# 1.7 COMMUNITY-ACQUIRED PNEUMONIA

Community-acquired pneumonia (CAP) is an infection of the lung parenchyma that occurs in the community or is diagnosed within 48 hours of hospital admission. CAP is a common and potentially life-threatening infection, and it is a leading cause of death from infectious diseases. Approximately 25% of persons with CAP require hospitalization, and 10% to 20% of these patients require admission to the intensive care unit.[1-3] The mortality rate ranges from about 13% in hospitalized patients to 36% in patients admitted to the intensive care unit.[1-3] CAP is a curable condition and an organized approach to management is likely to improve clinical results and reduce mortality. Pneumonia outcome measures are used to evaluate performance of healthcare providers and organizations. Hospitalists apply evidence-based guidelines to the management of patients hospitalized with pneumonia and lead initiatives to improve quality of care and reduce practice variability.

## KNOWLEDGE

*Hospitalists should be able to:*

- Define CAP, list the likely etiologies and the signs and symptoms, and distinguish CAP from hospital-acquired pneumonia and healthcare-associated pneumonia.
- Describe other causes of pulmonary infiltrates on radiographic studies.
- Describe the tests indicated to evaluate and treat CAP.
- Explain indications for respiratory isolation.
- Identify patients with comorbidities (such as immunocompromise, diabetes mellitus, and extremes of age) who are at high risk of a complicated course.
- Identify specific pathogens that predispose patients to a complicated course.
- Recognize indications for specialty consultation.
- Describe indicated therapeutic modalities for CAP, including oxygen therapy, respiratory care modalities, appropriate antimicrobial selection and duration, and other evidence-based treatments.
- Predict patient risk for morbidity and mortality from CAP using a validated risk score.
- Explain goals for hospital discharge, including evidence-based measures of clinical stability for safe care transition.
- Describe factors associated with a nonresponding pneumonia.

## SKILLS

*Hospitalists should be able to:*

- Elicit a thorough and relevant medical history to identify symptoms consistent with CAP and demographic factors that may predispose patients to CAP.
- Perform a targeted physical examination to elicit signs consistent with CAP and differentiate it from other mimicking conditions.
- Order and interpret laboratory, microbiologic, and radiologic studies to confirm the diagnosis of CAP and risk stratify patients.
- Apply evidence-based tools (such as the Pneumonia Severity Index) to triage decisions and identify factors that support the need for intensive care unit admission.
- Initiate empiric antimicrobials for CAP on the basis of illness severity and evidence-based national guidelines, incorporating local resistance patterns.
- Formulate a subsequent treatment plan that includes narrowing antimicrobial therapies on the basis of available culture data and patient response to treatment.
- Recognize the criteria for clinical stability, including the appropriate deescalation of treatment such as transitioning from parenteral to oral antimicrobials.
- Recognize and address complications of CAP and/or inadequate response to therapy, including respiratory failure and parapneumonic effusions.
- Communicate with patients and families to explain the pathophysiology and prognosis of CAP.
- Communicate with patients and families to explain tests and procedures and their indications and to obtain informed consent.
- Communicate with patients and families to explain the use and potential adverse effects of pharmacologic agents.
- Facilitate discharge planning early during hospitalization.
- Communicate with patients and families to explain the goals of care (including clinical stability criteria, the importance of preventive measures such as smoking cessation), discharge instructions, and management after hospital discharge to ensure safe follow-up and transitions of care.
- Recognize and address barriers to follow-up care and anticipated postdischarge requirements.
- Document the treatment plan and provide clear discharge instructions for postdischarge clinicians.

## ATTITUDES

*Hospitalists should be able to:*

- Employ a multidisciplinary approach, which may include nursing, respiratory therapy, nutrition, and pharmacy services, to the care of patients with CAP through all care transitions.
- Follow evidence-based recommendations for the treatment of patients with CAP.
- Work collaboratively with primary care physicians and emergency physicians in making admission decisions.

## SYSTEM ORGANIZATION AND IMPROVEMENT

*To improve efficiency and quality within their organizations, hospitalists should:*

- Lead, coordinate, and/or participate in multidisciplinary initiatives, which may include collaborative efforts with

infectious disease and pulmonary specialists, to promote patient safety and cost-effective diagnostic and management strategies for patients with CAP.
- Lead, coordinate, and/or participate in efforts to identify, address, and monitor quality indicators for CAP.
- Implement systems to ensure hospital-wide adherence to national standards and document those measures as specified by recognized organizations (eg, Centers for Medicare & Medicaid Services, Infectious Diseases Society of America, American Thoracic Society).
- Integrate evidence-based clinical severity scores and clinical judgment into admission decisions.
- Lead efforts to educate staff on the importance of smoking cessation counseling, vaccinations, and other preventive measures.

## References

1. File TM Jr, Marrie TJ. Burden of community-acquired pneumonia in North American adults. *Postgrad Med.* 2010;122(2):130-141.
2. Fine MJ, Smith MA, Carson CA, Mutha SS, Sankey SS, Weissfeld LA, et al. Prognosis and outcomes of patients with community-acquired pneumonia. A meta-analysis. *JAMA.* 1996;275(2):134.
3. Niederman MS, Mandell LA, Anzueto A, Bass JB, Broughton WA, Campbell GD, et al; American Thoracic Society. Guidelines for the management of adults with community-acquired pneumonia. Diagnosis, assessment of severity, antimicrobial therapy, and prevention. *Am J Respir Crit Care Med.* 2001;163(7):1730-1754.