SEVERE CAP

Severe community-acquired pneumonia in the ICU

MANAGE
+ steroid

MANAGEMENT PATHWAY

1. Resuscitate (sepsis bundle)
2. Cultures + antigens + viral PCR
3. Empiric antibiotics
4. Hydrocortisone if severe
5. Review 48-72 h
6. De-escalate · 5 days

WHEN IS CAP 'SEVERE'?

ATS/IDSA

1 major mechanical ventilation OR septic shock on vasopressors

≥ 3 minor: RR ≥ 30 · P/F ≤ 250 · multilobar · confusion
uraemia · leukopenia · thrombocytopenia · hypothermia · hypotension

Steroid: hydrocortisone 200 mg/day for shock (see below).

WORK-UP

- Blood + sputum cultures before antibiotics
- Pneumococcal + Legionella urinary antigen
- Respiratory viral PCR (influenza / COVID → antivirals)
- CXR / CT; procalcitonin to help stop

EMPIRIC THERAPY

β-lactam + macrolide OR β-lactam + respiratory fluoroquinolone

Component	Agent & dose	Note
β-lactam	Ceftriaxone 2 g q24h (or ampicillin-sulbactam / cefotaxime)	Backbone for all severe CAP
+ Atypical cover	Azithromycin 500 mg q24h OR levofloxacin 750 mg (FQ arm)	Covers Legionella / atypicals
+ MRSA (only if risk)	Vancomycin or linezolid 600 mg q12h	Prior MRSA, post-influenza, local risk
+ Pseudomonas (if risk)	Pip-tazo / cefepime / meropenem (± aminoglycoside)	Structural lung disease, prior Pseudomonas

STEROID (CAPE COD 2023): hydrocortisone 200 mg/day IV for severe CAP reduces mortality - start early, 4-7 days. Avoid in influenza.

MONITOR RESPONSE

- Track fever, WCC, oxygenation (P/F), vasopressor need
- Step down on antigen + culture results; stop atypical cover
- Procalcitonin trend supports stopping; 5 days if stable/afebrile
- Treat & stop influenza (oseltamivir) if PCR positive

NOT IMPROVING?

- **Wrong bug -** MRSA / Pseudomonas / resistant - recheck cultures
- **Complication -** empyema, abscess, cavitation → CT + drainage
- **Missed pathogen -** Legionella, viral, TB, PJP, fungal
- **Not pneumonia -** ARDS, PE, oedema, vasculitis, malignancy

PATHOGEN-DIRECTED (step down on results): Legionella → azithromycin or levofloxacin · MRSA → vancomycin / linezolid · Pseudomonas → antipseudomonal β-lactam · Influenza → oseltamivir · aspiration → cover anaerobes if abscess / empyema. Switch to oral once stable and afebrile.

PEARLS & PITFALLS

- Give hydrocortisone 200 mg/day in severe CAP - it reduces mortality (but not in influenza).
- Always send a viral PCR and treat influenza - antibiotics alone miss half the story.
- Only add MRSA / Pseudomonas cover for real risk factors; blanket broad therapy harms.
- Not improving? Think empyema, missed pathogen (Legionella / PJP), or a non-infective mimic.

References: ATS/IDSA CAP 2019 · CAPE COD, NEJM 2023 · SCCM Corticosteroids 2024 · local antibiogram.

Educational aid; verify doses against local protocol and patient factors.