

## Health Benchmarks<sup>®</sup> Program

### Clinical Quality Indicator Specification 2011

<b>Measure Title</b>	TREATMENT OF COMMUNITY ACQUIRED PNEUMONIA: GENERAL		
<b>Disease State</b>	Community Acquired Pneumonia	<b>Indicator Classification<sup>1</sup></b>	Disease Management
<b>Strength of Recommendation<sup>2</sup></b>	B		
<b>Organizations Providing Recommendation</b>	AMA's Physician Consortium for Performance Improvement American Thoracic Society Infectious Diseases Society of America		
<b>Clinical Intent</b>	To ensure that all members diagnosed with community acquired pneumonia received first line antibiotics in the outpatient setting.		
<b>Physician Specialties (suggested)</b>	Emergency Medicine, Family Medicine, Geriatrics, Infectious Disease, Internal Medicine		
<b>Background</b>	<p><b>Disease Burden</b></p> <ul style="list-style-type: none"> <li>• Pneumonia was the eighth most common cause of death in 2004, resulting in 63,371 deaths in that year.[1]</li> <li>• Community acquired pneumonia (CAP) accounts for approximately 4.5 million visits per year to physicians' offices, emergency departments, and outpatient clinics, and for 1.1 million hospitalizations.[2]</li> <li>• Despite the availability of potent new antimicrobials and effective vaccines, an estimated 5.6 million cases of CAP occur annually in the United States.[3]The mortality rate of CAP ranges from 5.1% for ambulatory and hospitalized patients to 36.5% for patients admitted to intensive care.[2, 4]</li> <li>• Annual treatment costs of CAP are approximately \$10 billion, of which, 92% is spent on hospital care.[5]</li> </ul> <p><b>Reason for Indicated Intervention or Treatment</b></p> <ul style="list-style-type: none"> <li>• Adherence to guidelines for the treatment of CAP have led to decreases in mortality, hospitalization rates, length of stay and cost, [6-8] while maintaining patient levels of satisfaction and re-admission rates.[9]</li> <li>• The use of medication-specific guidelines also correlates with mortality. Mortensen et al. reported in their 2004 retrospective study on adherence to guideline-specific anti-microbial therapy, that compliance failure in patients hospitalized with pneumonia was associated with increased 30-day mortality (odds ratio 5.7, CI 2.0-16.0).[10]</li> <li>• Successful treatment of patients with co-morbidities in an outpatient setting has the potential for tremendous cost-savings; in 1994, the average cost of treatment for an inpatient case of CAP was around \$7500, while the average cost of outpatient treatment was \$264.[11]</li> </ul>		

- Careful use of anti-microbial drugs is especially important to avoid colonization with drug resistant strains of *S. pneumoniae* in certain patient populations. Patients over 65 years of age or with alcoholism, immunosuppressive illness or undergoing immunosuppressive therapy, or other co-morbidities are especially at risk for drug resistant infections.[12-17]
- Numerous methods for reducing costs when treating patients with bacterial infections can be applied to CAP. Choosing monotherapy instead of combination therapy reduces costs associated with administering an antibacterial.[18]
- The most common causal pathogens responsible for outpatient mild CAP in recent studies were *S. pneumoniae*, *M. pneumoniae*, *C. pneumoniae*, and *H. influenzae*. [19, 20]
- The most common pathogen among healthy young CAP patients (< 50 years of age) is *mycoplasma*, whereas the most common pathogen among older patients with significant underlying disease is *S. pneumoniae*. [19, 20]
- $\beta$ -lactams, such as high dose amoxicillin, amoxicillin-clauvulanate, ceftriaxone, cefpodoxime, and cefuroxime, lack activity against atypical agents such as *mycoplasma*, and macrolide resistance is reported for 20% to 30% of *S. pneumoniae*. [21-24]
- In the US, fluoroquinolones are highly effective against *S. pneumoniae*, including those strains resistant to  $\beta$ -lactam drugs. In addition, fluoroquinolones are active against atypical pathogens such as *mycoplasma*. [22, 24] However, there is concern that the increased unnecessary use of fluoroquinolones would increase the emergence of highly resistant pathogens that are resistant not only to fluoroquinolones but to macrolides and  $\beta$ -lactams as well. [25]

#### Clinical Recommendations

- The Infectious Diseases Society of America (IDSA), along with the American Thoracic Society (ATS), recommend the use of the following antibiotics in CAP patients without co-morbidities:
  - a macrolide (level 1) or
  - doxycycline (level 3)
- IDSA and ATS recommend the use of the following antibiotics in CAP patients with co-morbidities, or with use of antimicrobials within the previous 3 months, or in regions with high rates of infection with macrolide-resistant *S. pneumoniae*
  - A respiratory fluoroquinolone (i.e., moxifloxacin, gemifloxacin, or levofloxacin (Level 1 Evidence) or
  - a  $\beta$ -lactam (high dose amoxicillin, amoxicillin-clauvulanate, ceftriaxone, cefpodoxime, and cefuroxime) plus a macrolide or doxycycline (Level 1 Evidence) [26]
- The AMA's Physician Consortium for Performance Improvement measurement tool for CAP also utilizes the IDSA/ATS recommendations on outpatient medication use in patients. [27]

Source IMS Health

### Denominator

**Denominator Definition** Continuously enrolled members who are 19 years and older by the end of the measurement year who were diagnosed with community acquired pneumonia in an outpatient setting and were treated with oral antibiotics.

**Denominator Index Date** First instance of members diagnosed with CAP during the first 362 days of the measurement year.

**Denominator Encounters/Claims Criteria** ICD-9 diagnosis codes: 481, 482.0, 482.1, 482.2, 482.30, 482.31, 482.32, 482.39, 482.40, 482.41, 482.49, 482.81, 482.82, 482.83, 482.84, 482.89, 482.9, 483.0, 483.1, 483.8, 485, 486, 487.0

**AND**

CPT-4 code(s): 99201-99205, 99212-99215, 99281, 99282, 99283, 99284, 99285, 99291, 99324-99328, 99334-99337, 99341-99345, 99347-99350

Place of Service code: 23

Med list: azithromycin, clarithromycin, erythromycin, telithromycin, moxifloxacin, gemifloxacin, or levofloxacin, doxycycline, Ciprofloxacin, norfloxacin, ofloxacin  
Cefaclor, cefadroxil, cefdinir, cefditoren, cefixime, cefpodoxime, cefprozil, ceftibuten, cefuroxime, cephalexin, sulfamethoxazole/trimethoprim, trimethoprim, clindamycin, metronidazole, fosfomycin, nitrofurantoin, linezolid, amoxicillin, amoxicillin/clavulanate, ampicillin, penicillin, dicloxacillin sulfadiazine , minocycline, tetracycline, vancomycin, rifampin (route = oral)

### Denominator Exclusion

**Denominator Exclusion Definition** Members who had an inpatient or nursing home stay with a diagnosis of CAP in the 30 days prior through 3 days after the index date, members who had a competing diagnosis in the 0 to 3 days after the index date, members who filled a prescription for an antibiotic in the 1-30 days prior to the index date, or members who filled a prescription before the 1-30 days prior to the index date that was still active on the index date.

**Denominator Exclusion Claims Criteria** CPT-4 code(s): 99221-99223, 99231-99233, 99238-99239, 99251-99255, 99261\*-99263\*, 99291-99300, 99304-99316, 99318, 99324-99340, 99356-99357, 99431\*-99440\*, 99460-99465, 99468-99476, 99477-99480

UB revenue code(s): 010x, 0110-0114, 0119, 0120-0124, 0129, 0130-0134, 0139, 0140-0144, 0149, 0150-0154, 0159, 016x, 020x-022x, 072x, 080x, 0987

ICD-9 diagnosis code(s): 001.xx-009.xx, 010.xx-018.xx, 020.xx-027.xx, 030.xx-

041.xx, 033.0, 034.0, 078.88, 079.88, 079.98, 088.xx, 090.xx-097.xx, 098.xx, 099.xx, 131.xx, 320.xx-322.xx, 324.x, 326, 376.01, 382.xx, 383.xx, 461.xx, 462, 463, 464.1-464.3, 473.xx, 474.xx, 475, 478.19, 478.21, 478.22, 478.24, 478.29, 478.71, 478.79, 478.9, 510.9, 513.x, 523.31, 526.4, 527.3, 528.3, 540.1, 566, 567.0x-567.3x, 569.5, 572.0, 572.1575.0, 577.0, 590.xx, 595.x, 599.0x 601.x, 611.0, 614.xx- 616.xx, 675.0x, , 675.1x, 681.xx, 682.xx, 683, 684, 686.xx, 730.xx, V01.6, V02.7, V02.8

Medllist: azithromycin, clarithromycin, erythromycin, telithromycin, moxifloxacin, gemifloxacin, or levofloxacin, doxycycline, Ciprofloxacin, norfloxacin, ofloxacin  
 Cefaclor, cefadroxil, cefdinir, cefditoren, cefixime, cefpodoxime, cefprozil, ceftibuten, cefuroxime, cephalixin, sulfamethoxazole/trimethoprim, dapsone, clindamycin, lincomycin, methenamine, metronidazole, fosfomycin, nitrofurantoin, linezolid, amoxicillin, amoxicillin/clavulanate, ampicillin, penicillin, dicloxacillin, nafcillin, oxacillin, sulfadiazine, demeclocycline, doxycycline, minocycline, tetracycline, vancomycin (route = oral)

### Numerator Definition

<b>Numerator Definition</b>	Members who received a macrolide (e.g., azithromycin, clarithromycin, erythromycin, or telithromycin), respiratory fluoroquinolone (i.e., moxifloxacin, gemifloxacin, or levofloxacin), or doxycycline 0-3 days after the index date.
<b>Numerator Claims Criteria</b>	Medllist: azithromycin, clarithromycin, erythromycin, telithromycin, moxifloxacin, gemifloxacin, or levofloxacin, doxycycline (route = oral)

### Physician Attribution

<b>Physician Attribution Description</b>	Score all physicians who diagnosed the member with community acquired pneumonia on the index date.
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### External Files

<b>References</b>	<ol style="list-style-type: none"> <li>1. Minino, et al., <i>Deaths: final data for 2000</i>. Natl Vital Stat Rep, 2002. <b>50</b>(15): p. 1-119.</li> <li>2. Niederman, et al., <i>The cost of treating community-acquired pneumonia</i>. Clin Ther, 1998. <b>20</b>(4): p. 820-37.</li> <li>3. Andrews, et al., <i>Community-acquired pneumonia</i>. Curr Opin Pulm Med, 2003. <b>9</b>(3): p. 175-80.</li> <li>4. Fine, et al., <i>Prognosis and outcomes of patients with community-acquired pneumonia. A meta-analysis</i>. Jama, 1996. <b>275</b>(2): p. 134-41.</li> <li>5. JR, L., et al., <i>The cost of treating patients with community-acquired pneumonia</i>. Semin Respir Crit Care Med, 1999. <b>20</b>(3): p. 189-97.</li> </ol>
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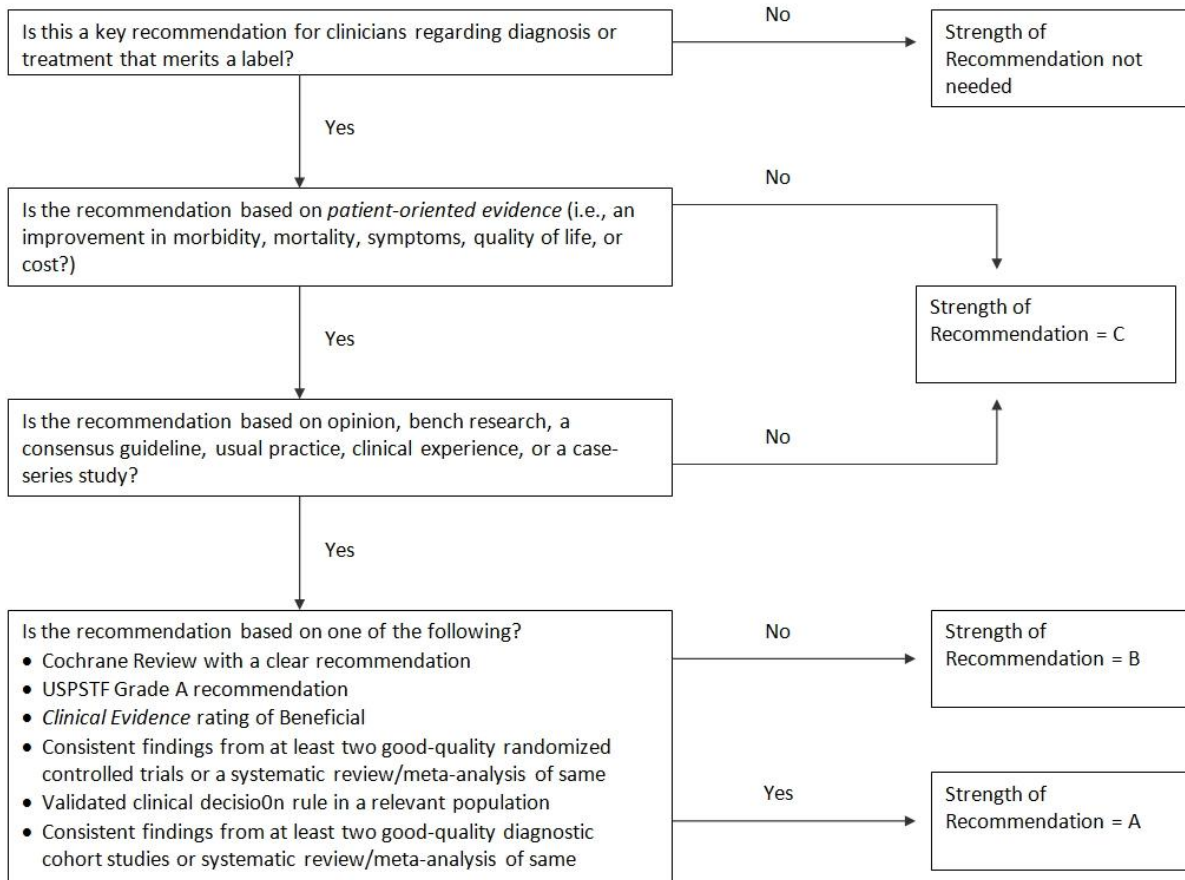
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<sup>1</sup> **Indicator Classification** (Adapted from Health Plan Employer Data Information Set (HEDIS®) technical specifications)

<b>Diagnosis</b>	Measures applicable to patients receiving diagnostic workups for a symptom or condition that delineate appropriate laboratory or radiological testing to be performed (e.g., evaluation of thyroid nodule; pregnancy test in patients with vaginal bleeding or abdominal pain).
<b>Effectiveness of Care</b>	
<b>Prevention</b>	Measures applicable to asymptomatic individuals that are designed to prevent the onset of the targeted condition (e.g., immunizations).
<b>Screening</b>	Measures applicable to asymptomatic patients who have risk factors or pre-clinical disease, but in whom the condition has not become clinically apparent (e.g. pap smears; screening for elevated blood pressure).
<b>Disease Management</b>	Measures applicable to individuals diagnosed with a condition that are part of the treatment or management of the condition (e.g., cholesterol reduction in patients with diabetes; radiation therapy following breast conserving surgery; appropriate follow-up after acute event).
<b>Medication Monitoring</b>	Measures applicable to patients taking medications with narrow therapeutic windows and / or potential preventable significant side effects or adverse reactions (e.g., thyroid stimulating hormone (TSH) testing after levothyroxine dose change; hepatic enzyme monitoring for patients using antimycotic pharmacotherapy).
<b>Medication Adherence</b>	Measures applicable to patients taking medications for chronic conditions that are designed to assess patient adherence to medication (e.g. adherence to lipid lowering medication).
<b>Utilization</b>	Measures applicable to patients receiving treatment for a symptom or condition that advocate appropriate utilization of laboratory and pharmaceutical resources (e.g., conservative use of imaging for low back pain; inappropriate use of antibiotics for viral upper respiratory infection).

## <sup>2</sup> Strength of Recommendation

### Strength of Recommendation Based on a Body of Evidence



**FIGURE 2.** Algorithm for determining the strength of a recommendation based on a body of evidence (applies to clinical recommendations regarding diagnosis, treatment, prevention, or screening). While this algorithm provides a general guideline, authors and editors may adjust the strength of recommendation based on the benefits, harms, and costs of the intervention being recommended. (USPSTF = U.S. Preventive Services Task Force)