



HAP & VAP

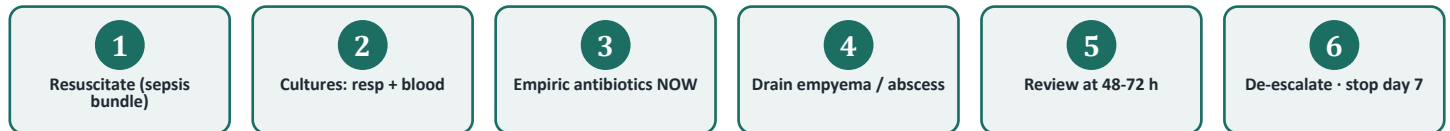
Hospital- & ventilator-associated pneumonia

MANAGE

then narrow

MANAGEMENT PATHWAY

resuscitate → cover → source → review → de-escalate



DEFINE

HAP pneumonia ≥ 48 h after admission. **VAP** ≥ 48 h after intubation. (HCAP retired.)

Always cover *S. aureus* + *Pseudomonas* + other Gram-negatives.

DIAGNOSE

New / progressive infiltrate PLUS ≥ 2 of: fever · leukocytosis / leukopenia · purulent secretions · worsening oxygenation.

Send a LOWER-respiratory culture before antibiotics. Do not rely on CPIS.

EMPIRIC THERAPY

one antipseudomonal β-lactam; add cover only for risk

Component	Agent & dose	When
Antipseudomonal β-lactam	Pip-tazo 4.5 g q6h OR cefepime 2 g q8h OR meropenem 1 g q8h	ALWAYS (single agent if low-risk)
+ MRSA cover	Vancomycin (25-30 mg/kg load → AUC 400-600) OR linezolid 600 mg q12h	Prior IV abx 90 d · MRSA > 20% / unknown · high mortality
+ 2nd antipseudomonal	Aminoglycoside (gentamicin 5-7 mg/kg) OR antipseudomonal FQ	Resistance risk · septic shock · structural lung disease

MONITOR RESPONSE

- Track fever, WCC, oxygenation (P/F), secretion volume
- Follow cultures; de-escalate to the narrowest agent
- Procalcitonin trend can support stopping
- Steady but slow improvement - do NOT reflexively broaden

NOT IMPROVING BY DAY 3?

- Wrong bug** - resistant / MRSA / *Pseudomonas* - recheck cultures, broaden
- Complication** - empyema, abscess, cavitation → CT + drainage
- Wrong diagnosis** - ARDS, aspiration, PE, oedema, malignancy
- Undrained source** - empyema or device - control it

DURATION

- 7 days** - for most HAP / VAP incl. *Pseudomonas* - not 14
- Longer** - empyema, abscess, extrapulmonary spread
- De-escalate** - narrow on culture at 48-72 h; treat disease not colonisation

VAP PREVENTION BUNDLE

- Head up 30-45°; subglottic-suction ETT; daily SAT + SBT
- Prefer NIV / HFNO; avoid unnecessary (re)intubation
- Oral care; cuff 20-30 cmH₂O; minimise circuit changes; VTE + PUD prophylaxis

ORGANISM-DIRECTED (once cultures back): MRSA → vancomycin or linezolid · *Pseudomonas* → antipseudomonal β-lactam (2nd agent only if resistant) · ESBL → meropenem · *Acinetobacter* → sulbactam ± polymyxin · *Stenotrophomonas* → co-trimoxazole. Narrow to ONE agent.

PEARLS & PITFALLS

- Send a lower-respiratory culture before antibiotics - it is what lets you de-escalate safely.
- Not improving by day 3? Think resistant bug, empyema / abscess, or the wrong diagnosis.
- 7 days treats most VAP, including *Pseudomonas* - longer courses breed resistance without benefit.
- Only add MRSA and double-*Pseudomonas* cover for genuine risk; a positive aspirate alone is colonisation.

References: IDSA/ATS HAP-VAP Guideline 2016 · Surviving Sepsis Campaign 2021 · follow the local antibiogram.

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

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