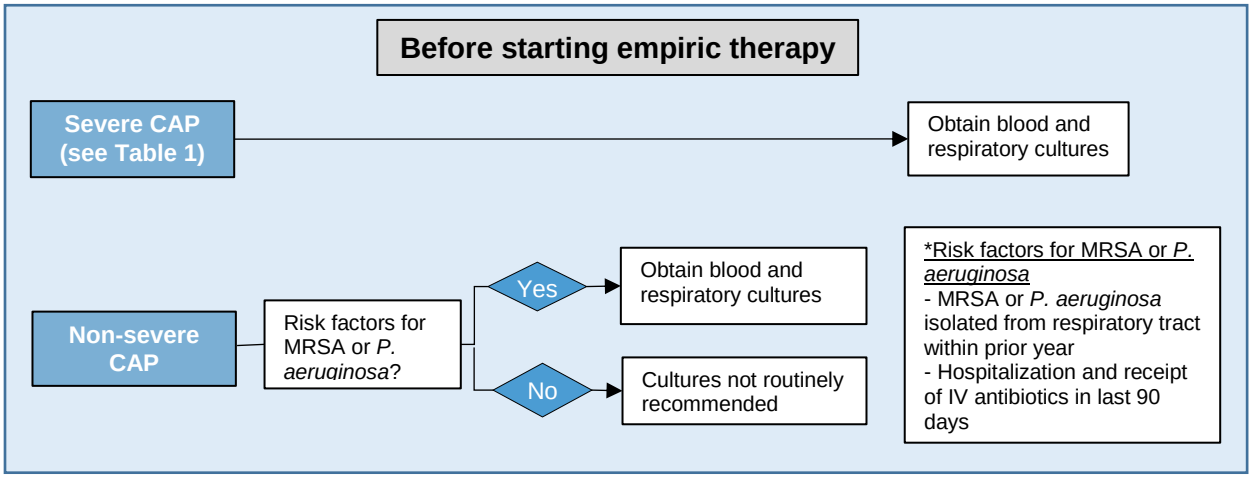
UNC MEDICAL CENTER GUIDELINE

Best Practices for Treatment of Community Acquired Bacterial Pneumonia in Hospitalized Adults

These guidelines provide recommendations for the treatment of bacterial pneumonia. Alternative etiologies such as viral (e.g. COVID-19) or other non-bacterial pneumonia should be considered based on local epidemiology and clinical presentation.



Empiric inpatient therapy

Severe CAP (see Table 1)

Empiric treatment

Preferred Regimen
- β-lactam (ceftriaxone OR ampicillin/sulbactam) **PLUS** azithromycin

Alternative (Macrolide allergy or intolerance)
- β-lactam (ceftriaxone OR ampicillin/sulbactam) **PLUS** levofloxacin

Risk factors for MRSA* (see above)
Add to standard regimen
- Vancomycin **OR** linezolid

Risk factors for *P. aeruginosa** (see above)
- Choose β-lactam with antipseudomonal activity: Piperacillin/tazobactam, cefepime, **OR** meropenem

β-lactam allergy
- Aztreonam **PLUS** levofloxacin

Non-severe CAP

Empiric treatment

Preferred Regimen
- β-lactam (ceftriaxone OR ampicillin/sulbactam) **PLUS** either azithromycin or doxycycline

Alternative (Macrolide allergy or intolerance)
- Levofloxacin

P. aeruginosa isolated from respiratory tract in prior year
- Based on previous susceptibilities, choose β-lactam with antipseudomonal activity: Piperacillin/tazobactam, cefepime, meropenem, **OR** levofloxacin

De-escalation

Stop coverage for MRSA and/or *P. aeruginosa* if cultures return negative

IV to PO switch

Patients with a functioning GI tract should be switched from IV to PO therapy when hemodynamically stable, improving clinically, and able to maintain oral intake
Oral options: cefdinir, amoxicillin/clavulanate, azithromycin, levofloxacin

Developed by: Carolina Antimicrobial Stewardship Program
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Table 1. IDSA/ATS criteria for defining severe CAP
Validated definition includes either one major criterion or 3 or more minor criteria. Recommend direct admission to ICU for patients with severe CAP.

Major criteria
Septic shock with need for vasopressors
Respiratory failure requiring mechanical ventilation
Minor criteria
Respiratory rate ≥30 breaths/min
Pa_{O2}/FI_{O2} ratio ≤250
Multilobar infiltrates
Confusion/disorientation
Uremia (blood urea nitrogen level ≥20 mg/dl)
Leukopenia due to infection (white blood cell count <4,000 cells/µl)
Thrombocytopenia (platelet count <100,000/µl)
Hypothermia (core temperature <36°C)
Hypotension requiring aggressive fluid resuscitation

Table 2. Dosing recommendations for empiric inpatient CAP regimens
Suggested dosing regimens are for adult patients with normal hepatic and renal function. Dose adjustments should be considered for those patients with renal and/or hepatic dysfunction

Ceftriaxone 1-2 g daily	Cefepime 2 g every 8 hours
Ampicillin/sulbactam 1.5-3 g IV every 6 hours	Piperacillin/tazobactam 4.5 g every 6 hours (30-min infusion) or 4.5 g every 8 hours (240-min infusion)
Azithromycin 500 mg every 24 hours	
Levofloxacin 750 mg every 24 hours	Aztreonam 2 g every 8 hours
Doxycycline 100 mg twice daily	Meropenem 1 g every 8 hours
Linezolid 600 mg every 12 hours	Amoxicillin/clavulanate 875 mg every 12 hours
Vancomycin dosing per pharmacy protocol	Cefdinir 300 mg every 12 hours

Duration of antibacterial therapy

- Minimum of 5 days
- Patients should be clinically stable before discontinuing antibiotics
  - Resolution of vital sign abnormalities (heart rate, respiratory rate, blood pressure, oxygen saturation, temperature)
  - Return to baseline nutrition status
  - Return to baseline mentation
- Some clinical scenarios may warrant longer duration of therapy:
  - Pneumonia complicated by deep-seated infections

Corticosteroids

Routine treatment with corticosteroids is not recommended unless otherwise indicated

Aspiration Pneumonia

If treatment is indicated, routine anaerobic coverage is not recommended unless lung abscess or empyema is suspected.

Follow-up chest imaging

Routine follow-up chest imaging is not recommended

REFERENCES

1. Metlay JP, Waterer GW, Long AC, et al. Diagnosis and treatment of adults with community-acquired pneumonia. An official clinical practice guidelines of the American Thoracic Society and Infectious Diseases Society of America. Am J Respir Crit Care Med. 2019 Oct 1;200(7):e45-e67.