

# LETTERS TO THE EDITOR

## IMPLICATIONS OF ACUTE BRONCHITIS

To the Editor:

The finding by Oeffinger and colleagues<sup>1</sup> that family physicians vary in their definition of "acute bronchitis" has diagnostic, prognostic, and therapeutic implications.

We have recently completed a systematic review of randomized controlled trials (RCTs) in adults with acute cough that compared antibiotic with placebo.<sup>2</sup> We found that the entry criteria for patients enrolled in RCTs differed considerably. The consequence was that the reported resolution of cough in the placebo arm of individual RCTs varied, with a range of 22% to 74% between 7 to 11 days.<sup>2</sup>

We agree that a nominalist approach of promoting a better understanding of what symptoms, signs, and other external factors influence a physician to make a diagnosis of acute bronchitis is necessary. We would go further, however, in stressing the importance of eliciting symptoms and signs that have both diagnostic significance (making the diagnosis of bronchitis more likely in terms of severity of illness) and prognostic significance (making the prognosis of individuals clearer in terms of the likely resolution of illness). A diagnostic model has been proposed for community-acquired pneumonia wherein the absence of vital sign abnormality or abnormality on chest auscultation substantially reduces the likelihood of pneumonia.<sup>3</sup> Similarly, a prognostic model for community-acquired pneumonia identifies patients at low risk of death and other

adverse outcomes.<sup>4</sup>

Our systematic review suggests that for the large majority of patients with cough (productive or nonproductive), antibiotic is unlikely to have major benefits and may be associated with an increase in side effects.<sup>2</sup> A subgroup analysis in a recent RCT suggests that individuals older than 55 years of age with frequent cough who report feeling unwell may benefit from antibiotics.<sup>5</sup> Until prospective studies confirm or refute this hypothesis and a valid prognostic model that stratifies individuals according to risk is available, we believe that antibiotics are unlikely to make any difference to the vast majority of people with the diagnostic label "acute bronchitis."

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trolled trial. *Br J Gen Pract* 1994; 44:400-4.

*The preceding letter by Fahey and Stocks was referred to Dr Oeffinger and Laura Snell, who respond as follows:*

We appreciate the thoughtful comments of Fahey and Stocks and agree that validated models for diagnosis and prognosis would be very helpful in the management of acute bronchitis in an otherwise healthy adult. However, limitations in the development of practical predictive rules in acute bronchitis are likely to be much more significant than those for community-acquired pneumonia.

## Diagnostic Rule

Pneumonia is a clinical diagnosis that is generally confirmed by a chest radiograph. As noted by Metlay et al,<sup>1</sup> physicians frequently disagree about the presence of individual findings in the history and physical examination of patients with pneumonia. The uncertainty of diagnosis can be aided by clinical rules, though no single rule has been found to be conclusive. Clinical judgment is better than the four predictive rules in deciding when a chest radiograph is not necessary. However, reliance on clinical judgment alone results in overuse of unnecessary radiographs, and the use of clinical rules can assist a clinician in deciding the likelihood that an individual patient has pneumonia. The chest radiograph is essential in the development of a clinical rule for diagnosis of pneumonia because it is an acceptable gold standard with which one can test or compare various items.

Diagnosis of acute bronchitis is clinical; there is no test that can serve as a gold standard. External factors may have a significant impact on the diagnostic process of a clinician. For example, in our study 82% of responding physicians

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reported that the smoking status of a patient affects the diagnosis.<sup>3</sup> Lack of a gold standard for comparison and confounding external variables will limit the development of predictive rules useful for the diagnosis of acute bronchitis.

#### *Prognostic Rule*

As noted by Fahey and Stocks, a prediction rule to identify low-risk patients with community-acquired pneumonia has been developed and validated by Fine and colleagues.<sup>2</sup> The predictor variables include three demographic variables (age, sex, and nursing home residence), six coexisting illnesses (neoplastic disease, congestive heart failure, cerebrovascular disease, coronary artery disease, renal disease, and liver disease), and five physical-examination findings (pulse rate, respiratory rate, systolic blood pressure, temperature, and mental status). Patients with risks factors are further stratified by seven laboratory measurements and radiographic findings. The prediction rule was developed with 30-day hospital mortality as the outcome. Low-risk patients in class I have a cumulative mortality of <0.5%.

Unlike in patients with pneumonia, poor outcomes are rare in otherwise healthy adults with acute bronchitis. In the eight randomized clinical trials comparing treatment with an antibiotic vs placebo, patients treated with placebo were no more

likely to experience poor clinical outcomes than patients treated with antibiotic.<sup>4-11</sup> Of the 756 patients treated in the clinical trials, five patients treated with antibiotic and six patients treated with placebo were reported to have worsened. Of those patients, three from each group subsequently received a diagnosis of pneumonia; none required hospitalization. Because poor outcomes are rare events, and laboratory tests and chest radiographs are not generally obtained in otherwise healthy adults with acute bronchitis, predictive rules to identify patients at high risk will be difficult to develop.

Finally, we wholeheartedly agree with Fahey and Stocks that antibiotics are not indicated for most patients with acute bronchitis. The second paper from our survey, which concerns treatment of acute bronchitis, will discuss this matter.<sup>12</sup> We also echo the comments by Fahey and Stocks concerning the need for further study regarding the process of diagnosis and decision-making in the management of adults with acute bronchitis.

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**Mark Twain**

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