exp dose-response relationship, drug/ 63014
16 exp Bronchodilator agents/ 39697
17 bronchodilator$.tw. 1911
18 theophylline$.tw. 2831
19 or/10-18 104692
20 9 and 19 and 3 920
21 19 and 3 4769
22 limit 21 to (infant < 1 to 23 months > or preschool child <
  2 to 5 years > or child < 6 to 12 years >) 1250
23 20 or 22 1308
24 9 and 19 and 4 628
25 19 and 4 2948
26 limit 25 to (infant < 1 to 23 months > or preschool child <
  2 to 5 years > or child < 6 to 12 years >) 897
27 26 or 24 929
28 27 or 23 1308
```

Set 28 combined with RCT filter

### Database: EMBASE <1980 - present>

```
-----
1 exp asthma/ 45980
2 asthma.tw. 35085
3 1 or 2 50938
4 exp asthma/dt 13351
5 child$3.tw. 237257
6 infant$3.tw. 97605
7 paediatric$.tw. 9656
8 pediatric$.tw. 42399
9 or/5-8 333003
10 exp Beta adrenergic receptor stimulating agent/ 79570
```

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11     exp Ipratropium bromide/                3831
12     ipratropium bromide.tw.                 936
13     exp Theophylline/                       21610
14     exp dose response/                     123954
15     (beta2 agonist$ or beta 2-agonist$.tw.  2006
16     exp Bronchodilating agent/             71487
17     bronchodilator$.tw.                   4744
18     theophylline$.tw.                     11861
19     or/10-18                               237343
20     9 and 19 and 3                          2790
21     19 and 3                               17043
22     limit 21 to (infant < to one year > or child < unspecified
      age >)
23     20 or 22                               3396
24     9 and 19 and 4                         1557
25     19 and 4                               8716
26     limit 25 to (infant < to one year > or child < unspecified
      age >)
27     26 or 24                              1982
28     27 or 23                              3396
Set 28 combined with RCT filter.

```

### Q13 Osteoporosis, Child growth, Hypertension

#### Database: Medline <1993 to Present>

```

-----
1     exp asthma/                             18074
2     asthma.tw.                             18540
3     1 and 2                                14282
4     exp asthma/dt                          5605
5     exp Osteoporosis/                     7479
6     osteoporo$.tw.                       7804
7     exp Hypertension/                     38290
8     blood pressure.tw.                   40604
9     exp child/                             430408
10    exp growth/                            52909
11    9 and 10                               13058
12    exp child development/                 5434
13    (growth adj2 child$.tw.              1828
14    child growth.tw.                      95
15    child development.tw.                456
16    or/12-15                              7385
17    adrenal suppression.tw.              146
18    exp Gastrointestinal diseases/       111355
19    gastrointestinal.tw.                 25393
20    or/17-19                             125583
21    or/5-8                                74944
22    20 or 21                              197671
23    11 or 16                              19191
24    22 or 23                             215307
25    3 and 24                              446
26    4 and 24                              352
27    25 or 26                              543
Set 27 combined with RCT strategy

```

#### Database: EMBASE <1980 - present>

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1	exp asthma/	45980
2	asthma.tw.	35085
3	1 or 2	50938
4	exp asthma/dt	13351
5	exp Osteoporosis/	17535
6	exp Hypertension/	122180
7	osteoporo\$.tw.	13079
8	blood pressure.tw.	90482
9	or/5-8	195905
10	exp child growth/	2041
11	exp child development/	6098
12	(growth adj2 child\$.tw.	3438
13	child growth.tw.	148
14	child development.tw.	673
15	or/10-14	11012
16	9 or 15	206707
17	exp adrenal suppression/	493
18	adrenal suppression.tw.	322
19	exp Gastrointestinal disease/	5818
20	gastrointestinal.tw.	52320
21	or/17-20	56237
22	16 or 21	260961
23	22 and 3	2272
24	22 and 4	928
25	23 or 24	2272

Set 25 combined with RCT strategy.

### Additional searches carried out for Anti-IgE monoclonal antibodies.

#### Database: MEDLINE < 1996 to February Week 2 2003 >

Search Strategy:

```

-----
1      exp ASTHMA/ (19785)
2      asthma.tw. (21096)
3      1 or 2 (24863)
4      exp ASTHMA/dt [Drug Therapy] (6072)
5      anti-ige monoclonal antibod$.tw. (21)
6      anti-ige antibod$.tw. (123)
7      rhumab E25.tw. (26)
8      or/5-7 (152)
9      3 and 8 (55)
10     4 and 8 (9)
11     9 or 10 (55)
Set 11 combined with RCT strategy

```

#### Database: EMBASE < 1996 to 2003 Week 6 >

Search Strategy:

```

-----
1      exp ASTHMA/ (25947)
2      asthma.tw. (21355)
3      1 or 2 (28579)
4      exp ASTHMA/dt [Drug Therapy] (9788)
5      anti-ige monoclonal antibod$.tw. (22)
6      anti-ige antibod$.tw. (144)
7      rhumab E25.tw. (25)
8      or/5-7 (175)
9      3 and 8 (75)

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10 4 and 8 (55)  
11 9 or 10 (75)  
Set 11 combined with RCT filter.

### Additional searches carried out on Aspirin sensitive asthma.

#### Database: MEDLINE < 1996 to February Week 2 2003 >

Search Strategy:

-----  
-----  
1 exp ASTHMA/ (19785)  
2 asthma.tw. (21096)  
3 1 or 2 (24863)  
4 exp ASPIRIN/ (6007)  
5 aspirin.tw. (6573)  
6 4 or 5 (8949)  
7 3 and 6 (358)  
Set 7 combined with RCT strategy

#### Database: EMBASE < 1996 to 2003 Week 6 >

Search Strategy:

-----  
-----  
1 exp ASTHMA/ (25947)  
2 asthma.tw. (21355)  
3 1 or 2 (28579)  
4 exp Acetylsalicylic Acid/ (21550)  
5 aspirin.tw. (10064)  
6 4 or 5 (22466)  
7 3 and 6 (694)  
Set 7 combined with RCT strategy

### Additional searches carried out for the effects of steroids on adult height

#### Database: MEDLINE < 1996 to February Week 2 2003 >

Search Strategy:

-----  
-----  
1 exp ASTHMA/ (19785)  
2 asthma.tw. (21096)  
3 1 or 2 (24863)  
4 exp ASTHMA/dt [Drug Therapy] (6072)  
5 3 or 4 (24863)  
6 exp Adrenal Cortex Hormones/ (24408)  
7 corticosteroid\$.tw. (13673)  
8 exp STEROIDS/ (97368)  
9 steroid\$.tw. (32107)  
10 or/6-9 (125595)  
11 exp Body Height/ (4738)  
12 height.tw. (15735)  
13 growth.tw. (176367)  
14 exp GROWTH/ (55343)  
15 or/11-14 (231316)  
16 10 and 15 (16894)  
17 5 and 16 (286)  
Set 17 combined with RCT strategy

#### Database: EMBASE < 1996 to 2003 Week 6 >

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Search Strategy:

-----  
-----  
1 exp ASTHMA/ (25947)  
2 asthma.tw. (21355)  
3 1 or 2 (28579)  
4 exp ASTHMA/dt [Drug Therapy] (9788)  
5 3 or 4 (28579)  
6 exp CORTICOSTEROID/ (95234)  
7 corticosteroid\$.tw. (15126)  
8 exp STEROID/ (108926)  
9 steroid\$.tw. (33438)  
10 or/6-9 (160261)  
11 exp Body Height/ (4784)  
12 height.tw. (15176)  
13 growth.tw. (167227)  
14 exp GROWTH/ (133118)  
15 or/11-14 (250379)  
16 10 and 15 (16765)  
17 5 and 16 (424)  
Set 17 combined with RCT strategy

**Additional searches carried out for the effects of Ipratropium Bromide on Chronic Asthma**

**Database: MEDLINE < 1996 to January Week 2 2003 >**

Search Strategy:

-----  
-----  
1 exp ASTHMA/ (19546)  
2 asthma.tw. (20836)  
3 1 or 2 (24558)  
4 exp ASTHMA/dt [Drug Therapy] (5997)  
5 uncontrolled asthma.tw. (26)  
6 acute asthma.tw. (745)  
7 life threatening asthma.tw. (41)  
8 near fatal asthma.tw. (57)  
9 severe asthma.tw. (992)  
10 exp Acute Disease/ (34422)  
11 exp ASTHMA/ (19546)  
12 10 and 11 (778)  
13 exp Status Asthmaticus/ (263)  
14 or/5-9 (1702)  
15 or/12-14 (2180)  
16 exp Critical Illness/ (3167)  
17 11 and 16 (6)  
18 15 or 17 (2182)  
19 exp IPRATROPIUM/ (315)  
20 ipratropium bromide.tw. (259)  
21 19 or 20 (384)  
22 3 and 21 (150)  
23 4 and 21 (108)  
24 22 or 23 (150)  
25 24 not 18 (80)  
Set 25 combine with RCT strategy.

**Database: EMBASE < 1980 - present >**

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1	exp Asthma/	47563
2	asthma.tw.	36379
3	1 or 2	52674
4	exp Asthma/dt [Drug Therapy]	13951
5	uncontrolled asthma.tw.	43
6	acute asthma.tw.	1293
7	life threatening asthma.tw.	82
8	near fatal asthma.tw.	64
9	severe asthma.tw.	1663
10	exp Acute disease/	2871
11	exp Asthma/	47563
12	10 and 11	150
13	exp Asthmatic state/	678
14	or/5-9	2901
15	or/12-14	3491
16	exp Critical illness/	5951
17	11 and 16	38
18	15 or 17	3513
19	exp Ipratropium bromide/	3935
20	ipratropium bromide.tw.	944
21	19 or 20	3987
22	3 and 21	2318
23	4 and 21	1329
24	22 or 23	2318
25	24 not 18	1974

Set 25 combined with RCT filter

### Additional searches carried out for the effects of Beta2 agonists as bronchodilators

Database: MEDLINE <1996 to January Week 2 2003>  
Search Strategy:

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-----
-----
1    exp ASTHMA/ (19546)
2    asthma.tw. (20836)
3    1 or 2 (24558)
4    exp ASTHMA/dt [Drug Therapy] (5997)
5    exp Receptors, Adrenergic, beta-2/ (1220)
6    (beta2 agonists$ or beta 2-agonist$).tw. (983)
7    5 or 6 (2101)
8    3 and 7 (814)
9    4 and 7 (558)
10   8 or 9 (814)
11   exp Bronchodilator Agents/ (40535)
12   bronchodilator$.tw. (1758)
13   11 or 12 (41253)
14   10 and 13 (463)

```

Set 14 combined with RCT strategy

### Database: EMBASE <1980 - present>

1	exp Asthma/	47563
2	asthma.tw.	36379
3	1 or 2	52674
4	exp Asthma/dt [Drug Therapy]	13951
5	exp Beta 2 adrenergic receptor stimulating agent/	2807

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6	(beta2 agonist\$ or beta 2-agonist\$.tw.	2069
7	5 or 6	4128
8	3 and 7	2597
9	4 and 7	2095
10	8 or 9	2597
11	exp Bronchodilating agent/	72663
12	bronchodilator\$.tw.	4842
13	11 or 12	73824
14	10 and 13	2025

Set 14 combined with RCT filter.

## Effects of Theophyllines in Children

### Database: MEDLINE < 1996 to January Week 2 2003 >

Search Strategy:

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-----
1      exp ASTHMA/ (19546)
2      asthma.tw. (20836)
3      1 or 2 (24558)
4      exp Inhalational Drug Administration/ (0)
5      inhalation.tw. (8049)
6      inhaler$.tw. (1525)
7      exp NEBULIZER/ (0)
8      or/4-7 (9177)
9      exp Beta Adrenergic Receptor Stimulating Agent/ (0)
10     (beta2 agonist$ or beta 2-agonist$.tw. (1201)
11     9 or 10 (1201)
12     8 and 11 (297)
13     exp THEOPHYLLINE/ (3432)
14     theophylline$.tw. (2157)
15     13 or 14 (4228)
16     12 and 15 (20)
17     16 and 3 (14)
18     limit 17 to (infant <to one year> or preschool child <1 to 6 years>
or school child <7 to 12 years>) [Limit not valid in: MEDLINE; records were
retained] (14)
19     infant$.tw. (44879)
20     child$3.tw. (129543)
21     pediat$.tw. (29313)
22     paediat$.tw. (6750)
23     or/19-22 (176314)
24     17 and 23 (2)
25     18 or 24 (14)

```

Set 25 combined with RCT filter

### Database: EMBASE < 1996 to 2003 Week 6 >

Search Strategy:

```

-----
1      exp ASTHMA/ (25947)
2      asthma.tw. (21355)
3      1 or 2 (28579)
4      exp Inhalational Drug Administration/ (7374)
5      inhalation.tw. (8682)
6      inhaler$.tw. (1802)
7      exp NEBULIZER/ (1214)

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8      or/4-7 (16272)
9      exp Beta Adrenergic Receptor Stimulating Agent/ (26873)
10     (beta2 agonist$ or beta 2-agonist$.tw. (1054)
11     9 or 10 (27004)
12     8 and 11 (3463)
13     exp THEOPHYLLINE/ (5505)
14     theophylline$.tw. (2480)
15     13 or 14 (5959)
16     12 and 15 (657)
17     16 and 3 (559)
18     limit 17 to (infant <to one year> or preschool child <1 to 6 years>
or school child <7 to 12 years>) (41)
19     infant$.tw. (41212)
20     child$3.tw. (118977)
21     pediat$.tw. (27100)
22     paediat$.tw. (6975)
23     or/19-22 (161792)
24     17 and 23 (111)
25     18 or 24 (127)
Set 25 combined with RCt filter

```

## Effects of Rhinitis and Sinusitis on Asthma

### Database: MEDLINE < 1996 to January Week 2 2003 >

Search Strategy:

```

-----
1      exp ASTHMA/ (19546)
2      asthma.tw. (20836)
3      1 or 2 (24558)
4      exp RHINITIS/ (3922)
5      exp SINUSITIS/ (2627)
6      4 or 5 (6083)
7      3 and 6 (1422)
Set 7 combined with RCT filter

```

### Database: EMBASE < 1996 to 2003 Week 6 >

Search Strategy:

```

-----
1      exp ASTHMA/ (25947)
2      asthma.tw. (21355)
3      1 or 2 (28579)
4      exp RHINITIS/ (6711)
5      exp SINUSITIS/ (3986)
6      4 or 5 (9838)
7      3 and 6 (2725)
Set 7 combined with RCT filter

```

## Effects of Cromones on Asthma

### Database: MEDLINE < 1996 to February Week 2 2003 >

Search Strategy:

```

-----
1      exp ASTHMA/ (19785)

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```

2      asthma.tw. (21096)
3      1 or 2 (24863)
4      exp Administration, Oral/ (20616)
5      oral.tw. (70065)
6      exp Administration, Inhalation/ (6975)
7      inhalation.tw. (8150)
8      inhaler$.tw. (1539)
9      exp "Nebulizers and Vaporizers"/ (2252)
10     or/4-9 (90024)
11     exp STEROIDS/ (97368)
12     steroid.tw. (19158)
13     11 or 12 (106536)
14     10 and 13 (8459)
15     exp Cromolyn Sodium/ (404)
16     exp NEDOCROMIL/ (192)
17     cromone$.tw. (31)
18     exp CHROMONES/ (11695)
19     or/15-18 (11862)
20     14 and 19 (86)
21     3 and 20 (46)

```

Set 21 combined with RCT filter filter

#### Database: EMBASE < 1996 to 2003 Week 6 >

Search Strategy:

```

-----
1      exp ASTHMA/ (25947)
2      asthma.tw. (21355)
3      1 or 2 (28579)
4      exp Administration, Oral/ (54030)
5      oral.tw. (66392)
6      exp Administration, Inhalation/ (7374)
7      inhalation.tw. (8682)
8      inhaler$.tw. (1802)
9      exp "Nebulizers and Vaporizers"/ (1214)
10     or/4-9 (117628)
11     exp STEROIDS/ (108926)
12     steroid.tw. (19461)
13     11 or 12 (115984)
14     10 and 13 (14141)
15     exp Cromolyn Sodium/ (2403)
16     exp NEDOCROMIL/ (607)
17     cromone$.tw. (50)
18     exp CHROMONES/ (12933)
19     or/15-18 (15419)
20     14 and 19 (808)
21     3 and 20 (610)

```

Set 21 combined with RCT filter

#### Prednisolone compared to Kenalog or Deflazacort

Database: Medline < 1993 to Present >

```

-----
1      exp Asthma/ 19114
2      asthma.tw. 19732
3      1 or 2 23692

```

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```

4      exp Prednisolone/                7738
5      prednisolone.tw.                3797
6      4 or 5                          9435
7      deflazacort.tw.                 121
8      6 and 7                          38
9      exp Triamcinolone acetonide/    449
10     kenalog.tw.                     20
11     9 or 10                          455
12     6 and 11                          19
13     8 or 12                           57
14     3 and 13                           1

```

Set 14 combined with RCT filter

**Database: EMBASE < 1996 to 2003 Week 6 >**

Search Strategy:

```

-----
1      exp ASTHMA/ (25947)
2      asthma.tw. (21355)
3      1 or 2 (28579)
4      exp PREDNISOLONE/ (13125)
5      prednisolone.tw. (3628)
6      4 or 5 (13766)
7      deflazacort.tw. (109)
8      exp DEFLAZACORT/ (349)
9      7 or 8 (353)
10     6 and 9 (91)
11     exp Triamcinolone Acetonide/ (1380)
12     kenalog.tw. (103)
13     11 or 12 (1382)
14     6 and 13 (161)
15     10 or 14 (249)
16     3 and 15 (33)

```

Set 16 combined with RCT filter

**Daily versus Alternative Daily treatment for Asthma**

**Database: MEDLINE < 1996 to February Week 2 2003 >**

Search Strategy:

```

-----
1      exp ASTHMA/ (19785)
2      asthma.tw. (21096)
3      1 or 2 (24863)
4      alternate day$.tw. (656)
5      alternate daily.tw. (8)
6      alternative day$.tw. (13)
7      alternative daily.tw. (12)
8      or/4-7 (686)
9      3 and 8 (13)

```

Set 9 combined with RCT filter

**Database: EMBASE < 1980 - present >**

```

-----
1      exp Asthma/                47563

```

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2	asthma.tw.	36379
3	1 or 2	52674
4	alternate day\$.tw.	1740
5	alternative daily.tw.	11
6	alternate daily.tw.	8
7	alternative day\$.tw.	40
8	or/4-7	1796
9	3 and 8	60

Set 9 combined with RCT filter.

## Allergic bronchopulmonary aspergillosis on Asthma

**Database: MEDLINE < 1996 to February Week 2 2003 >**

Search Strategy:

```

-----
1      exp ASTHMA/ (19785)
2      asthma.tw. (21096)
3      1 or 2 (24863)
4      exp ASPERGILLOSIS, ALLERGIC BRONCHOPULMONARY/ (302)
5      bronchopulmonary aspergillos?s.tw. (261)
6      4 or 5 (375)
7      3 and 6 (119)
8      exp Antifungal Agents/ (28771)
9      fungicide$.tw. (729)
10     anti fungal$.tw. (198)
11     or/8-10 (29513)
12     exp Administration, Oral/ (20616)
13     oral.tw. (70065)
14     exp Administration, Inhalation/ (6975)
15     inhalation.tw. (8150)
16     inhaler$.tw. (1539)
17     exp "Nebulizers and Vaporizers"/ (2252)
18     or/12-17 (90024)
19     exp STEROIDS/ (97368)
20     steroid$.tw. (32107)
21     or/19-20 (114614)
22     18 and 21 (9417)
23     11 or 22 (38568)
24     7 and 23 (23)

```

Set 24 combined with RCT filter

**Database: EMBASE < 1996 to 2003 Week 6 >**

Search Strategy:

```

-----
1      exp ASTHMA/ (25947)
2      asthma.tw. (21355)
3      1 or 2 (28579)
4      exp Bronchopulmonary Aspergilloma/ (228)
5      bronchopulmonary aspergillos?s.tw. (253)
6      4 or 5 (320)
7      3 and 6 (125)
8      exp Antifungal Agent/ (39302)
9      fungicide$.tw. (781)
10     anti fungal$.tw. (221)
11     or/8-10 (39518)

```

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12 exp Oral Drug Administration/ (54030)  
 13 oral.tw. (66392)  
 14 inhalation.tw. (8682)  
 15 inhaler\$.tw. (1802)  
 16 exp NEBULIZER/ (1214)  
 17 exp Inhalational Drug Administration/ (7374)  
 18 or/12-17 (117628)  
 19 exp STEROID/ (108926)  
 20 steroid\$.tw. (33438)  
 21 19 or 20 (122107)  
 22 18 and 21 (14926)  
 23 11 or 22 (53486)  
 24 7 and 23 (42)  
 Set 24 combined with RCT filter

## Gastroesophageal reflux and Asthma

### Database: Medline < 1993 to Present >

```
-----
1 exp Asthma/ 19114
2 asthma$.tw. 21568
3 1 or 2 24294
4 exp Gastroesophageal reflux/ 4072
5 gastro esophageal reflux.tw. 129
6 gastroesophageal reflux.tw. 2590
7 or/4-5 4108
8 3 and 7 241
9 exp Histamine h2 antagonists/ 3719
10 h2 antagonist$.tw. 456
11 proton pump inhibitor$.tw. 1292
12 or/9-11 4912
13 8 and 12 35
```

Set 13 combined with RCT filter

### Database: EMBASE < 1996 to 2003 Week 6 >

Search Strategy:

```
-----
1 exp ASTHMA/ (25947)
2 asthma.tw. (21355)
3 1 or 2 (28579)
4 exp GASTROESOPHAGEAL REFLUX/ (5741)
5 gastro esophageal reflux.tw. (179)
6 gastroesophageal reflux.tw. (2834)
7 or/4-6 (6038)
8 3 and 7 (463)
9 exp Histamine H2 Receptor Antagonist/ (10620)
10 h2 antagonist$.tw. (310)
11 proton pump inhibitor$.tw. (1954)
12 or/9-11 (11820)
13 8 and 12 (122)
```

Set 13 combined with RCT filter.

## Beta2 agonists and corticosteroids combined therapy

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**Database: MEDLINE < 1996 to February Week 2 2003 >**

Search Strategy:

-----  
-----  
1 exp ASTHMA/ (19785)  
2 asthma.tw. (21096)  
3 1 or 2 (24863)  
4 exp ASTHMA/dt [Drug Therapy] (6072)  
5 seretide.tw. (10)  
6 salmeterol.tw. (547)  
7 fluticasone.tw. (755)  
8 6 and 7 (81)  
9 5 or 8 (81)  
10 symbicort.tw. (9)  
11 exp BUDESONIDE/ (1088)  
12 budesonide.tw. (1067)  
13 11 or 12 (1300)  
14 formoterol.tw. (272)  
15 13 and 14 (52)  
16 or/5,9-10,15 (126)  
17 3 and 16 (115)  
18 4 and 16 (103)  
19 17 and 18 (103)

Set 19 combined with RCT strategy

**Database: EMBASE < 1996 to 2003 Week 6 >**

Search Strategy:

-----  
-----  
1 exp ASTHMA/ (25947)  
2 asthma.tw. (21355)  
3 1 or 2 (28579)  
4 exp ASTHMA/dt [Drug Therapy] (9788)  
5 seretide.tw. (59)  
6 salmeterol.tw. (633)  
7 exp SALMETEROL/ (1412)  
8 6 or 7 (1524)  
9 exp FLUTICASONE/ (920)  
10 fluticasone.tw. (829)  
11 9 or 10 (1580)  
12 8 and 11 (363)  
13 symbicort.tw. (38)  
14 exp BUDESONIDE/ (3372)  
15 budesonide.tw. (1243)  
16 14 or 15 (3412)  
17 exp FORMOTEROL/ (776)  
18 formoterol.tw. (351)  
19 17 or 18 (816)  
20 16 and 19 (307)  
21 or/5,12-13,20 (595)  
22 3 and 21 (512)  
23 4 and 21 (475)  
24 22 or 23 (512)

Set 24 combined with RCT strategy

**Comparison between drugs**

File name : SIGN101 2003 Pharmacological search narrative	Version 0.1	16/01/2012
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**Database: MEDLINE < 1996 to February Week 2 2003 >**

Search Strategy:

-----  
-----  
1 exp ASTHMA/ (19785)  
2 asthma.tw. (21096)  
3 1 or 2 (24863)  
4 exp ASTHMA/dt [Drug Therapy] (6072)  
5 fluticasone.tw. (755)  
6 exp BUDESONIDE/ (1088)  
7 budesonide.tw. (1067)  
8 6 or 7 (1300)  
9 exp BECLOMETHASONE/ (733)  
10 beclometasone dipropionate.tw. (10)  
11 beclomethasone.tw. (715)  
12 or/9-11 (940)  
13 mometasone.tw. (133)  
14 hfa-bdp.tw. (43)  
15 5 and (or/8,12-14) (275)  
16 8 and (or/5,12-14) (339)  
17 12 and (or/5,8,13-14) (347)  
18 13 and (or/5,8,12,14) (60)  
19 14 and (or/5,8,12-13) (43)  
20 or/15-19 (469)  
21 Comparative Study/ (305050)  
22 compar\$.tw. (600904)  
23 21 or 22 (741130)  
24 20 and 23 (314)  
25 3 and 24 (228)  
26 4 and 24 (201)  
27 25 or 26 (228)

Set 27 combined with RCT strategy

**Database: EMBASE < 1996 to 2003 Week 6 >**

Search Strategy:

-----  
-----  
1 exp ASTHMA/ (25947)  
2 asthma.tw. (21355)  
3 1 or 2 (28579)  
4 exp ASTHMA/dt [Drug Therapy] (9788)  
5 exp FLUTICASONE/ (920)  
6 fluticasone.tw. (829)  
7 5 or 6 (1580)  
8 exp BECLOMETASONE/ (1263)  
9 beclomethasone.tw. (786)  
10 beclometasone dipropionate.tw. (10)  
11 exp Beclometasone Dipropionate/ (1668)  
12 or/8-11 (2841)  
13 exp Mometasone Furoate/ (478)  
14 mometasone.tw. (175)  
15 13 or 14 (480)  
16 exp BUDESONIDE/ (3372)  
17 budesonide.tw. (1243)  
18 or/16-17 (3412)  
19 hfa-bdp.tw. (44)  
20 7 and (or/12,15,18-19) (924)  
21 12 and (or/7,15,18-19) (1448)

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22 15 and (or/7,12,15,19) (480)  
 23 18 and (or/7,12,15,19) (1486)  
 24 19 and (or/7,12,15,18) (44)  
 25 or/20-24 (1988)  
 26 exp Comparative Study/ (57505)  
 27 compar\$.tw. (592128)  
 28 26 or 27 (608113)  
 29 25 and 28 (536)  
 30 3 and 29 (390)  
 31 4 and 29 (347)  
 32 30 or 31 (390)

Set 32 combined with RCT strategy

### Subcutaneous terbutaline

A similar strategy was used for all the databases adapted from Medline strategy.

#### Database: Medline

1 exp ASTHMA/ (8612)  
 2 asthma\$.tw. (9862)  
 3 1 or 2 (11090)  
 4 exp TERBUTALINE/ (225)  
 5 terbutaline.tw. (243)  
 6 bricanyl.tw. (4)  
 7 or/4-6 (295)  
 8 subcutaneous.tw. (7326)  
 9 7 and 8 (21)  
 10 exp Injections, Subcutaneous/ (2869)  
 11 7 and 10 (8)  
 12 9 or 11 (23)  
 13 3 and 12 (5)

Set 13 combined with RCT filter.

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