[ Evidence-Based Medicine ]

CHEST

# Classification of Cough As a Symptom in Adults and Management Algorithms

## CHEST Guideline and Expert Panel Report

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**BACKGROUND:** We performed systematic reviews using the population, intervention, comparison, outcome (PICO) format to answer the following key clinical question: Are the CHEST 2006 classifications of acute, subacute and chronic cough and associated management algorithms in adults that were based on durations of cough useful?

**METHODS:** We used the CHEST Expert Cough Panel's protocol for the systematic reviews and the American College of Chest Physicians (CHEST) methodological guidelines and Grading of Recommendations Assessment, Development, and Evaluation framework. Data from the systematic reviews in conjunction with patient values and preferences and the clinical context were used to form recommendations or suggestions. Delphi methodology was used to obtain the final grading.

**RESULTS:** With respect to acute cough (< 3 weeks), only three studies met our criteria for quality assessment, and all had a high risk of bias. As predicted by the 2006 CHEST Cough Guidelines, the most common causes were respiratory infections, most likely of viral cause, followed by exacerbations of underlying diseases such as asthma and COPD and pneumonia. The subjects resided on three continents: North America, Europe, and Asia. With respect to subacute cough (duration, 3-8 weeks), only two studies met our criteria for quality assessment, and both had a high risk of bias. As predicted by the 2006 guidelines, the most common causes were postinfectious cough and exacerbation of underlying diseases such as asthma, COPD, and upper airway cough syndrome (UACS). The subjects resided in countries in Asia. With respect to chronic cough (> 8 weeks), 11 studies met our criteria for quality assessment, and all had a high risk of bias. As predicted by the 2006 guidelines, the most common causes were UACS from rhinosinus conditions, asthma, gastroesophageal reflux disease, nonasthmatic eosinophilic bronchitis, combinations of these four conditions, and, less commonly, a variety of miscellaneous conditions and atopic cough in Asian countries. The subjects resided on four continents: North America, South America, Europe, and Asia.

**CONCLUSIONS:** Although the quality of evidence was low, the published literature since 2006 suggests that CHEST's 2006 Cough Guidelines and management algorithms for acute, subacute, and chronic cough in adults appeared useful in diagnosing and treating patients with cough around the globe. These same algorithms have been updated to reflect the advances in cough management as of 2017. CHEST 2017; ■(■):■-■

**KEY WORDS:** cough; evidence-based medicine; guidelines; management algorithms for acute, subacute, and chronic cough in adults

**ABBREVIATIONS:** AECOPD = acute exacerbation of COPD; CHEST = American College of Chest Physicians; PICO = population, intervention, comparator, outcome; QoL = quality of life; NAM = National Academy of Medicine; UACS = upper airway cough syndrome

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## Summary of Suggestions

**1. For adult patients complaining of cough, we suggest that acute cough be defined as being < 3 weeks in duration** (Grade 2C).

**2. For adult patients complaining of cough, we suggest that subacute cough be defined as being between 3 and 8 weeks in duration** (Grade 2C).

**3. For adult patients complaining of cough, we suggest that chronic cough be defined as being > 8 weeks in duration** (Grade 2C).

**4. For adult patients seeking medical care complaining of cough, we suggest that estimating the duration of cough is the first step in narrowing the list of potential diagnoses** (Grade 2C).

**5. For adult patients around the globe complaining of cough, we suggest that the cough be managed using evidence-based guidelines that are based upon duration of cough** (Grade 2C).

*Remark:* The updated CHEST cough guidelines and algorithms have been based upon systematic reviews that meet National Academy of Medicine (NAM) standards and cough guidelines that meet the NAM criteria of trustworthy clinical practice guidelines.

Because a carefully taken history with detailed questioning of the character, timing, and complications of chronic cough in adults had not been shown to be useful in diagnosing the cause of the cough,[1] the world's first cough guideline developed by the first American College of Chest Physicians (CHEST) Expert Cough Panel suggested in 1998 that cough be classified according to its duration.[2] Although all coughs are acute at the outset, the panel believed that it was the duration of the cough at the time of patient presentation to health-care providers that helped narrow the list of possible diagnoses in adults. Although the first expert cough panel classified cough duration into acute (ie, lasting < 3 weeks) and chronic (ie, lasting 3-8 weeks) categories, the second ACCP Expert Cough Panel suggested in 2006[3] that cough continue to be classified according to its duration but that there should be three not two categories. Based on literature that had accumulated between 1998 and 2006, the panel believed that cough should be reclassified into acute (ie, < 3 weeks), subacute (ie, 3-8 weeks), and chronic (ie, > 8 weeks) categories and suggested management algorithms for these categories that suggested the likeliest and most common diagnostic possibilities in each category.[4]

We performed a systematic review to answer the following key clinical question: Are the CHEST 2006 classifications of acute, subacute, and chronic cough and associated management algorithms in adults that were based on durations of cough[3] useful?

## Methods

We used the published methodology of the CHEST Guideline Oversight Committee[5] to select the Expert Cough Panel Chair and the International Panel of Experts to perform a systematic review, synthesize evidence, and develop recommendations and practice management suggestions. After generating the key clinical question for this systematic review, Population, Intervention, Comparison, Outcome (PICO) elements were derived to inform the literature review. The question was formulated after polling the existing writing group for key clinical questions related to how best to classify cough. The writing committee unanimously chose to focus on the durations of acute, subacute, and chronic cough and how they had been defined in the 2006 Cough Guidelines.[3] The resultant PICO elements that formed the basis of the subsequent systematic review are presented in Table 1.

### Literature Search

The methods used for this systematic review conformed to those outlined in the article "Methodologies for the Development of CHEST Guidelines and Expert Panel Reports."[5] Librarians from the University of Massachusetts Medical School undertook searches to answer the question for acute, subacute, and chronic cough. For chronic cough, articles were identified from searches of electronic databases (PubMed and SCOPUS) commencing from their initiation through February 23, 2016. PubMed was relied on to pick up any Cochrane systematic reviews for chronic cough. For acute and subacute cough, articles were identified from searches of PubMed, SCOPUS, and the Cochrane Database of Systematic Reviews from their initiation through February 23, 2016. The reference lists of retrieved articles were examined for additional citations. The search terms used are presented in e-Tables 1 and 2. The titles and abstracts of the search results were independently evaluated by two reviewers (R. S. I. and C. L. F.) to identify potentially relevant articles. The full texts of all potentially relevant articles were retrieved, and two reviewers (R. S. I. and C. L. F.) independently

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