

ATS/IDSA publishes clinical guideline on community acquired pneumonia

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ATS and IDSA clinical practice guideline on community acquired pneumonia.
Credit: ATS

The American Thoracic Society and the Infectious Diseases Society of America have published an official clinical guideline on the diagnosis

and treatment of adults with community acquired pneumonia (CAP) in the ATS's Oct. 1 [*American Journal of Respiratory and Critical Care Medicine*](#).

By definition, CAP is pneumonia acquired outside a hospital setting. Many things can cause pneumonia, which causes the air sacs in the lung to become inflamed, though most often bacteria or viruses are to blame.

The guideline makes recommendations in response to key decisions facing clinicians caring for patients with CAP, including diagnostic testing, site of care, selection of initial empiric [antibiotic therapy](#) and subsequent disease management. The guideline focuses on adults who are not immunocompromised.

The latest guideline replaces one from 2007, which was produced by the two societies. Although some of the recommendations made in the earlier guideline remain unchanged, the 2019 version revises recommendations for empiric treatment strategies and makes additional recommendations for disease management.

One important difference between the latest guideline and the 2007 guideline is that it recommends more microscopic studies of respiratory tract samples in some subgroups of patients to avoid unnecessarily prescribing therapies for drug-resistant bacteria.

"CAP remains one of the leading causes of deaths in the world," said Grant Waterer, MBBS, Ph.D., co-chair of the guideline committee and a professor of medicine at the University of Western Australia. "Not only has there been new data in the past decade, but there is now a strong national and international focus on antibiotic stewardship. It was time to update the guideline so that clinicians could be certain they were still practicing evidence-based care."

The 15-member panel that produced the guideline included experts in infectious diseases, pulmonology and evaluating medical studies. Using the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) framework, the panel made recommendations in response to 16 clinical questions.

What follows is a sample of those questions and the recommendations made in answering the questions. All the questions and recommendations can be found in an [executive summary of the guideline](#).

Question 1. In adults with CAP, should Gram stain and culture of lower respiratory secretions be obtained at the time of diagnosis?

We recommend not obtaining sputum Gram stain and culture routinely in adults with CAP managed in the outpatient setting (strong recommendation, very low quality of evidence).

We recommend obtaining pretreatment Gram stain and culture of respiratory secretions in adults with CAP managed in the hospital setting who:

1. are classified as severe CAP, especially if they are intubated (strong recommendation, very low quality of evidence),

or 2. a. are being empirically treated for methicillin-resistant *Staphylococcus aureus* (MRSA) or *P. aeruginosa* (strong recommendation, very low quality of evidence), or

b. were previously infected with MRSA or *P. aeruginosa*, especially those with prior respiratory tract infection (conditional recommendation, very low quality of evidence), or

c. were hospitalized and received parenteral antibiotics in the last 90

days, unless local data have already indicated that infection with MRSA or *P. aeruginosais* is unlikely to be present (conditional recommendation, very low quality of evidence).

Question 8. In the outpatient setting, which antibiotics are recommended for empiric treatment of CAP in adults?

For healthy outpatient adults without comorbidities listed below or [risk factors](#) for antibiotic resistant pathogens (See Question 11), we recommend:

1. Amoxicillin 1 gram three times daily (strong recommendation, moderate quality of evidence), or
2. Doxycycline 100 mg twice daily (conditional recommendation, low quality of evidence), or
3. A macrolide (azithromycin 500 mg on first day then 250 mg daily or clarithromycin 500 mg twice daily or clarithromycin ER 1000 mg daily) only in areas with macrolide resistance

For outpatient adults with comorbidities such as chronic heart, lung, liver, or renal disease; diabetes mellitus; alcoholism; malignancy; or asplenia; we recommend (in no order of preference):

1. Combination therapy:
 - a. amoxicillin/clavulanate 500 mg/125 mg three times daily, or amoxicillin/clavulanate 875 mg/125 mg twice daily, or 2000 mg/125 mg twice daily, or a cephalosporin (cefepodoxime 200 mg twice daily or cefuroxime 500 mg twice daily); and
 - b. macrolide (azithromycin 500 mg on the first day and then 250 mg

daily, clarithromycin [500 mg twice daily or extended release 1000 mg once daily]) (strong recommendation, moderate quality of evidence for [combination therapy](#)), or doxycycline 100 mg twice daily (conditional recommendation, low quality of evidence for combination therapy), or

2. Monotherapy:

a. respiratory fluoroquinolone (levofloxacin 750 mg daily, moxifloxacin 400 mg daily, or gemifloxacin 320 mg daily) (strong recommendation, moderate quality of evidence).

Question 9. In the inpatient setting, which antibiotic regimens are recommended for empiric treatment of CAP in adults without risk factors for MRSA and *P. aeruginosa*?

In inpatient adults with non-severe CAP without risk factors for MRSA or *P. aeruginosa* (see Recommendation 10), we recommend the following empiric treatment regimens (in no order of preference):

1. combination therapy with a beta-lactam (ampicillin+sulbactam 1.5 to 3 g every 6 hours, cefotaxime 1 to 2 g every 8 hours, ceftriaxone 1 to 2 g daily, or ceftaroline 600 mg every 12 hours) and a macrolide (azithromycin 500 mg daily or clarithromycin 500 mg twice daily) (strong recommendation, high quality of evidence), or

2. monotherapy with a respiratory fluoroquinolone (levofloxacin 750 mg daily, moxifloxacin 400 mg daily) (strong recommendation, high quality of evidence);

A third option for adults with CAP who have contraindications to both of the prior regimens is:

1. combination therapy with a beta-lactam (ampicillin+sulbactam,

cefotaxime, ceftaroline or ceftriaxone, doses as above) and doxycycline 100 mg twice daily (conditional recommendation, low quality of evidence).

In inpatient adults with severe CAP without risk factors for MRSA or *P. aeruginosa*, we recommend:

1. a beta-lactam plus a macrolide (strong recommendation, moderate quality of evidence); or
2. a beta-lactam plus a respiratory fluoroquinolone (strong recommendation, low quality of evidence).

Question 11. In the inpatient setting, should adults with CAP and risk factors for MRSA or *P. aeruginosa* be treated with extended-spectrum antibiotic therapy instead of standard CAP regimens?

We recommend abandoning use of the prior categorization of healthcare-associated pneumonia (HCAP) to guide selection of extended antibiotic coverage in adults with CAP (strong recommendation, moderate quality of evidence).

We recommend clinicians only cover empirically for MRSA or *P. aeruginosa* in adults with CAP if locally validated risk factors for either pathogen are present (strong recommendation, moderate quality of evidence). Empiric treatment options for MRSA include vancomycin (15 mg/kg every 12 hours, adjust based on levels), or linezolid (600 mg every 12 hours). Empiric treatment options for *P. aeruginosa* include piperacillin-tazobactam (4.5 g every 6 hours), cefepime (2 g every 8 hours), ceftazidime (2 g every 8 hours), aztreonam (2 g every 8 hours), meropenem (1 g every 8 hours) or imipenem (500 mg every 6 hours).

If clinicians are currently covering empirically for MRSA or *P.*

aeruginosa in adults with CAP based on published risk factors but do not have local etiological data, we recommend continuing empiric coverage while obtaining culture data to establish if these pathogens are present to justify continued treatment for these pathogens after the first few days of empiric treatment (strong recommendation, low quality of evidence).

Question 12. In the inpatient setting, should adults with CAP be treated with corticosteroids?

We recommend not routinely using corticosteroids in adults with CAP (strong recommendation, moderate quality of evidence).

We recommend not routinely using corticosteroids in adults with severe influenza pneumonia (conditional [recommendation](#), low quality of evidence).

We endorse the Surviving Sepsis Campaign recommendations on the use of corticosteroids in patients with CAP and refractory septic shock.

The authors of the guideline wrote that it is "disappointing how few key clinical questions have been studied adequately enough to allow for strong recommendations regarding the standard of care." The guideline highlighted many areas where further research would likely improve care.

Research could lead to new rapid diagnostic tests to identify the organisms causing CAP, help determine the intensity of treatment that would be best for each patient, compare the best therapies for treating CAP on an outpatient basis, guide treatment of those patients at highest risk of dying from pneumonia and identify the subsets of patients, if any, who would benefit or be harmed by corticosteroid therapy.

"Given that CAP is such a significant cause of morbidity, mortality and

health care utilization, a much larger research focus is needed," said Joshua Metlay, MD, Ph.D., the other co-chair of the guideline committee and chief of the Division of General Internal Medicine at Massachusetts General Hospital. "Still, we believe that there is a sufficient body of evidence supporting most of our recommendations and therefore adhering to them will result in better care and better outcomes for patients."

Dr. Metlay added that the guideline "cannot replace experienced clinical judgement and that clinicians must have knowledge of their local etiological agents to provide high-quality care to patients with CAP."

Provided by American Thoracic Society

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