

## KEY ADVANCES CLINICAL POLICY ALERT

# Critical Issues in the Management of Adult Patients Presenting to the Emergency Department with Community-Acquired Pneumonia

Approved by the ACEP Board of Directors, October 23, 2020. From the American College of Emergency Physicians Clinical Policies Subcommittee (Writing Committee) on Community-Acquired Pneumonia: Michael D. Smith, MD, MBA (Subcommittee Chair); Christopher Fee, MD; Sharon E. Mace, MD; Brandon Maughan, MD, MHS, MSHP; John C. Perkins Jr, MD; Amy Kaji, MD, MPH, PhD (Methodologist); Stephen J. Wolf, MD (Committee Chair). *Ann Emerg Med.* 2021 Jan;77(1):e1-e57. doi: 10.1016/j.annemergmed.2020.10.024. PMID: 33349374 (1)

### Note from the Editors

This ACEP Clinical Policy was published prior to the COVID-19 pandemic. Although COVID-19 may lead to severe acute respiratory syndrome, clinicians must still consider the importance of additional potential causes of community-acquired pneumonia (CAP). We currently support the use of this Clinical Policy in patients with CAP without confirmed COVID-19. Patients with confirmed or suspected COVID-19–related pneumonia will require additional specific management outside the scope of this Clinical Policy.

### **Policy Recommendations and Focus Points in bold**

1. In the adult ED patient diagnosed with community-acquired pneumonia, what clinical decision aids can inform the determination of patient disposition?

#### Patient Management Recommendations:

Level A recommendations (none specified)

Level B recommendations (see below)

- **The Pneumonia Severity Index (PSI) and CURB-65 decision aids can support clinical judgement by identifying patients at low risk of mortality who may be appropriate for outpatient treatment. Although both decision aids are acceptable, the PSI is supported by a larger body of evidence and is preferred by other society guidelines (ATS/IDSA 2019 guidelines). (2,3,4)**

Level C recommendations (see below)

- **Among patients not receiving vasopressors or mechanical ventilation, use the 2007 IDSA/ATS Minor Criteria (Figure 1) rather than mortality prediction aids such as the PSI or CURB-65 to help establish which patients are most appropriate for care based in an ICU setting (consensus recommendation). (5)**
- **Do not routinely use biomarkers to augment the performance of clinical decision aids to guide the disposition of ED patients with community-acquired pneumonia (consensus recommendation).**
- **Use community-acquired pneumonia clinical decision aids in conjunction with physician clinical judgment in the context of each patient's circumstances when making disposition decisions (consensus recommendation).**

2. In the adult ED patient with community-acquired pneumonia, what biomarkers can be used to direct initial antimicrobial therapy?

Patient Management Recommendations:

Level A recommendations (none specified)

Level B recommendations (none specified)

Level C recommendations (see below)

- **Do not rely upon any current laboratory test(s), such as procalcitonin and/or C-reactive protein, to distinguish a viral pathogen from a bacterial pathogen when deciding on administration of antimicrobials in ED patients who have community-acquired pneumonia.**

3. In the adult ED patient diagnosed with community-acquired pneumonia, does a single dose of parenteral antibiotics in the ED followed by oral treatment versus oral treatment alone improve outcomes?

Patient Management Recommendations:

Level A recommendations (none specified)

Level B recommendations (none specified)

Level C recommendations (see below)

- **Given the lack of evidence, the decision to administer a single dose of parenteral antibiotics prior to oral therapy should be guided by patient risk profile and preferences (consensus recommendation).**

**References:**

1. American College of Emergency Physicians Clinical Policies Subcommittee (Writing Committee) on Community-Acquired Pneumonia: Smith, MD, Fee C, Mace SE, Maughan B, Perkins JC Jr, Kaji A, et al. Critical issues in the management of adult patients presenting to the emergency department with community-acquired pneumonia. *Ann Emerg Med* 2021 Jan;77(1):e1-e57. doi: 10.1016/j.annemergmed. 2020.10.024. PMID: 33349374

2. Fine MJ, Auble TE, Yealy DM, Hanusa BH, Weissfeld LA, Singer DE, et al. A prediction rule to identify low-risk patients with community-acquired pneumonia. *N Engl J Med* 1997 Jan 23;336(4):243-50. doi: 10.1056/NEJM199701233360402.
3. Lim WS, van der Eerden MM, Laing R, Boersma WG, Karalus N, Town GI, et al. Defining community acquired pneumonia severity on presentation to hospital: an international derivation and validation study. *Thorax* 2003 May;58(5):377-82. doi: 10.1136/thorax.58.5.377.
4. Metlay JP, Waterer GW, Long AC, Anzueto A, Brozek J, Crothers K, et al. Diagnosis and treatment of adults with community-acquired pneumonia. An official clinical practice guideline of the American Thoracic Society and Infectious Diseases Society of America. *Am J Respir Crit Care Med* 2019 Oct 1;200(7):e45-e67. doi: 10.1164/rccm.201908-1581ST. PMID: 31573350
5. Mandell LA, Wunderink RG, Anzueto A, Bartlett JG, Campbell GD, Dean NC, et al.; Infectious Diseases Society of America; American Thoracic Society. Infectious Diseases Society of America/American Thoracic Society consensus guidelines on the management of community-acquired pneumonia in adults. *Clin Infect Dis* 2007;44:S27–S72.
6. <https://www.mdcalc.com/psi-port-score-pneumonia-severity-index-cap>
7. <https://www.mdcalc.com/curb-65-score-pneumonia-severity>

### **Disclaimer**

*ACEP's clinical policies are developed by the Clinical Policies Committee, guided by processes in accordance with national guideline-development standards. The policies are approved by the ACEP Board of Directors to provide guidance on the clinical management of emergency department patients. These ACEP Board-approved documents describe ACEP's policies on the clinical management of emergency department patients. These clinical policies are not intended to represent a legal standard of care for emergency physicians. ACEP recognizes the importance of the individual physician's judgment and patient preferences.*

### **Clinical findings and strength of recommendations regarding patient management were made according to the following criteria:**

#### Level A recommendations

Generally accepted principles for patient care that reflect a high degree of clinical certainty (e.g., based on evidence from one or more Class of Evidence I or multiple Class of Evidence II studies).

#### Level B recommendations

Recommendations for patient care that may identify a particular strategy or range of strategies that reflect moderate clinical certainty (e.g., based on evidence from one or more Class of Evidence II studies or strong consensus of Class of Evidence III studies).

#### Level C recommendations

Recommendations for patient care that are based on evidence from Class of Evidence III studies or, in the absence of adequate published literature, based on expert consensus. In instances in which consensus recommendations are made, "consensus" is placed in parentheses at the end of the recommendation.

**Resources for additional learning:**

- <https://pubmed.ncbi.nlm.nih.gov/?term=community+acquired+pneumonia+emergency+department>
- <http://www.emdocs.net/community-acquired-pneumonia-ats-idsa-guidelines-update/>
- <https://emergencymedicinescases.com/community-acquired-pneumonia/>

Severe community-acquired pneumonia, requiring ICU admission, is defined by either **one major** criterion or **≥ 3 minor** criteria

<b>Table 1. 2007 Infectious Diseases Society of America/American Thoracic Society Criteria for Defining Severe Community-acquired Pneumonia</b>
<b>Validated definition includes either one major criterion or three or more minor criteria</b>
<b>Minor criteria</b>
Respiratory rate $\geq 30$ breaths/min
PaO <sub>2</sub> /F <sub>I</sub> O <sub>2</sub> ratio $\leq 250$
Multilobar infiltrates
Confusion/disorientation
Uremia (blood urea nitrogen level $\geq 20$ mg/dl)
Leukopenia* (white blood cell count $< 4,000$ cells/ $\mu$ l)
Thrombocytopenia (platelet count $< 100,000$ / $\mu$ l)
Hypothermia (core temperature $< 36^{\circ}\text{C}$ )
Hypotension requiring aggressive fluid resuscitation
<b>Major criteria</b>
Septic shock with need for vasopressors
Respiratory failure requiring mechanical ventilation
*Due to infection alone (i.e., not chemotherapy induced).

Figure 1. (5)