Guidelines and Quality Measures

Do They Improve Outcomes of Patients with Community-Acquired Pneumonia?

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KEYWORDS

• Community-acquired pneumonia • Guidelines • Outcome measures
• Quality indicators • Quality measures • Pay for performance

KEY POINTS

- Community-acquired pneumonia (CAP) has a significant impact in terms of morbidity, mortality, and cost of care.
- Guidelines play an important role in the management of this disease.
- Many of the current CAP quality indicators have only low-quality evidence supporting their use.
- Future CAP quality indicators should be based on evidence-based interventions.
- Pay-for-performance quality-improvement measures do not appear to improve clinically important outcomes.

PNEUMONIA

Pneumonia represents an infection of the pulmonary parenchyma, and is currently classified according to where it is acquired. Three categories now exist: community-acquired pneumonia (CAP), health care–acquired pneumonia (HCAP), and hospital-acquired/ventilator-acquired pneumonia (HAP/VAP). In general, as one moves from CAP to HCAP to HAP/VAP there is an increase in multidrug-resistant pathogens and mortality.

The focus of this article is on the influence of guidelines and quality measures on CAP outcomes in adults. In the United States there are more than 5.6 million cases of CAP annually,[1,2] of which approximately 80% are managed on an outpatient basis and 20% are treated in a hospital setting. The majority of this latter group is handled outside the intensive care unit (ICU) setting, but approximately 10% of those admitted to hospital require admission to an ICU. The overall annual rate in the United States is

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12 cases per 1000 persons, but jumps to 20 per 1000 persons for those older than 60 years. It is estimated that more than 900,000 episodes of CAP occur annually in the United States in adults 65 years of age or older.

The impact of CAP is very significant because annually it results in more than 64 million days of restricted activity, and carries an age-adjusted mortality rate of up to 22%.[3] The associated costs are more than $10 billion, and in Europe costs are estimated at around €10.1 billion with indirect costs attributable to lost work time of €3.6 billion.[4]

When faced with a patient with possible pneumonia, the physician must try to determine if in fact the clinical entity is pneumonia rather than some other clinical problem. If it is pneumonia, one must then try to ascertain the etiologic pathogen. In the outpatient setting both of these tasks can be difficult, particularly determination of etiology. The diagnosis in most cases is made based on a careful history and physical examination plus chest radiographic data whenever possible. Often, laboratory-based tests are either not done or provide data too late to be of use in determining initial treatment. Recognition of this problem was one of the driving forces behind the development of guidelines to help in the management of CAP.

GUIDELINES

Each year more than $50 billion are spent on biomedical research and more than 15,000 trials are reported, often with a bias against reporting results with negative findings. It can be difficult enough for the average physician to deal with patients, let alone to stay abreast of new information. Guidelines provide a relatively efficient means of evaluating and reporting a body of evidence dealing with a specific clinical issue such as CAP. When compiled carefully, they represent the essential essence of an evidence-based approach to a clinical problem.

With CAP, the aim of guidelines is to improve patient management and outcomes while controlling costs and informing physicians about advances and controversies in the management of this problem. Perhaps just as importantly, they provide a standard against which care can be evaluated and highlight gaps in knowledge, thereby helping to direct future research.

Evaluating the impact of guidelines on CAP is not as straightforward as one might imagine. Different outcome measures can be identified, and methods assessing the effect of guidelines vary. Typical outcome measures include mortality, length of stay, and cost. Although the ideal evaluation process of guidelines themselves would be a randomized controlled trial comparing patients managed according to a predetermined set of guidelines with individual physician judgment, there are potential ethical issues associated with such an approach, and to date no such study has been performed that the authors are aware of. Typically data are analyzed retrospectively, usually using a before-and-after event design.

Outcomes such as mortality, length of stay, and cost are, to a significant extent, functions of severity of illness, and this ultimately is often related to the site of care. For this reason it seems easier and more logical to look at the impact of guidelines according to where patient care is administered, namely the outpatient setting, the hospitalized non-ICU setting, and the ICU itself.

Outpatient Management

Of the 3 settings referred to, this is perhaps the hardest to evaluate because length of stay does not apply and overall mortality rates are generally less than 1%. Any differences among various treatment approaches would be exceedingly difficult to detect.