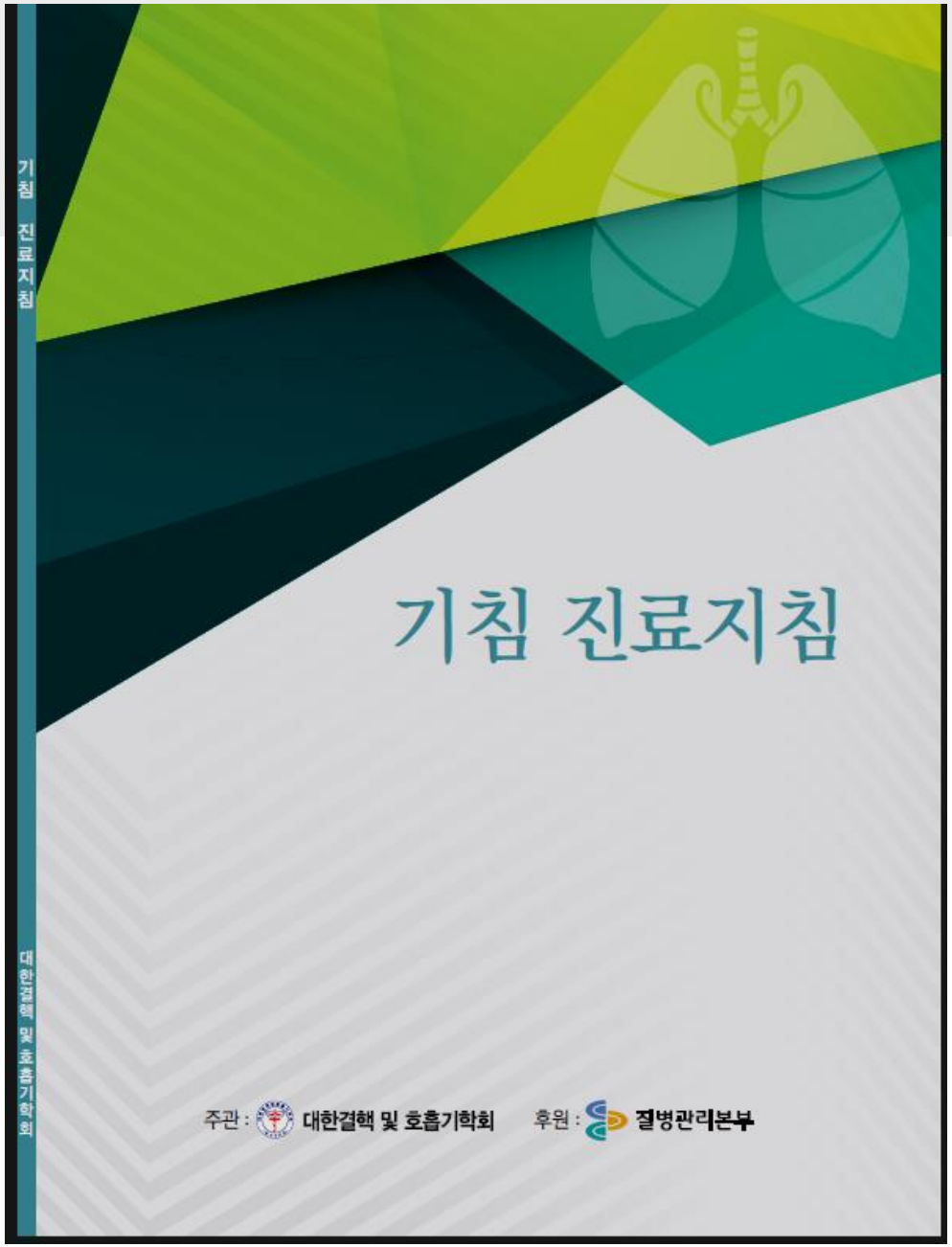
대한결핵 및 호흡기학회
The Korean Academy of Tuberculosis and Respiratory Diseases

Acute Cough

-급성기침 치료 잘하기-

원광대학교 산본병원 호흡기내과
이상희



Diagnosis and Management of Cough Executive Summary

ACCP Evidence-Based Clinical Practice Guidelines

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(CHEST 2006; 129:1S–23S)

Abbreviations: ACE = angiotensin-converting enzyme; ACP = American College of Physicians; A/D = antihistamine/decongestant; ATS = American Thoracic Society; BPC = bronchoprovocation challenge; CTS = Canadian Thoracic Society; DPB = diffuse panbronchiolitis; dTap = acellular pertussis; FEES = fiberoptic endoscopic evaluation of swallowing; GERD = gastroesophageal reflux disease; HRCT = high-resolution CT; HSP = Health and Science Policy Committee; IBD = inflammatory bowel disease; ICS = inhaled corticosteroid; ILD = interstitial lung disease; NAEB = nonasthmatic eosinophilic bronchitis; NSCLC = non-small cell lung cancer; SLP = speech-language pathologist; TB = tuberculosis; UACS = upper airway cough syndrome; URI = upper respiratory infection; VC = voluntary cough; VSE = videofluoroscopic swallow evaluation

The impact of Cough on health

- Important **defence mechanism** that helps clear excessive secretions and foreign material from the airways
- Important factor in the **spread of infection**
- One of the most common symptoms for which patients seek medical attention

Chest 2006;129:25S-27S

Categorization

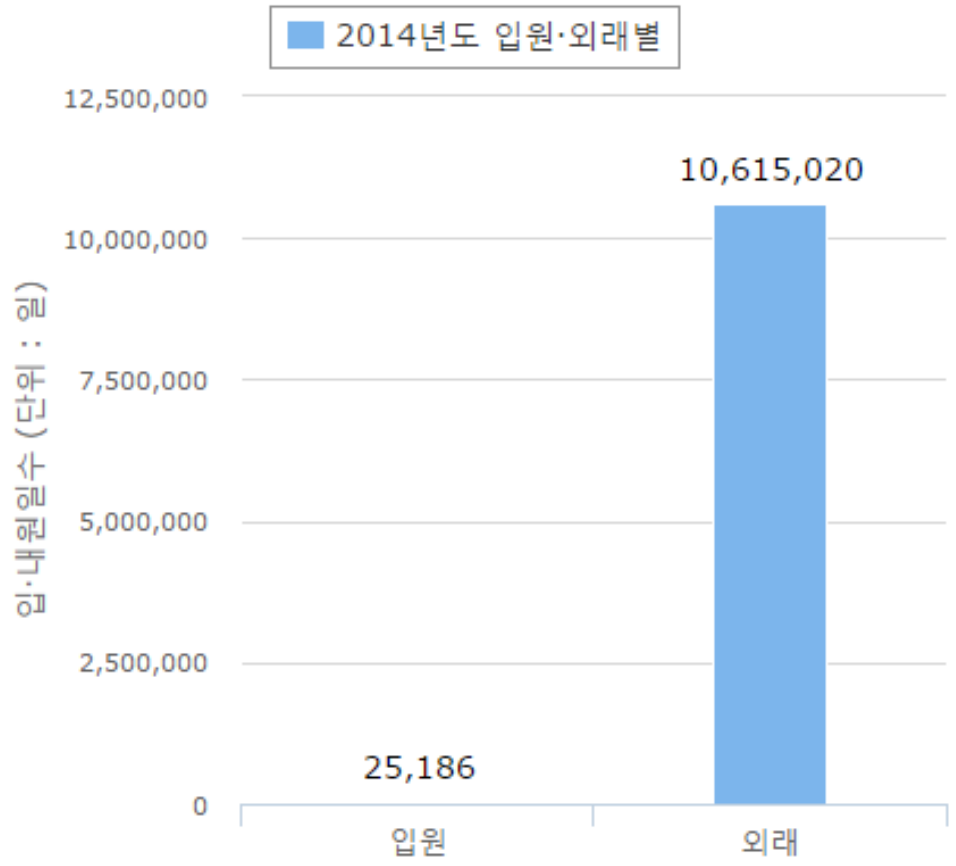
- Based on **duration**
  - Acute: defined as lasting less than 3 weeks
  - Subacute: lasting 3–8 weeks
  - Chronic: lasting more than 8 weeks

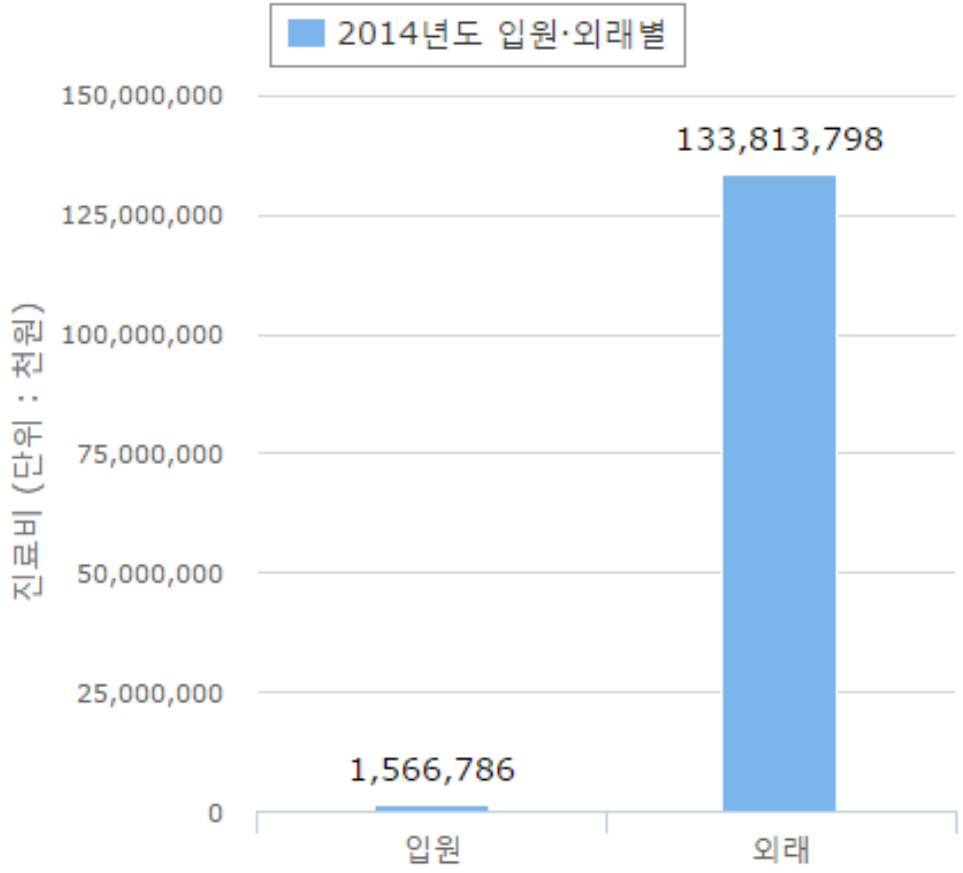
- Based on **sputum production**
  - Productive cough
  - Non-productive cough

N Engl J Med 2000;343:1715-1721

Health and economic effects of Acute cough

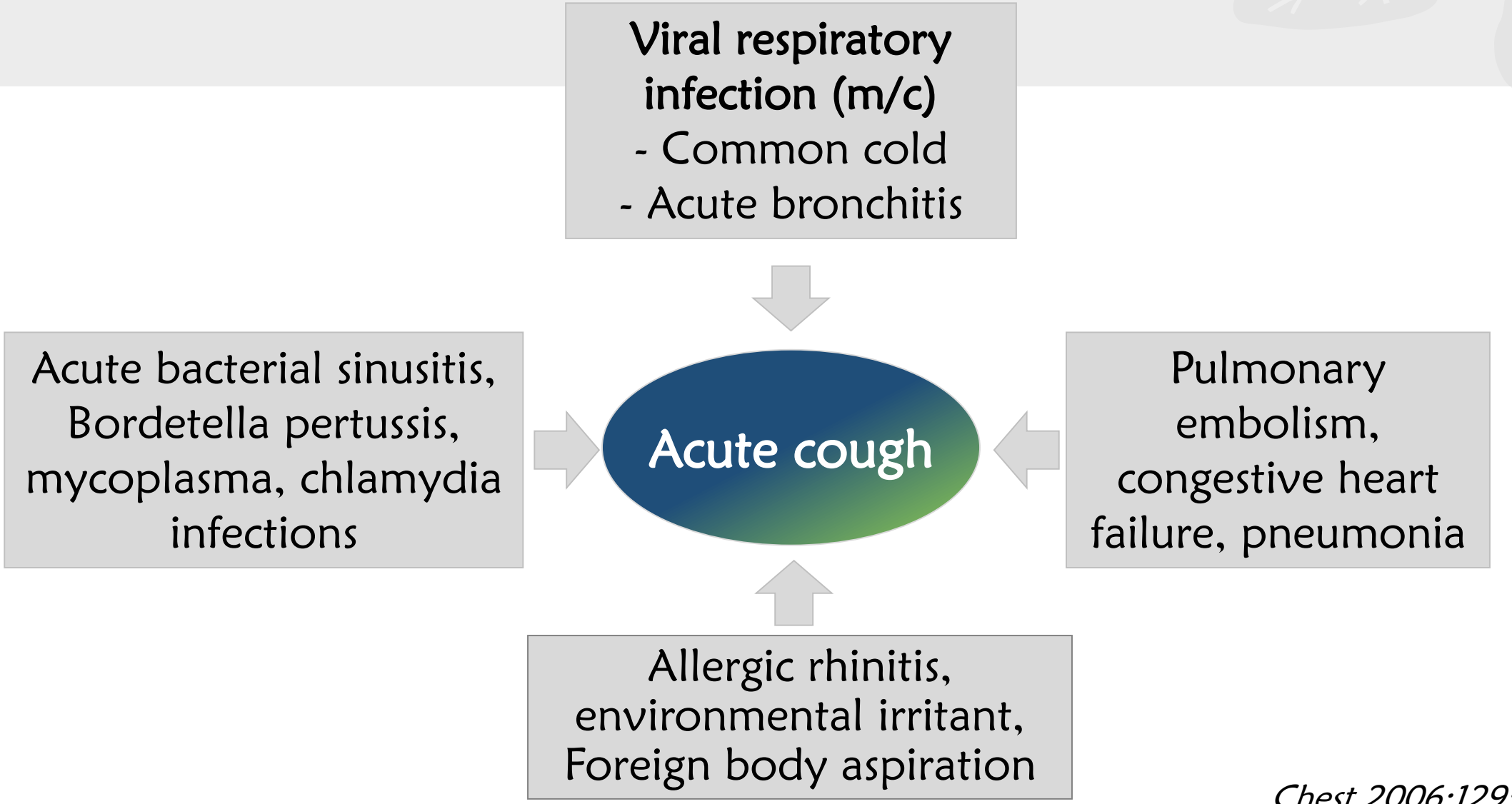
- Acute cough most common and greatest impact on the general public





출처: 건강보험심사평가원

Etiologies



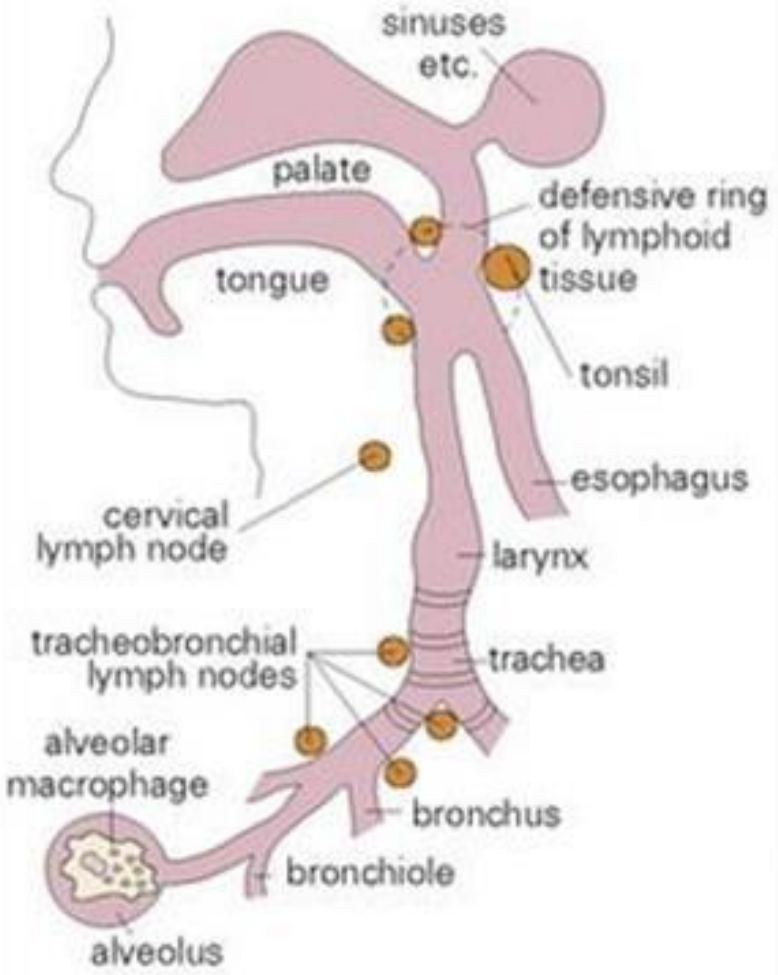
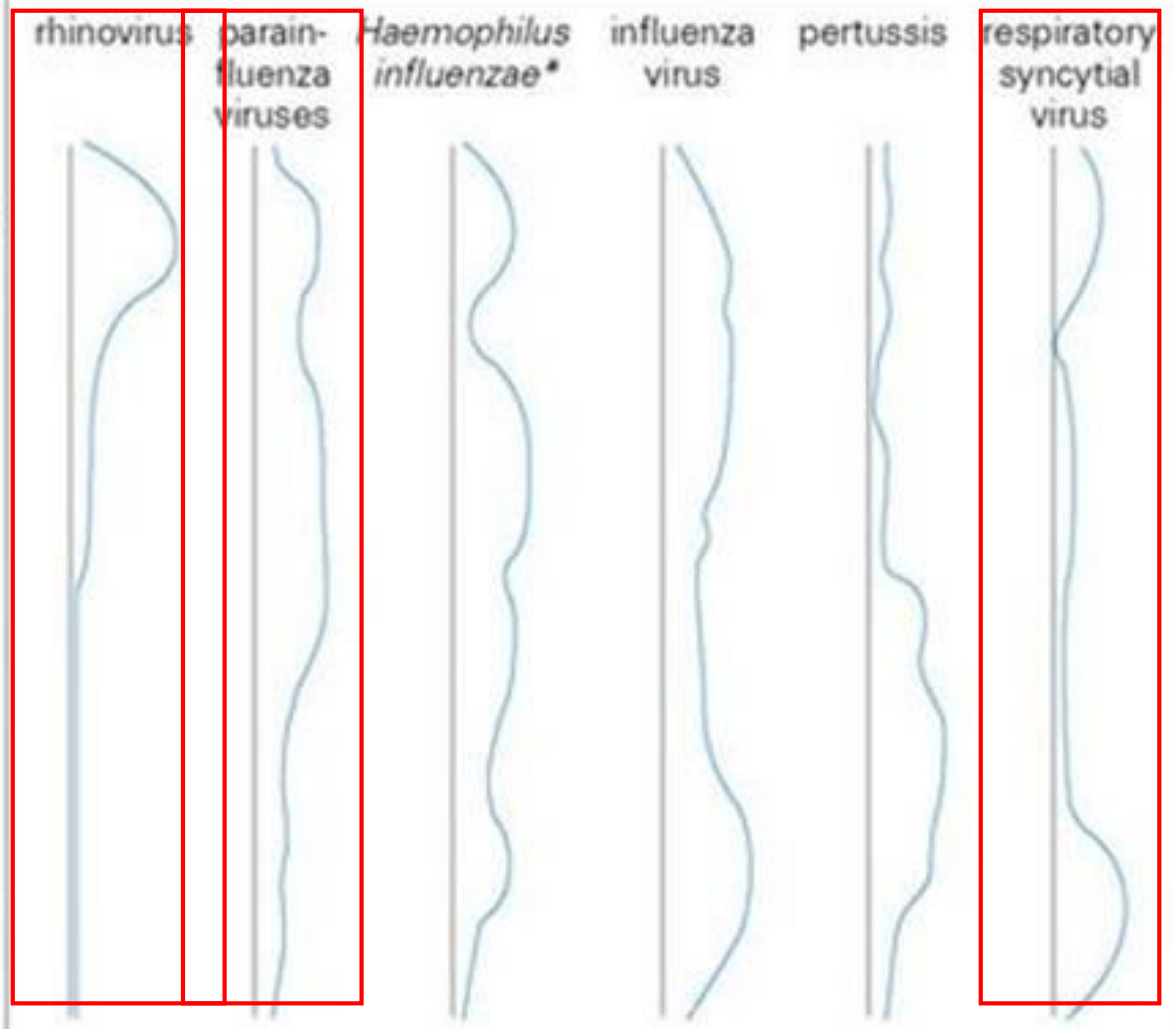
Chest 2006;129:72S-74S
Chest 1998;114(suppl):133S-181S

Common cold

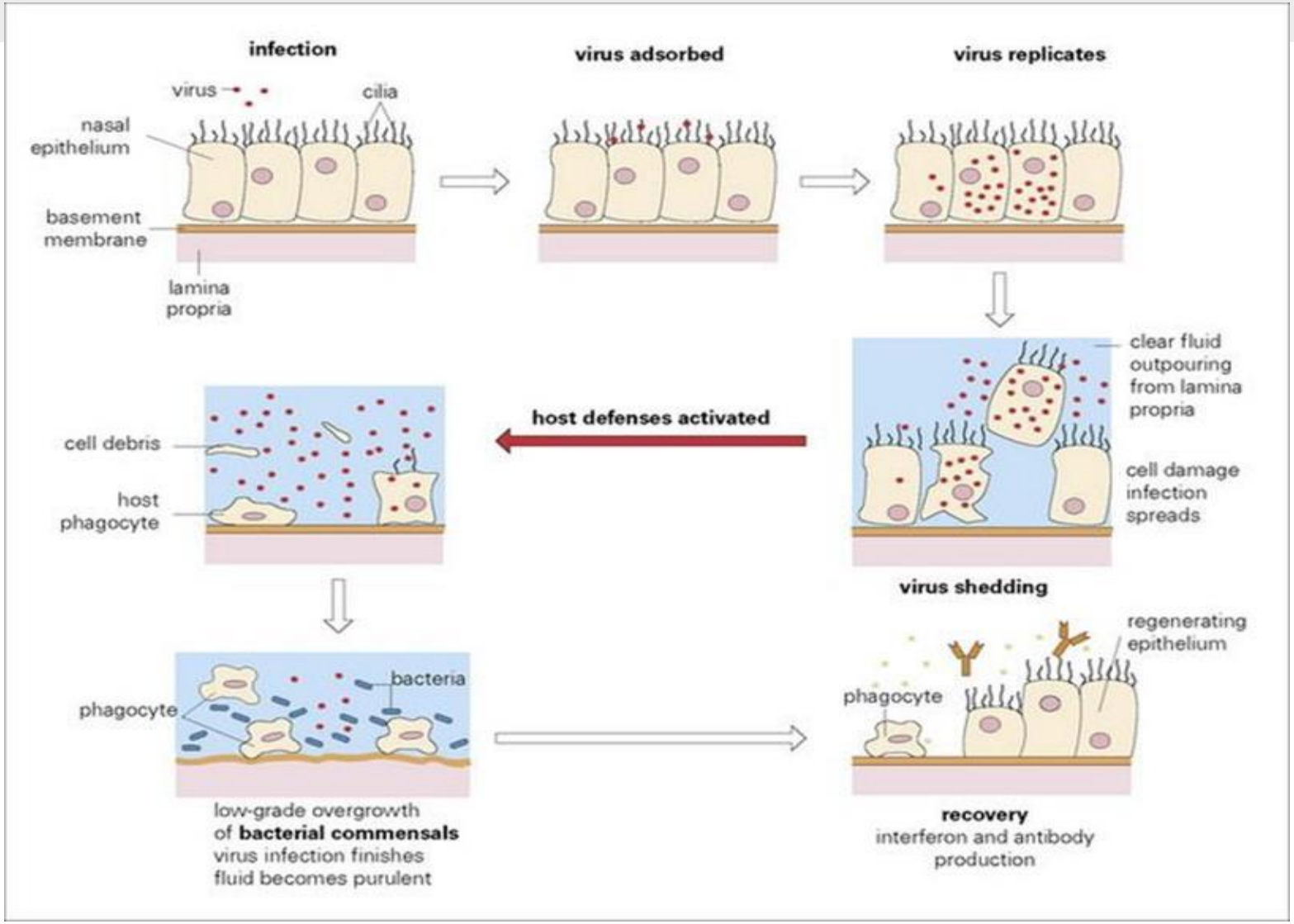
- The infections that involve primarily the **upper respiratory tract**
- One of the most common infectious diseases of humankind

- At least 200 viruses associated
  - Rhinoviruses, coronaviruses, parainfluenza viruses, respiratory syncytial virus (RSV), adenoviruses, and enteroviruses

J Med Assoc Thai 1990;73:96-101
Ann Intern Med 1996;125:81-8

anatomy	clinical picture	microorganisms (areas affected)**
	rhinitis (sinusitis etc.) pharyngitis laryngitis tracheitis bronchitis bronchiolitis pneumonia	

Pathogenesis of the common cold



Cough and the Common cold

- The prevalence of cough due to the common cold is **83% within the first 2 days of illness**

- The exact mechanisms of viral URTI induced cough are unclear
  1. Virus induced postnasal drip (PND)
  2. Virus increase in the sensitivity of the afferent sensory nerves

Am Rev Respir Dis 1988;138:305-311
Chest 2006;129:63S-71S

Cough and the Common cold

- Both PND and direct irritation of airway cough receptors can be factors in how upper airway cough is triggered

- The term "Upper airway cough syndrome (UACS)" was proposed in the 2006 American College of Chest Physicians (ACCP) cough guidelines to replace the term PNDS

Chest 2006;129:63S-71S

Acute bronchitis

- **Self-limited inflammation of the large airways of the lung** and clinically expressed as cough, which may include sputum production lasting one to three weeks

- **No diagnostic test** that can differentiate other disorders
  - No clinical or radiographic evidence of pneumonia
  - Common cold, acute asthma, or an exacerbation of COPD ruled out

BMJ 1998;317:1433
Chest 2006;129:95S-103S

Causes of Acute bronchitis

- **Viral infection (m/c)**
  - Influenza B, influenza A, parainfluenza, and RSV
  - Coronavirus, rhinovirus, and adenovirus

- **Bacterial infection (~10%)**
  - Mycoplasma pneumoniae, Chlamydophila pneumoniae, Bordetella pertussis, and Bordetella parapertussis

- Others : cold air, dust, environmental irritants

Chest 2006;129:955-1035

Diagnosis of Acute bronchitis

- Based upon the history and physical examination
  - Cough - persists for five or more days and lasts up to three weeks, with production of purulent-appearing sputum
  - Bronchospasm, mild dyspnea
  - Wheezing or rhonchi
  - Generally afebrile
    - fever suggests the presence of either influenza or pneumonia

N Engl J Med 2006;355:2125-30

Cough associated with acute bronchitis

- The mechanism of cough in acute bronchitis is multifactorial.
  - Mucosal injury, epithelial cell damage, and the release of proinflammatory mediators
  - Thickening of the bronchial and tracheal mucosa by microscopical examination
  - Transient bronchial hyperresponsiveness and even airflow obstruction can occur

Chest 2006;129:95S-103S

Acute bronchitis and clinical outcome three years later: prospective cohort study

Jón Steinar Jónsson, Thorarinn Gíslason, Davíd Gíslason, Jóhann A Sigurdsson

- 138 patients with acute bronchitis followed up for three years (1992-1995)
- Questionnaire, spirometry, a methacholine challenge test, and skin prick test
- **34% (32/95) of patients with acute bronchitis fulfilled critieria for asthma or chronic bronchitis, or both**
  - ✓ 18 patients fulfilled criteria for asthma
  - ✓ 20 patients fulfilled critieria for chronic bronchitis (6 of these 20 also fulfilled criteria for asthma)

BMJ 1998;317:1433

ORIGINAL PAPER

Asthma in adult patients presenting with symptoms of acute bronchitis in general practice

Henk A. Thiadens[1], Dirkje S. Postma[2], Geertruida H. de Bock[1], Dieck A.N. Huysman[1], Hans C. van Houwelingen[3] and Machiel P. Springer[1]

Departments of [1]General Practice, Leiden University Medical Centre, [2]Lung Diseases, University Hospital Groningen, [3]Medical Statistics, Leiden University Medical Centre, The Netherlands.

- Of the 80 patients with symptoms of acute bronchitis, 29 (36.9%) were patients with asthma

Table II. Odds ratios of significant symptoms to the diagnosis asthma as derived from logistic regression with symptoms of acute bronchitis (n = 80).

Variable	Odds ratios (95% CI)
Female sex	5.7 (1.4–22.0)
Current wheeze[1]	4.0 (1.3–12.4)
Allergen-induced symptoms	5.2 (1.1–26.3)
Attacks of dyspnoea over the last year	3.2 (1.1–10.3)

Scand J Prim Health Care 2000;18

Ann Allergy. 1985 Oct;55(4):568-70.

Recurrent acute bronchitis: the association with undiagnosed bronchial asthma.

Hallett JS, Jacobs RL.

Abstract

Forty-six consecutive patients with a history of recurrent acute bronchitis (chest colds) referred from primary care clinics were studied prospectively to determine if hyperreactive airways (mild bronchial asthma) was a concomitant entity. Mild bronchial asthma was diagnosed in ovocation. The inciden hat seen in the gene e bronchitis.

- Mil
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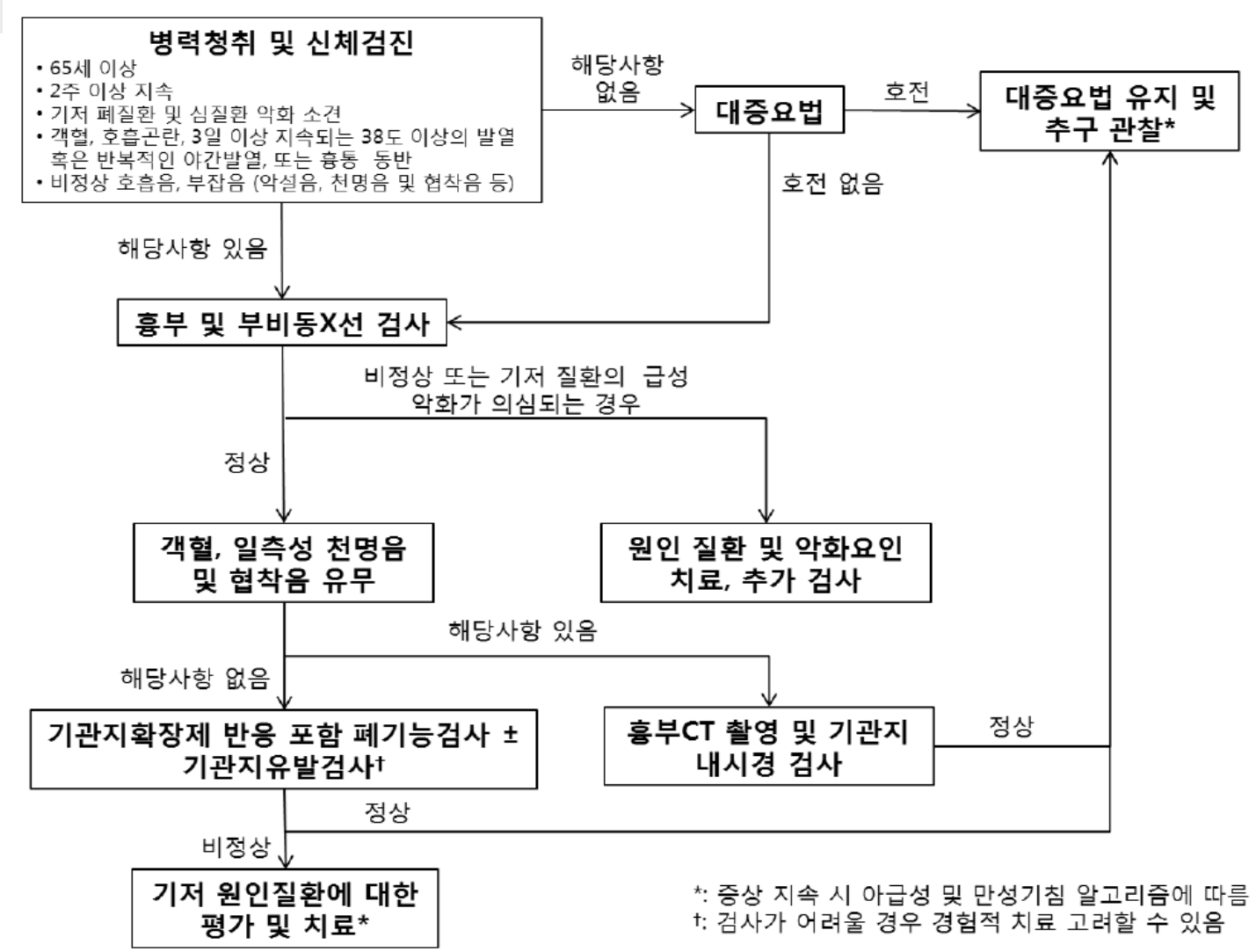
In patients with acute bronchitis,

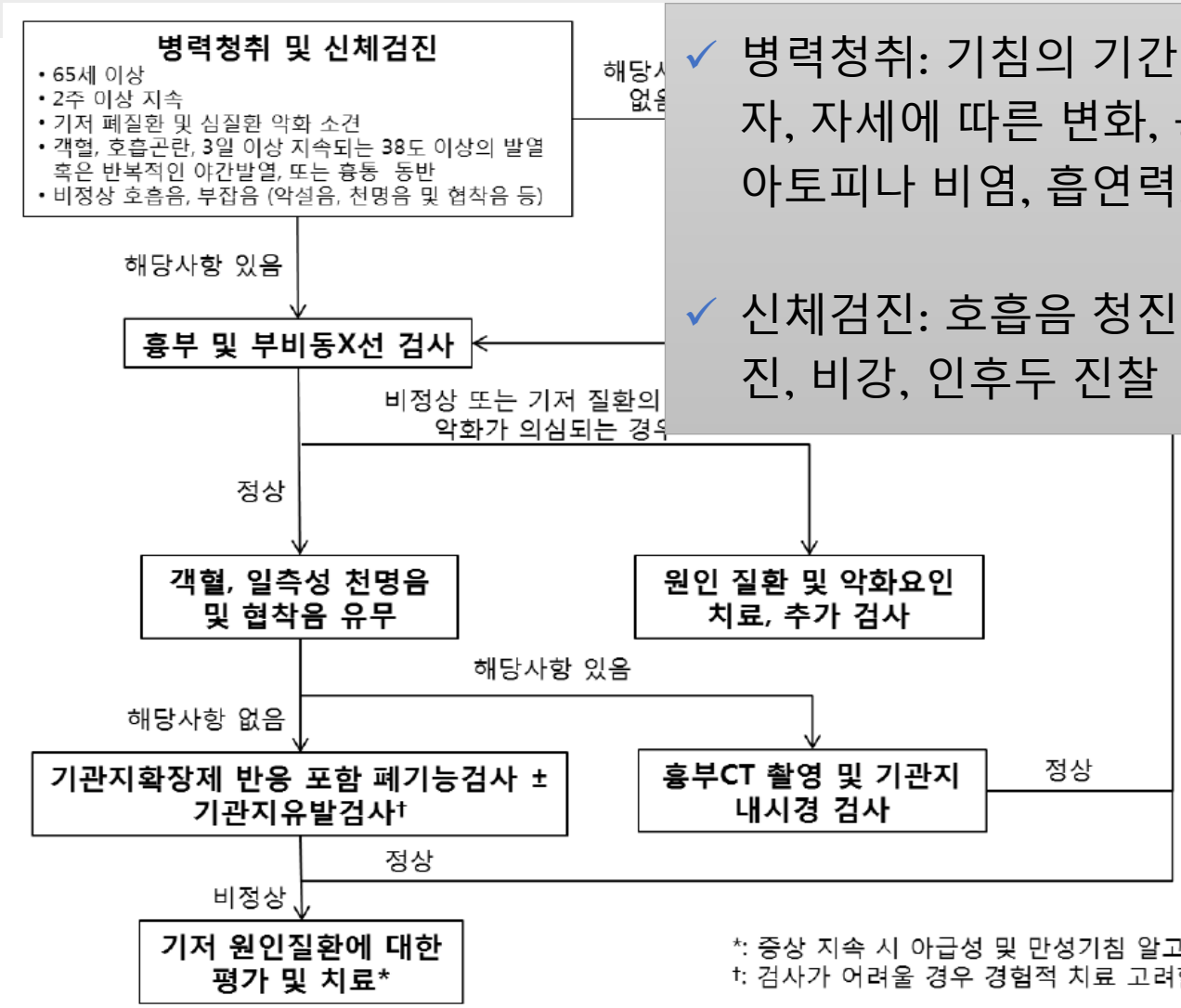
- Consider bronchial hyperresponsiveness, asthma, or chronic bronchitis
- Inform the patient of the risk of developing chronic lung disease

Practical approach of Acute cough



기침 진료지침

Practical approach of Acute cough



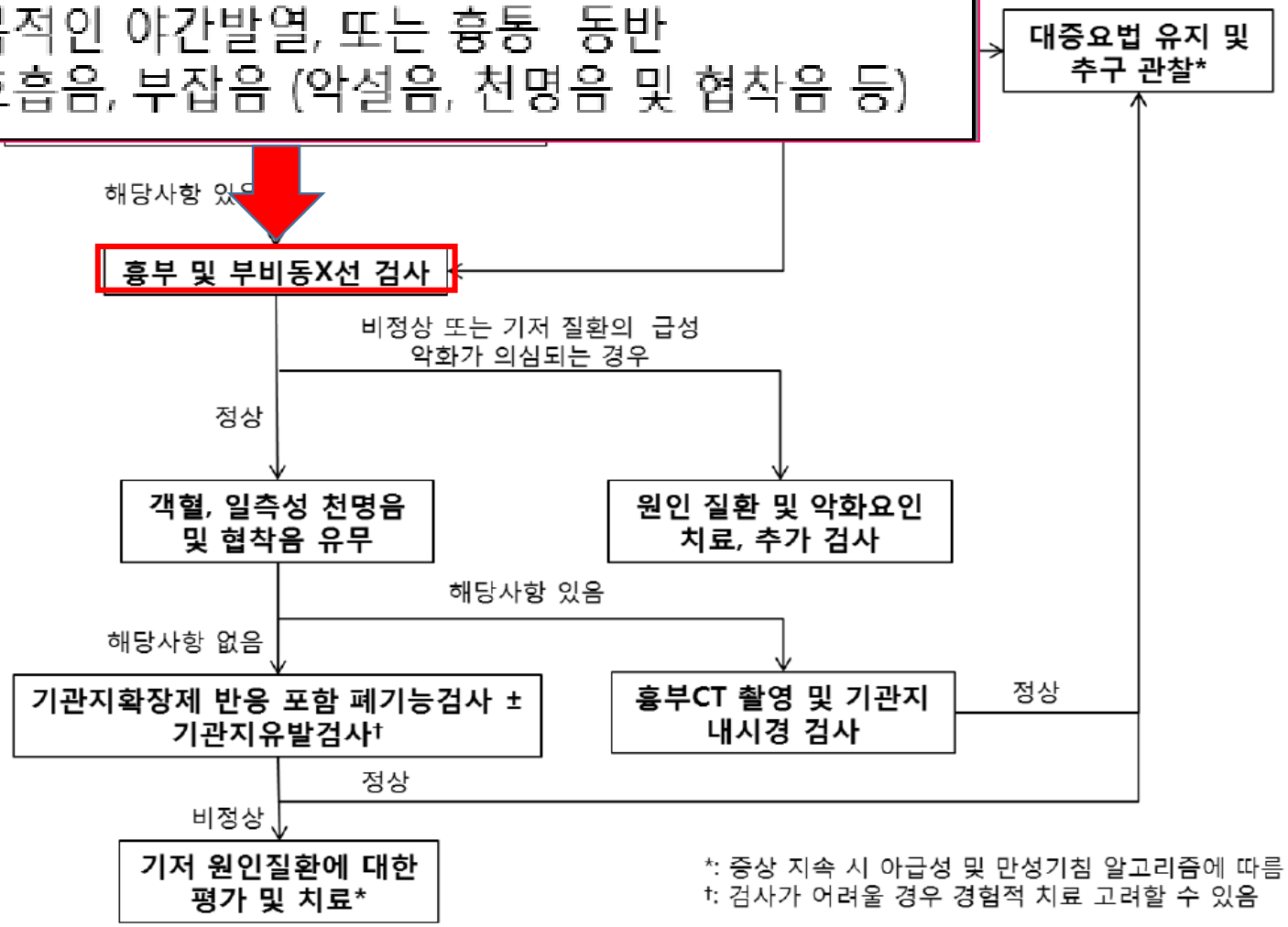
- ✓ 병력청취: 기침의 기간, 발생시점, 빈도, 특성, 악화인자, 자세에 따른 변화, 동반 증상, 객담의 양이나 색깔, 아토피나 비염, 흡연력, 먼지나 화학물질 노출력
- ✓ 신체검진: 호흡음 청진 (wheezing or crackle), 심음 청진, 비강, 인후두 진찰

기침 진료지침

Pr ough

병력청취 및 신체검진

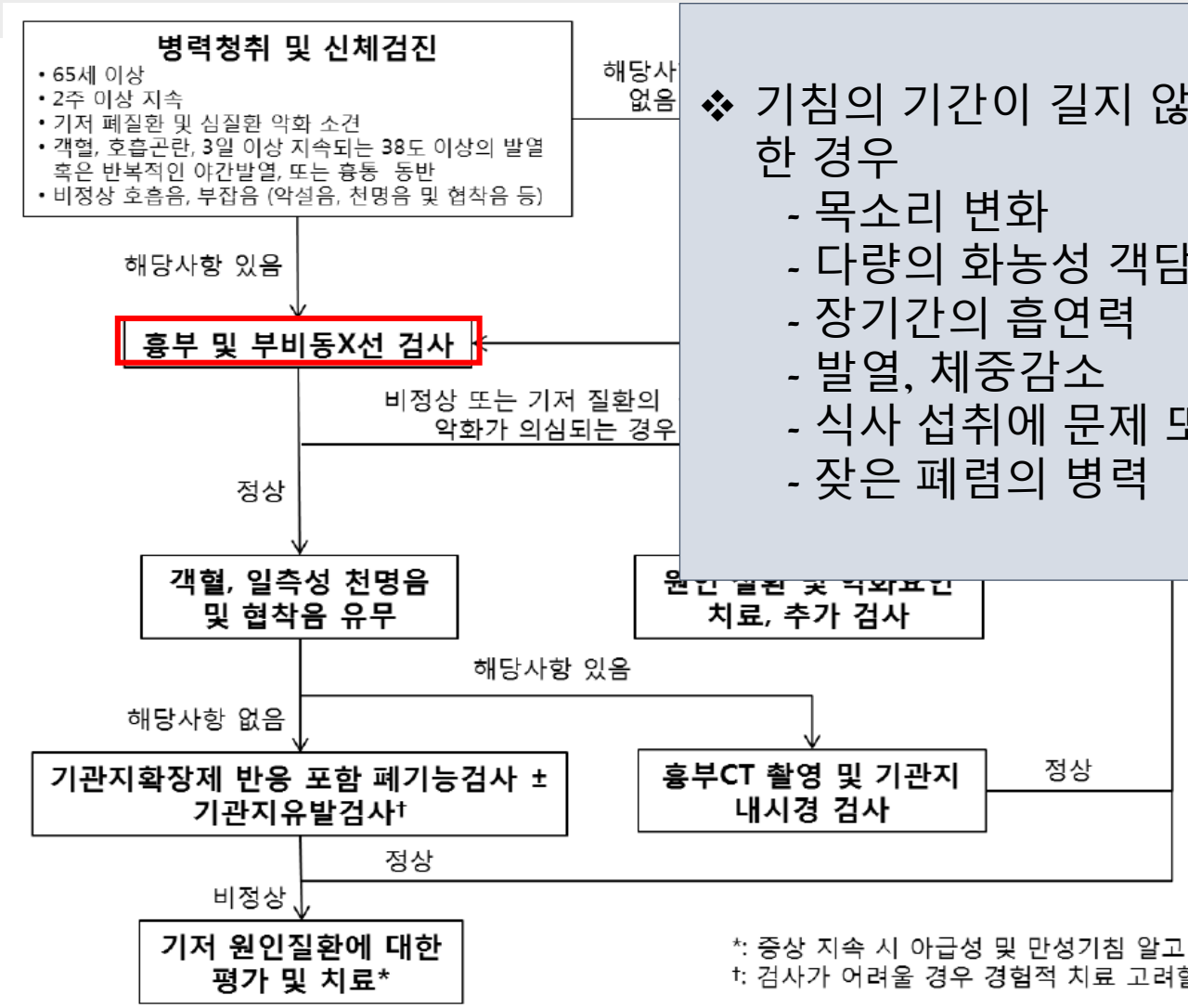
- 65세 이상
- 2주 이상 지속
- 기저 폐질환 및 심질환 악화 소견
- 객혈, 호흡곤란, 3일 이상 지속되는 38도 이상의 발열 혹은 반복적인 야간발열, 또는 흉통 동반
- 비정상 호흡음, 부잡음 (악설음, 천명음 및 협착음 등)



*: 증상 지속 시 아급성 및 만성기침 알고리즘에 따름
†: 검사가 어려울 경우 경험적 치료 고려할 수 있음

기침 진료지침

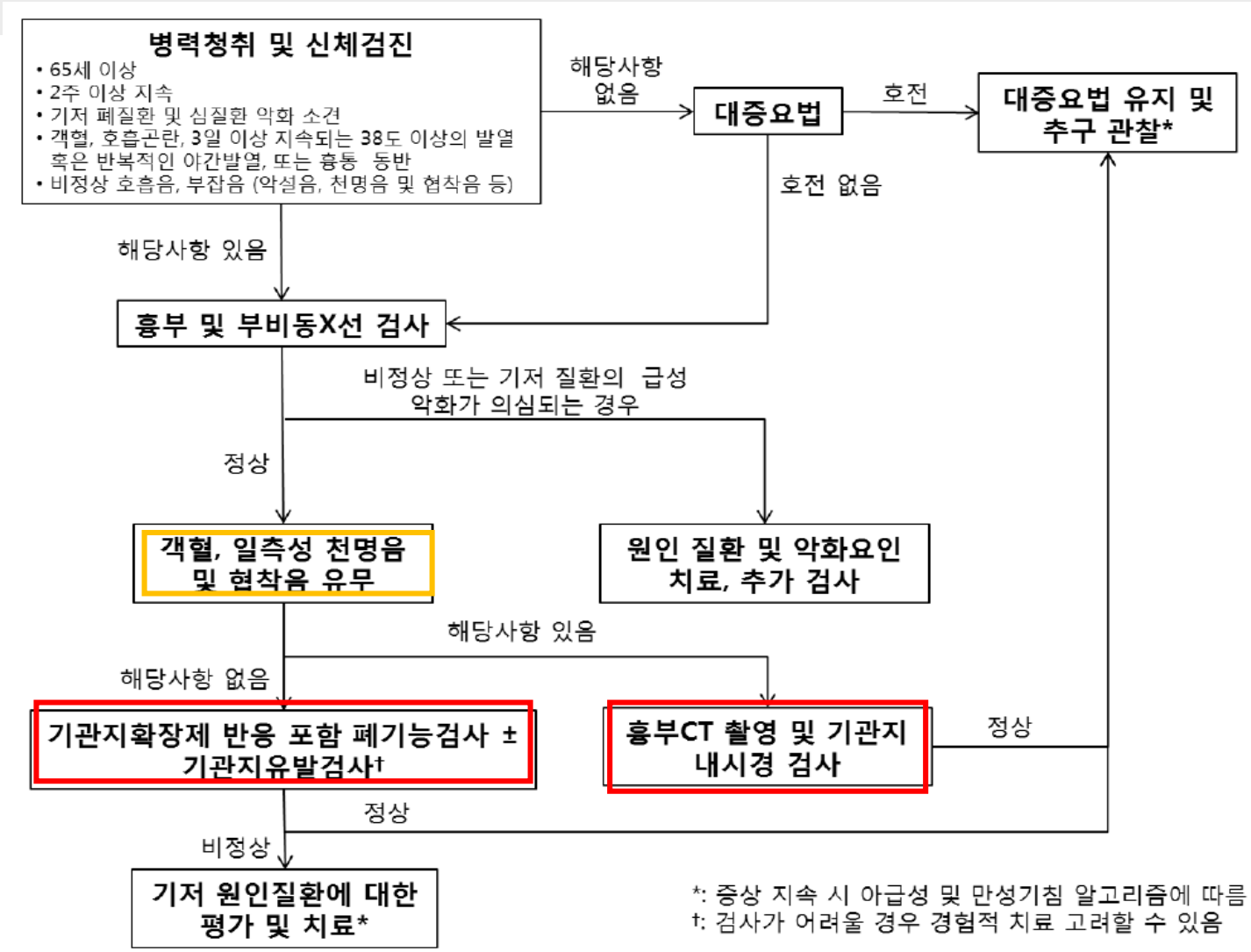
Practical approach of Acute cough



❖ 기침의 기간이 길지 않더라도 특별한 주의가 필요한 경우
- 목소리 변화
- 다량의 화농성 객담
- 장기간의 흡연력
- 발열, 체중감소
- 식사 섭취에 문제 또는 흡인성 폐렴의 과거력
- 잦은 폐렴의 병력

기침 진료지침

Practical approach of Acute cough



기침 진료지침

Management
- Common cold

- Combination of a first-generation antihistamine (brompheniramine) plus a decongestant (pseudoephedrine)
- Nonsteroidal anti-inflammatory drug (naproxen)
- Second-generation nonsedating antihistamines
- Topical a-adrenergic therapy
- Topical anticholinergic therapy

Management
- Common cold

1. Combination of first-generation antihistamine plus a decongestant
- Resolution of both cough and postnasal drip

Cough and the Common Cold

Frederick J. Curley , Richard S. Irwin , Melvin R. Pratter , Diane H. Stivers , Gary V. Doern , Paul A. Vernaglia , Andrew B. Larkin , and Stephen P. Baker

DOI: 10.1164/ajrccm/138.2.305 PubMed: 3057962

- In a double-blind placebo controlled study, Antihistamine-decongestant therapy reduced postnasal drip and significantly decreased the severity of cough during the first few days of the common cold.

Am Rev Respir Dis 1988;138:305-311

Management
- Common cold

1. Combination of first-generation antihistamine plus a decongestant

- Resolution of both cough and postnasal drip

❖ *The American College of Chest Physicians (ACCP)*

> *Patients with acute cough (as well as PND and throat clearing) associated with the common cold can be treated with a first-generation A/D preparation (brompheniramine and sustained-release pseudoephedrine). Naproxen can also be administered to help decrease cough in this setting. Level of evidence, fair; benefit, substantial; grade of recommendation, A*

Chest 2006;129:72S-74S

Management
- Common cold

2. NSAID beneficial effect on headache, malaise, myalgia, and cough

‹ PREV ARTICLE | THIS ISSUE | NEXT ARTICLE ›

ORIGINAL RESEARCH | 1 JULY 1992

Effects of Naproxen on Experimental Rhinovirus Colds: A Randomized, Double-Blind, Controlled Trial

Steven J. Sperber, MD; J. Owen Hendley, MD; Frederick G. Hayden, MD; Donald K. Riker, PhD; James V. Sorrentino, PhD; Jack M. Gwaltney, MD

- Naproxen treatment did not alter virus shedding in participants with experimental rhinovirus colds
- But it had a beneficial effect on the symptoms of headache, malaise, myalgia, and cough.

Ann Intern Med 1992;117:37-41

Management
- Common cold

2. NSAID beneficial effect on headache, malaise, myalgia, and cough

❖ *The American College of Chest Physicians (ACCP)*

> *Patients with acute cough (as well as PND and throat clearing) associated with the common cold can be treated with a first-generation A/D preparation (brompheniramine and sustained-release pseudoephedrine). Naproxen can also be administered to help decrease cough in this setting. Level of evidence, fair; benefit, substantial; grade of recommendation, A*

Chest 2006;129:72S-74S

Management
- Common cold

❖ Acetaminophen

[Intervention Review]

Acetaminophen (paracetamol) for the common cold in adults

Siyuan Li[1], Jirong Yue[2], Bi Rong Dong[2], Ming Yang[2], Xiufang Lin[2], Taixiang Wu[3]

- Acetaminophen relieve nasal obstruction and rhinorrhea, but not improve some other cold symptoms (including sore throat, malaise, sneezing and cough)

Cochrane Database Syst Rev. 2013;1(7)

Management
- Common cold

3. Second-generation nonsedating antihistamines
- ineffective in common cold

Ann Allergy. 1991 Dec;67(6):593-7.

Evaluation of oral terfenadine for treatment of the common cold.

Berkowitz RB[1], Tinkelman DG.

- 49 subjects were treated with terfenadine (120 mg twice each day), and 48 subjects were treated with placebo twice each day for four or five days.
- When comparing terfenadine to placebo, neither the symptoms nor signs of the common cold improved in a clinically or statistically significant manner.

Management
- Common cold

3. Second-generation nonsedating antihistamines
- ineffective in common cold

❖ *The American College of Chest Physicians (ACCP)*

> *In patients with the common cold, newer generation nonsedating antihistamines are ineffective for reducing cough and should not be used.*
> *Level of evidence, fair; benefit, none; grade of recommendation, D*

Chest 2006;129:72S-74S

Management
- Common cold

4. Topical a-adrenergic therapy

- Vasoconstriction decreases blood flow through the nasal mucosa and results in shrinkage of this tissue
- No prospective data showing its efficacy are available
- But, can be used in the **short term (3–5 days)**
- Prolonged use is not advised because of the risk of rebound congestion (“**rhinitis medicamentosa**”)

Lung 2010;188:S41-S46

Management
- Common cold

5. Topical anticholinergic therapy

‹ PREV ARTICLE | THIS ISSUE | NEXT ARTICLE ›
ORIGINAL RESEARCH | 15 JULY 1996

Effectiveness and Safety of Intranasal Ipratropium Bromide in Common Colds: A Randomized, Double-Blind, Placebo-Controlled Trial

Frederick G. Hayden, MD; Louis Diamond, PhD; Pauline B. Wood, MD; David C. Korts, PhD; Margaret T. Wecker, PhD
Article, Author, and Disclosure Information

- Decrease rhinorrhea and sneezing in the common cold
- But, its efficacy on decreasing cough was not evaluated

Ann Intern Med 1996;125:89-97

Management
- Common cold

6. **Sinus imaging** not recommended within the first week of onset

❖ *The American College of Chest Physicians (ACCP)*

- *In patients with cough and acute URTI, because symptoms, signs, and even sinus imaging abnormalities may be indistinguishable from acute bacterial sinusitis, the diagnosis of bacterial sinusitis should not be made during the first week of symptoms. (Clinical judgment is required to decide whether to institute antibiotic therapy.) Level of evidence, fair; benefit, none; grade of recommendation, D*

Chest 2006;129:72S-74S

Management
- Common cold

ORIGINAL ARTICLE

Computed Tomographic Study of the Common Cold

Jack M. Gwaltney, Jr., C. Douglas Phillips, R. David Miller, and Donald K. Riker

N Engl J Med 1994; 330:25-30 | January 6, 1994 | DOI: 10.1056/NEJM199401063300105

- Of the 31 subjects with recent onset colds, **27 (87%) had abnormalities of one or both maxillary sinus cavities** at CT scans
- Common cold is associated with frequent anatomical involvement of the sinus cavities.

Management
- Common cold

7. Antitussive agent and over the counter combination cold medications not recommended

❖ *The American College of Chest Physicians (ACCP)*

In patients with cough due to URI, peripheral or central cough suppressants have limited efficacy and are not recommended for this use. Level of evidence, good; benefit, none; grade of recommendation, D

In patients with acute cough due to the common cold, over the counter combination cold medications, with the exception of an older antihistamine-decongestant, are not recommended until randomized controlled trials prove that they are effective cough suppressants. Level of evidence, fair; benefit, none; grade of recommendation, D

Chest 2006;129:238S-249S

Management
- Acute bronchitis

- Antitussive agents
- Mucoactive agents
- Inhaled bronchodilators
- Antibiotics

Management
- Acute bronchitis

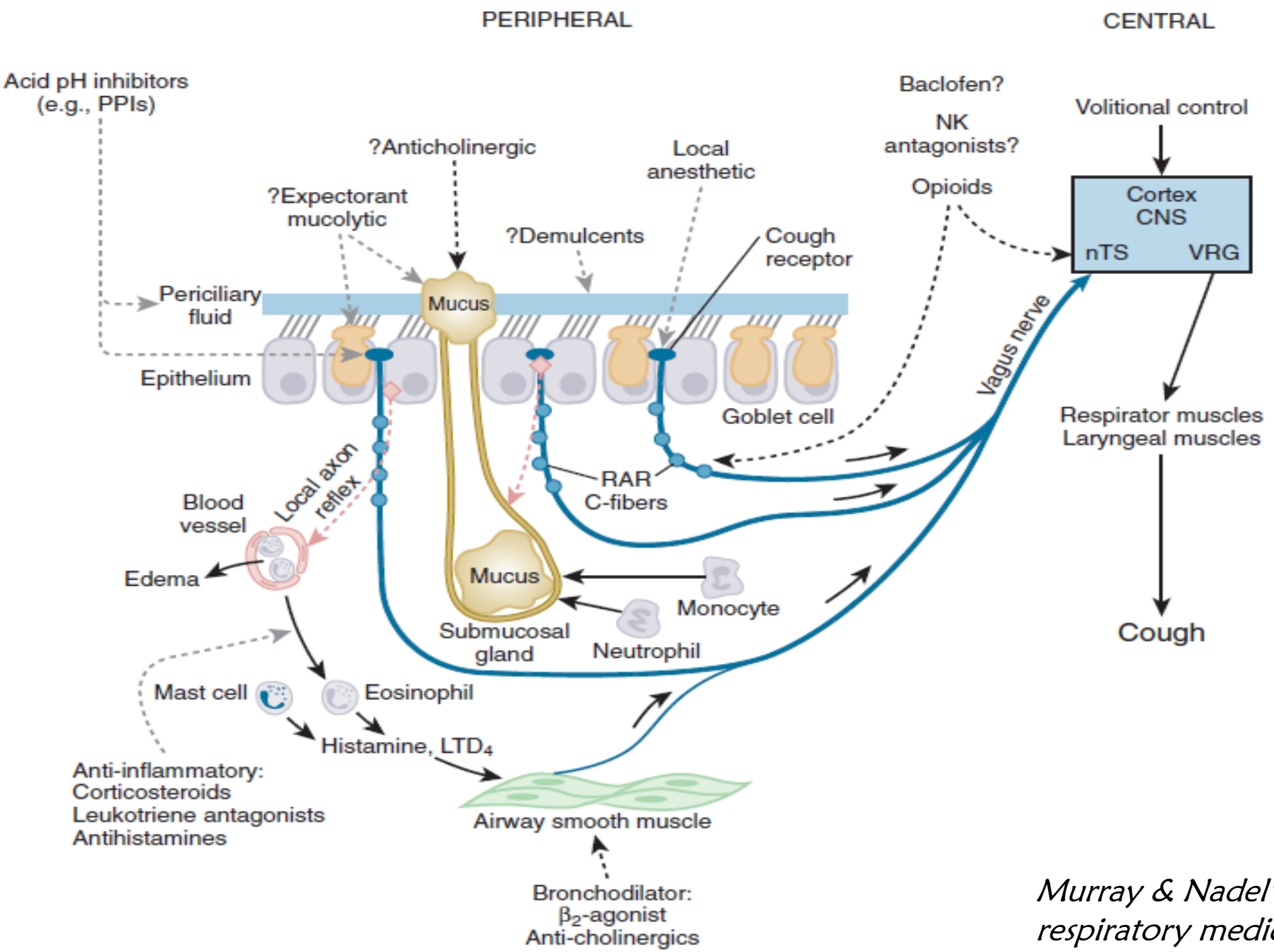
1. Antitussive agents

- Cough due to viral respiratory tract infections not respond to antitussive therapy, but chronic cough improve with antitussive therapy

❖ *The American College of Chest Physicians (ACCP)*

> *In patients with a diagnosis of acute bronchitis, antitussive agents are occasionally useful and can be offered for short-term symptomatic relief of coughing. Quality of evidence, fair; benefit, small/weak; grade of recommendation, C*

Chest 2006;129:95S-103S



Murray & Nadel's textbook of respiratory medicine

Management
- Acute bronchitis

1. Antitussive agents
   - Central cough suppressants
     - Opioids (morphine, codeine)
       - Potential for physical dependence, respiratory depression, and gastrointestinal colic
     - Non-opioid antitussive (dextromethorphan, levopropoxyphene)
       - No analgesic or sedative properties

Chest 2006;129:238S-249S

Management
- Acute bronchitis

1. Antitussive agents
   - Peripheral cough suppressants
     - Suppression of pulmonary afferent activity
     - Levodropropizine
       - Inhibition in activation of C-fiber sensory afferents
     - Theobromine
       - Blocking of TRPV-1 (transient receptor potential vanilloid-1)

Chest 2006;129:238S-249S

Management
- Acute bronchitis

2. Mucoactive agents

- Medications to affect mucus properties and promote secretion clearance
- No consistent favorable effects shown with expectorant and mucolytic agents on the cough associated with acute bronchitis

❖ *The American College of Chest Physicians (ACCP)*

> *In patients with a diagnosis of acute bronchitis, because there is no consistent favorable effect of mucokinetic agents on cough, they are* ***not recommended****. Quality of evidence, fair; benefit, conflicting; grade of recommendation, I*

Chest 2006;129:95S-103S

Management
- Acute bronchitis

2. Mucoactive agents

- **Expectorants** : guaifenesin, hypertonic saline, dry powder mannitol
- **Mucoregulators** : carbocysteine, anticholinergics, glucocorticoid, macrolide
- **Mucolytics** : N-acetylcysteine, bromhexin, erdosteine
- **Mucokinetics** : bronchodilators, ambroxol, acebrophylline

Chest 2006;129:238S-249S

Management
- Acute bronchitis

3. Inhaled bronchodilators

❖ *The American College of Chest Physicians (ACCP)*

> ***In most patients with a diagnosis of acute bronchitis, β2-agonist bronchodilators should not be routinely used to alleviate cough.*** *Quality of evidence, fair; benefit, none; grade of recommendation, D*
>
> ***In select adult patients with a diagnosis of acute bronchitis and wheezing accompanying the cough, treatment with β2-agonist bronchodilators may be useful.*** *Quality of evidence, fair; benefit, small/weak; grade of recommendation, C*

Chest 2006;129:95S-103S

Management
- Acute bronchitis

4. Antibiotics

❖ *The American College of Chest Physicians (ACCP)*

> *For patients with the putative diagnosis of acute bronchitis, routine treatment with antibiotics is not justified and should not be offered. Quality of evidence, good; benefit, none; grade of recommendation, D*

Chest 2006;129:95S-103S

Management
- Acute bronchitis

Table 2. Randomized Trials of Antibiotics in Acute Bronchitis

First Author, Year (reference)	No. of Subjects	Antibiotic	Main Outcome Measure	Study Result (95% CI)*	Standardized Effect Size (95% CI)†
Howie, 1970 (31)	836	Demethyl-chlortetracycline	Average days of purulent spit	0.3‡	Not available‡
Stott, 1976 (33)	207	Doxycycline	Days of yellow spit	0.6 (−0.2 to 1.4)	0.20 (−0.08 to 0.48)
Franks, 1984 (30)	54	Trimethoprim/sulfamethoxazole	Cough amount score	0.2 (−0.2 to 0.6)§	0.25 (−0.30 to 0.79)
Williamson, 1984 (34)	69	Doxycycline	Days of purulent sputum	−0.2 (−1.2 to 0.8)	−0.09 (−0.57 to 0.38)
Brickfield, 1986 (28)	50	Erythromycin	Sputum production score	0.2‡¶	Not available‡
Dunlay, 1987 (29)	45	Erythromycin	Sputum production score on day 10	0.5 (0.1 to 0.9)#	0.80 (0.20 to 1.41)
Scherl, 1987 (32)	31	Doxycycline	Days of sputum	1.9 (−0.2 to 4.0)	0.64 (−0.08 to 1.36)
Verheij, 1994 (35)	140	Doxycycline	Days of productive cough	0.5 (−0.4 to 1.4)	0.18 (−0.15 to 0.52)
Hueston, 1994 (36)	23	Erythromycin	Days of productive cough	−0.4 (−2.4 to 1.6)	−0.21 (−1.14 to 0.72)
King, 1996 (37)	91	Erythromycin	Days of sputum production	0.7 (−1.3 to 2.7)	0.14 (−0.27 to 0.55)

Am J Med 1999;107:62-7

Management
- Acute bronchitis

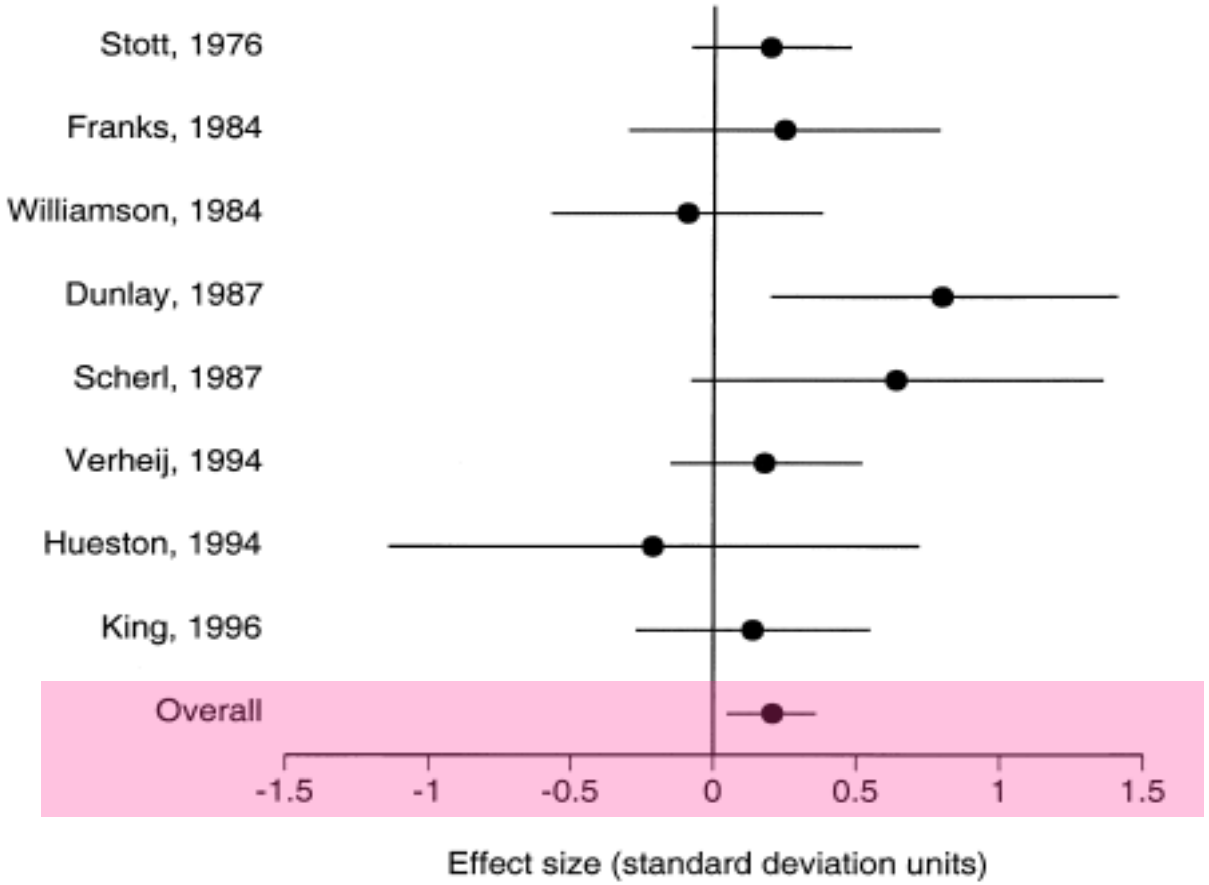


Table 3. Summary Mean Differences between Antibiotic and Placebo Groups

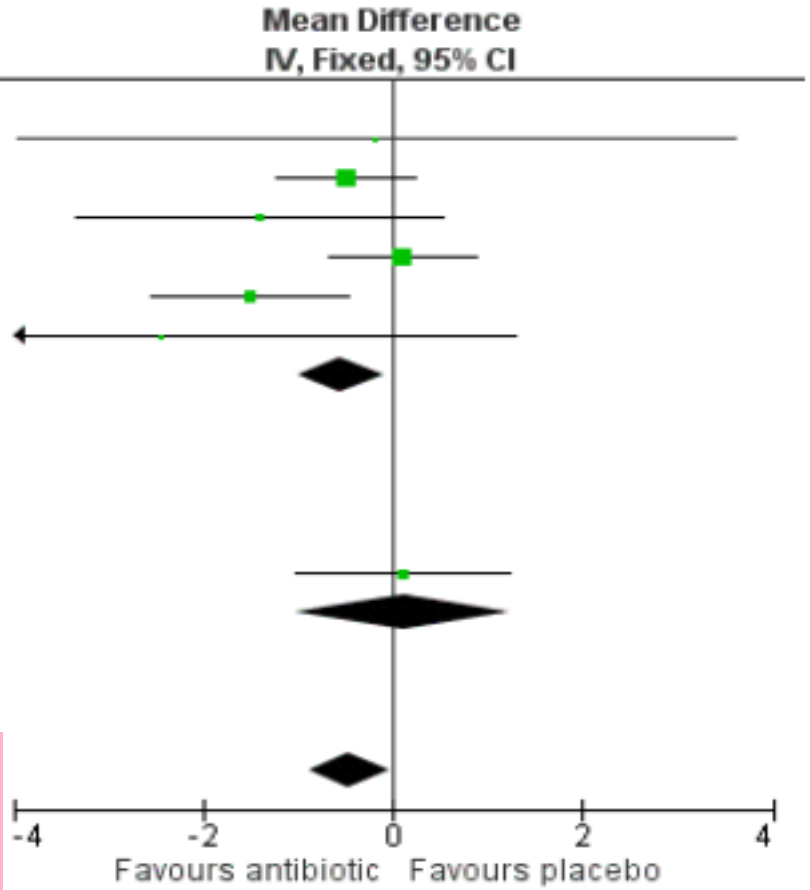
Outcome Measure (reference)	Summary Mean Difference (95% CI)*
Days of purulent sputum (6 trials) (32–37)	0.4 days (−0.1–0.8)
Days of cough (4 trials) (32–35)	0.5 days (−0.1–1.1)†
Time off work (6 trials) (32–37)	0.3 days (−0.6–1.1)†

Am J Med 1999;107:62-7

Management
- Acute bronchitis

Cough at 8 days visit, outcome: mean number of days of cough

Study or Subgroup	Antibiotic Mean	SD	Total	Placebo Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
4.1.1 Acute bronchitis studies								
King 1996	8.76	7.57	50	8.94	10.37	42	1.2%	-0.18 [-3.95, 3.59]
Little 2013	8.81	8	908	9.3	7.78	899	33.0%	-0.49 [-1.22, 0.24]
Scherl 1987	9.4	3.08	16	10.8	2.38	15	4.7%	-1.40 [-3.33, 0.53]
Stott 1976	6.4	2.6	104	6.3	3	103	29.9%	0.10 [-0.67, 0.87]
Verheij 1994	4.7	3.1	71	6.2	3.2	69	16.0%	-1.50 [-2.54, -0.46]
Williamson 1984	7.97	7.22	39	10.41	8.8	34	1.3%	-2.44 [-6.17, 1.29]
Subtotal (95% CI)			**1188**			**1162**	**86.2%**	**-0.55 [-1.00, -0.10]**
Heterogeneity: Chi² = 7.75, df = 5 (P = 0.17); I² = 35%								
Test for overall effect: Z = 2.38 (P = 0.02)								
4.1.2 Subgroup with no placebo control								
Little 2005	11.56	6.04	214	11.45	5.8	212	13.8%	0.11 [-1.01, 1.23]
Subtotal (95% CI)			**214**			**212**	**13.8%**	**0.11 [-1.01, 1.23]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 0.19 (P = 0.85)								
Total (95% CI)			**1402**			**1374**	**100.0%**	**-0.46 [-0.87, -0.04]**
Heterogeneity: Chi² = 8.88, df = 6 (P = 0.18); I² = 32%								
Test for overall effect: Z = 2.14 (P = 0.03)								
Test for subgroup differences: Chi² = 1.13, df = 1 (P = 0.29), I² = 11.5%								



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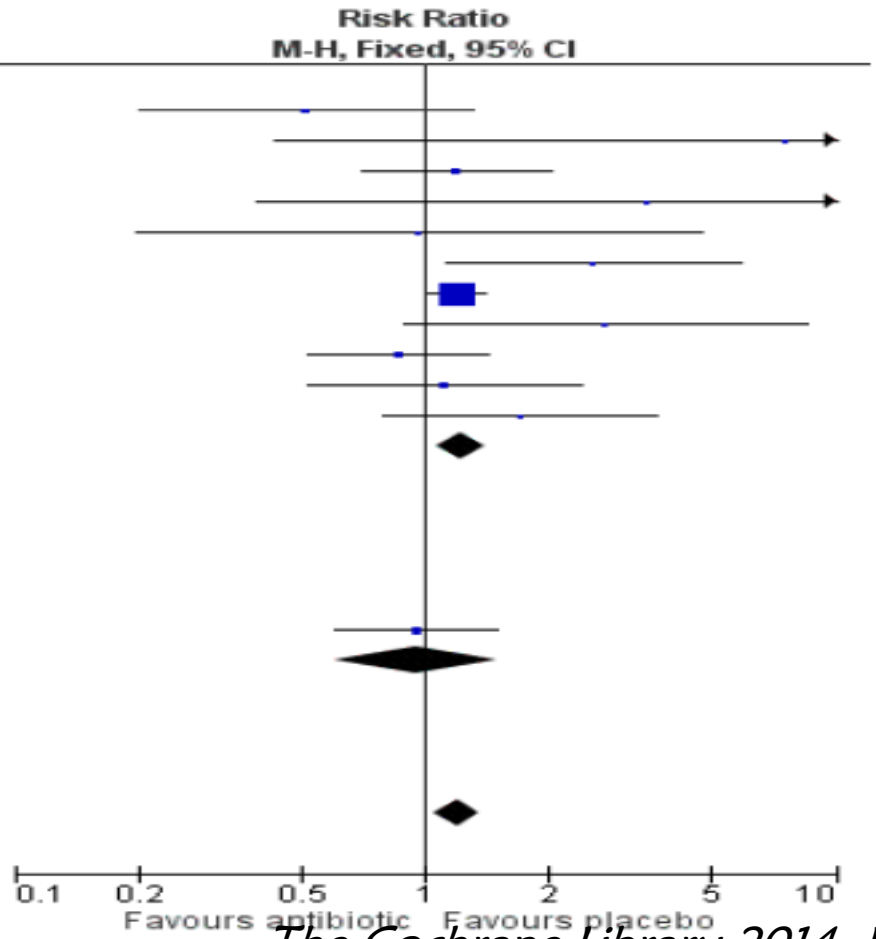
Management
- Acute bronchitis

Number of patients with adverse effects

Study or Subgroup	Antibiotic Events	Antibiotic Total	Placebo Events	Placebo Total	Weight	Risk Ratio M-H, Fixed, 95% CI
12.1.1 Acute bronchitis studies						
Brickfield 1986	5	26	9	24	2.8%	0.51 [0.20, 1.32]
Dunlay 1987	4	31	0	26	0.2%	7.59 [0.43, 134.80]
Evans 2002	24	97	19	92	5.9%	1.20 [0.71, 2.04]
Franks 1984	3	25	1	29	0.3%	3.48 [0.39, 31.38]
Hueston 1994	3	14	2	9	0.7%	0.96 [0.20, 4.69]
King 1996	18	49	6	42	2.0%	2.57 [1.12, 5.88]
Little 2013	249	867	206	860	62.9%	1.20 [1.02, 1.41]
Llor 2013	10	124	4	136	1.2%	2.74 [0.88, 8.52]
Matthys 2000	24	171	28	172	8.5%	0.86 [0.52, 1.42]
Stott 1976	12	104	11	106	3.3%	1.11 [0.51, 2.41]
Verheij 1994	15	78	9	80	2.7%	1.71 [0.80, 3.67]
Subtotal (95% CI)		**1586**		**1576**	**90.5%**	**1.22 [1.07, 1.40]**
Total events	367		295			
Heterogeneity: Chi² = 13.55, df = 10 (P = 0.19); I² = 26%						
Test for overall effect: Z = 2.95 (P = 0.003)						
12.1.2 Subgroup with no placebo control						
Little 2005	34	187	28	147	9.5%	0.95 [0.61, 1.50]
Subtotal (95% CI)		**187**		**147**	**9.5%**	**0.95 [0.61, 1.50]**
Total events	34		28			
Heterogeneity: Not applicable						
Test for overall effect: Z = 0.20 (P = 0.84)						
Total (95% CI)		**1773**		**1723**	**100.0%**	**1.20 [1.05, 1.36]**
Total events	401		323			
Heterogeneity: Chi² = 14.49, df = 11 (P = 0.21); I² = 24%						
Test for overall effect: Z = 2.76 (P = 0.006)						
Test for subgroup differences: Chi² = 1.07, df = 1 (P = 0.30), I² = 6.8%						



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Management
- Acute bronchitis

4. Antibiotics

- Small benefit from the use of the antibiotics in the treatment of acute bronchitis
  - Improvement in duration of cough less than one day
- Risk of side effects and the societal cost of increasing antibiotic resistance

➢ Use of antibiotics is not justified

Management
- Acute bronchitis

4. Antibiotics

❖ *The American College of Chest Physicians (ACCP)*

> *Children and adult patients with confirmed and probable whooping cough should receive a macrolide antibiotic and should be isolated for 5 days from the start of treatment; early treatment within the first few weeks will diminish the coughing paroxysm and prevent spread of the disease; the patient is unlikely to respond to treatment beyond this period.* Level of evidence, good; net benefit, substantial; grade of evidence, A

Chest 2006;129:95S-103S

Management
- Acute bronchitis

- Irritant or allergic exposures
  - Eliminating or avoiding the causative agents
  - Second-generation antihistamines, nasal steroid preparations, or leukotriene inhibitors

Summary

- Acute cough is among the most common symptoms for which patients seek medical attention.
- Acute cough is defined as cough present for 3 weeks or less.
- Caused by a viral infection of the upper respiratory tract (common cold) or lower respiratory tract (acute bronchitis)

Summary

- The most effective treatment due to the common cold is a combination first-generation antihistamine plus decongestant
- Antibiotics are not indicated
- Acute cough can be a symptom of a life-threatening condition.

Thank you for your attention