

A 68-year-old man is brought into the emergency department due to confusion that started this morning. He lives with his daughter, who says that the patient has had 3 days of fever and cough productive of yellow sputum. He has a history of coronary artery disease and has smoked a pack of cigarettes daily for 40 years. Temperature is 39.4 C (103 F), blood pressure is 110/70 mm Hg, pulse is 110/min, respirations are 24/min, and pulse oximetry is 92% on room air. Chest auscultation reveals crackles and reduced breath sounds in the right lower chest. Laboratory results are as follows:

Complete blood count

Hemoglobin	11.8 g/dL
Hematocrit	36%
Leukocytes	13,000/mm ³

Serum chemistry

Sodium	132 mEq/L
Potassium	3.8 mEq/L
Blood urea nitrogen	24 mg/dL
Creatinine	1.1 mg/dL

Chest x-ray reveals alveolar infiltrates in the right lower lobe. Which of the following is the most appropriate next step in management of this patient?

- ☐ A. Ampicillin/sulbactam and admit to hospital
- ☐ B. Moxifloxacin and admit to hospital
- ☐ C. Outpatient cefuroxime and azithromycin
- ☐ D. Outpatient doxycycline
- ☐ E. Outpatient trimethoprim-sulfamethoxazole

Submit

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Chest x-ray reveals alveolar infiltrates in the right lower lobe. Which of the following is the most appropriate next step in management of this patient?

- ☐ A. Ampicillin/sulbactam and admit to hospital [37%]
- ☒ B. Moxifloxacin and admit to hospital [55%]
- ☐ C. Outpatient cefuroxime and azithromycin [6%]
- ☐ D. Outpatient doxycycline [1%]
- ☐ E. Outpatient trimethoprim-sulfamethoxazole [0%]

[Proceed to Next Item](#)

Explanation:

User Id: [REDACTED]

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User Id: [REDACTED]

Empiric treatment of CAP	
Outpatient	<ul style="list-style-type: none"> Macrolide or doxycycline (healthy) Fluoroquinolone* or beta-lactam + macrolide (comorbidities)
Inpatient (non-ICU)	<ul style="list-style-type: none"> Fluoroquinolone* (IV) Beta-lactam + macrolide (IV)
Inpatient (ICU)	<ul style="list-style-type: none"> Beta-lactam + macrolide (IV) Beta-lactam + fluoroquinolone* (IV)

*Respiratory fluoroquinolones (eg, levofloxacin, moxifloxacin) are required.

CAP = community-acquired pneumonia; ICU = intensive care unit; IV = intravenous.

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This elderly patient with high fever, productive cough, leukocytosis, tachypnea, and chest x-ray evidence of a right lower lobe **infiltrate** likely has **community-acquired pneumonia (CAP)**.

Patients with CAP are often risk stratified using the pneumonia severity index or CURB-65 criteria to help guide treatment and treatment location (home, medical floor, intensive care unit) decisions. This patient with a score of 3 on the **CURB-65 criteria** (age >65, confusion, blood urea nitrogen >20 mg/dL), likely needs **hospitalization** on the medical floor and treatment with a **fluoroquinolone** (eg, moxifloxacin) or a **beta-lactam plus macrolide** (eg, ceftriaxone plus azithromycin). These medications treat the most common bacterial CAP organisms - *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Legionella*, and *Mycoplasma pneumoniae*.

This patient also would benefit from smoking-cessation counseling and, prior to discharge, influenza and pneumococcal vaccination.

(Choice A) Ampicillin/sulbactam is an acceptable choice for the beta-lactam portion of empiric antibiotic therapy; however, hospitalized patients also require a macrolide or doxycycline to cover for atypical bacterial pathogens (eg, *Legionella*, *Mycoplasma*).

(Choices C, D, and E) This patient requires hospitalization due to his CURB-65 score, which indicates a higher risk of morbidity and mortality. Cefuroxime is not a first-line therapy for hospitalized patients with pneumonia but may be used for bronchitis, sinusitis,

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Patients with CAP are often risk stratified using the pneumonia severity index or CURB-65 criteria to help guide treatment and treatment location (home, medical floor, intensive care unit) decisions. This patient with a score of 3 on the **CURB-65 criteria** (age >65, confusion, blood urea nitrogen >20 mg/dL), likely needs **hospitalization** on the medical floor and treatment with a **fluoroquinolone** (eg, moxifloxacin) or a **beta-lactam plus macrolide** (eg, ceftriaxone plus azithromycin). These medications treat the most common bacterial CAP organisms - *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Legionella*, and *Mycoplasma pneumoniae*.

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(Choice A) Ampicillin/sulbactam is an acceptable choice for the beta-lactam portion of empiric antibiotic therapy; however, hospitalized patients also require a macrolide or doxycycline to cover for atypical bacterial pathogens (eg, *Legionella*, *Mycoplasma*).

(Choices C, D, and E) This patient requires hospitalization due to his CURB-65 score, which indicates a higher risk of morbidity and mortality. Cefuroxime is not a first-line therapy for hospitalized patients with pneumonia but may be used for bronchitis, sinusitis, or otitis media. Doxycycline is commonly used for CAP in the outpatient setting. Trimethoprim-sulfamethoxazole is often used to treat methicillin-resistant *Staphylococcus aureus*; however, it is not commonly used in the empiric treatment of CAP.

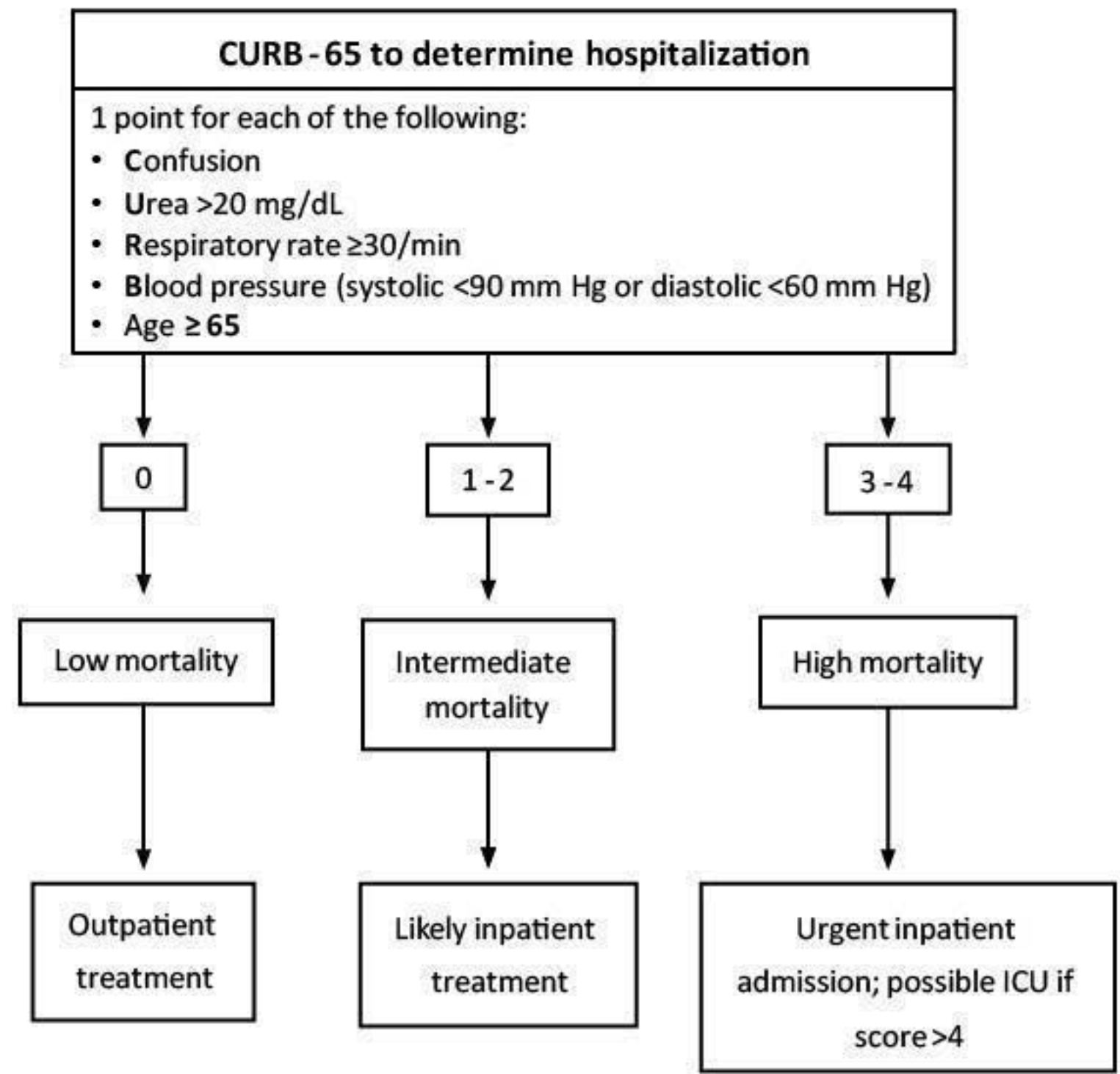
Educational objective:

Treatment for community-acquired pneumonia (CAP) is dependent on the required level of care (eg, outpatient, medical floor, intensive care). Common tools for risk stratification include the pneumonia severity index and CURB-65 criteria. Patients with CAP who are hospitalized on the medical floor require treatment with a fluoroquinolone (eg, moxifloxacin) or a beta-lactam plus macrolide (eg, ceftriaxone plus azithromycin).

References:

1. [The hospitalist perspective on treatment of community-acquired bacterial pneumonia.](#)

Media Exhibit



ICU = Intensive care unit.

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