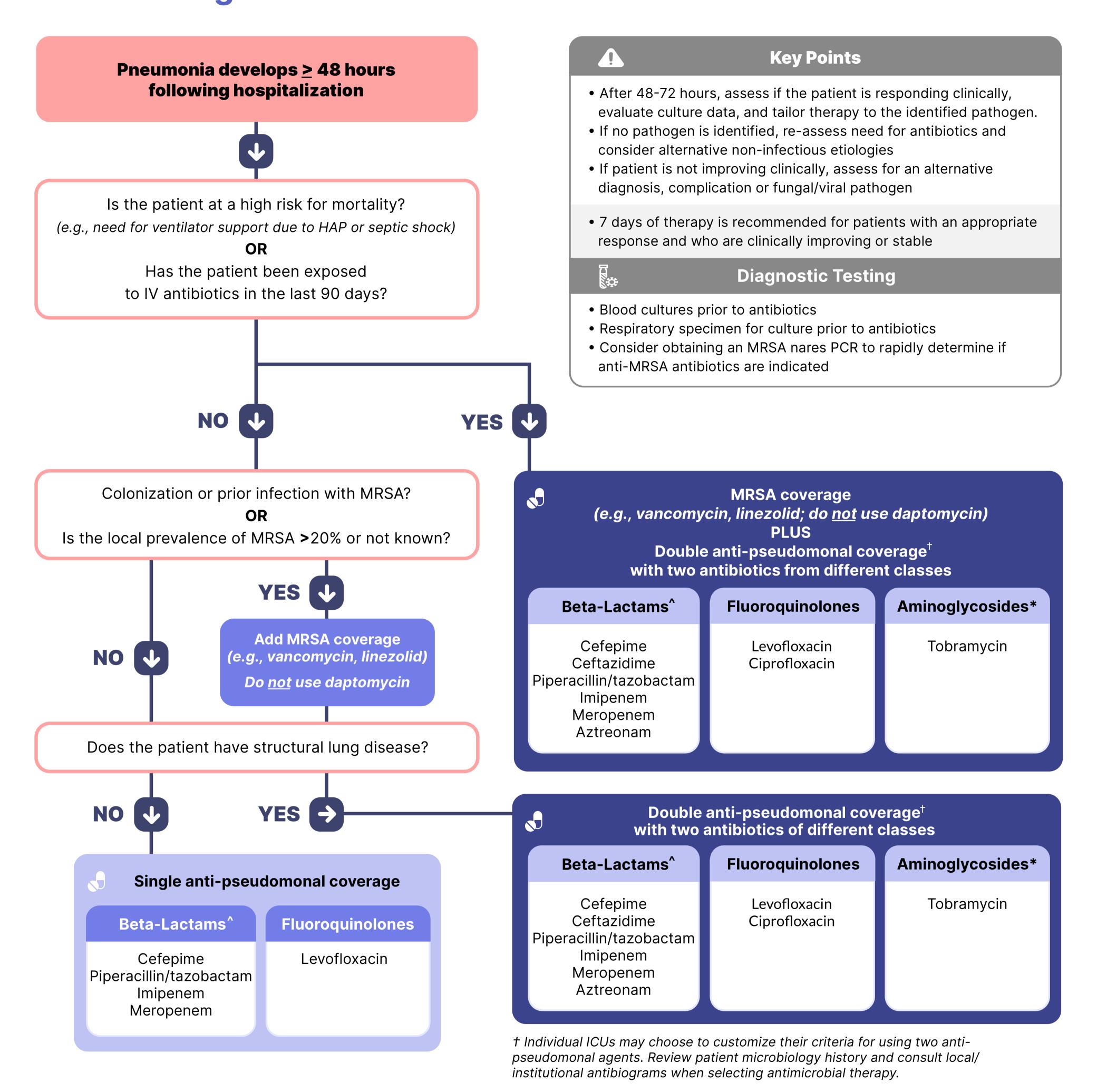
Empiric Management of Hospital-Acquired Pneumonia (HAP) in Non-Pregnant Adults



[&]quot;While **ertapenem** is a carbapenem, it does **not** have coverage against *P. aeruginosa*.

Anti-pseudomonal carbapenems (imipenem, meropenem) should be reserved for situations when other agents would not be appropriate.

Note: This is intended only as a guide for evidence-based decision-making. It is not intended to replace clinical judgment.

Reference:

Kalil AC, Metersky ML, Klompas M, et al. Management of Adults With Hospital-acquired and Ventilator-associated Pneumonia: 2016 Clinical Practice Guidelines by the Infectious Diseases Society of America and the American Thoracic Society. Clin Infect Dis. 2016;63(5):e61-e111. doi:10.1093/cid/ciw353



^{*} Per the revised **aminoglycoside** breakpoints published by the CLSI in June 2023, **gentamicin** is **no longer** considered to be a clinically effective treatment option for *P. aeruginosa* infections. Additionally, the CLSI update states that **amikacin** should only be considered as an option for **UTIs** caused by *P. aeruginosa*.

Empiric Management of Ventilator-Associated Pneumonia (VAP) in Non-Pregnant Adults

YES

Pneumonia develops ≥ 48 hours following mechanical ventilation



Septic shock at the time of VAP?

OR

Has the patient been exposed to IV antibiotics in the past 90 days?

OR

Acute respiratory distress syndrome preceding VAP?

OR

Acute renal replacement therapy prior to VAP?

ORFive or more days of hospitalization prior to VAP?

NO C

Colonization or prior infection with MRSA?

Is the local prevalence of MRSA >10-20% or not known?

Add MRSA coverage (e.g., vancomycin, linezolid)
Do not use daptomycin

Is the local prevalence of Gram-negative isolates resistant to an antibiotic being considered for monotherapy >10%?

OR
he local antimicrobia

Are the local antimicrobial susceptibility rates for Gram-negative bacilli not known?

Key Points

- After 48-72 hours, assess if the patient is responding clinically, evaluate culture data, and tailor therapy to the identified pathogen.
- If no pathogen is identified, re-assess need for antibiotics and consider alternative non-infectious etiologies
- If patient is not improving clinically, assess for an alternative diagnosis, complication or fungal/viral pathogen
- 7 days of therapy is recommended for patients with an appropriate response and who are clinically improving or stable

Diagnostic Testing

- Blood cultures prior to antibiotics
- Respiratory specimen for culture prior to antibiotics
- Consider obtaining an MRSA nares PCR to rapidly determine if anti-MRSA antibiotics are indicated

MRSA coverage (e.g., vancomycin, linezolid; do <u>not</u> use daptomycin) PLUS

Double anti-pseudomonal coverage with two antibiotics from different classes[†] (avoid two concurrent beta-lactams and do not combine aminoglycosides with polymyxins)

Beta-Lactams

Cefepime
Ceftazidime
Piperacillin/tazobactam
Imipenem
Meropenem
Aztreonam

Fluoroquinolones

Aminoglycosides*

Tobramycin

Tobramycin

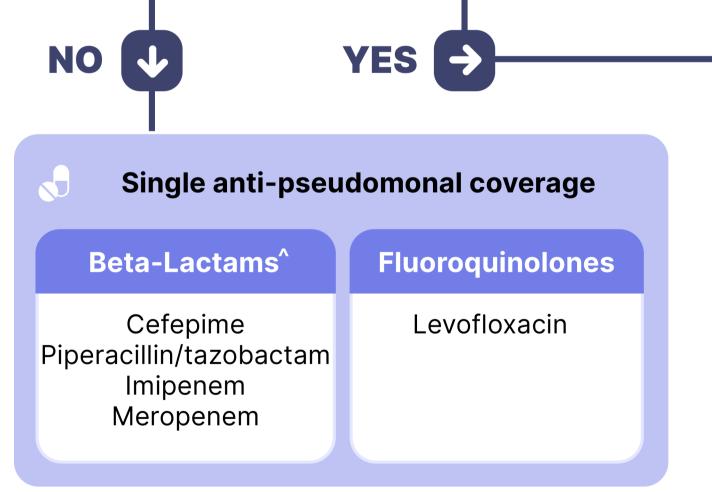
Tobramycin

Tobramycin

Tobramycin

Actreonam

**Polymyxins should be reserved for settings where there is a high prevalence of multidrugresistance and there is local expertise available using this antibiotic class. Newer antimicrobials (including but not limited to) delafloxacin, ceftazidime-avibactam, ceftolozane-tazobactam and cefiderocol were not FDA-approved for use in VAP at the time this guideline was published. If possible, newer antimicrobials should be considered instead of polymyxins due to improved safety.



† Individual ICUs may choose to customize their criteria for using two antipseudomonal agents. Review patient microbiology history and consult local/institutional antibiograms when selecting antimicrobial therapy.

- Anti-pseudomonal carbapenems (imipenem, meropenem) should be reserved for situations when other agents would not be appropriate.
- * Per the revised aminoglycoside breakpoints published by the CLSI in June 2023, gentamicin is no longer considered to be a clinically effective treatment option for *P. aeruginosa* infections. Additionally, the CLSI update states that amikacin should only be considered as an option for UTIs caused by *P. aeruginosa*.

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