



COMMON ICU INFECTIONS

Empiric therapy & doses · then de-escalate

COVER

then narrow

PRINCIPLES: 2 blood cultures + site samples first · antibiotics < 1 h in septic shock · cover likely source + local resistance · achieve SOURCE CONTROL · reassess & de-escalate at 48-72 h · shortest effective course.

EMPIRIC THERAPY BY SOURCE

cover, then narrow on cultures

Source	Likely organisms	First-line empiric (see doses below)
HAP / VAP	Pseudomonas, Enterobacterales, MRSA	Antipseudomonal β -lactam (pip-tazo / cefepime / meropenem) + vancomycin or linezolid if MRSA risk
Severe CAP	Pneumococcus, Legionella, atypicals	Ceftriaxone + azithromycin (or levofloxacin monotherapy)
Intra-abdominal	Enterobacterales, anaerobes, Enterococcus	Pip-tazo OR ceftriaxone + metronidazole OR meropenem; + source control
Urosepsis / CAUTI	E. coli, Klebsiella, Enterococcus	Ceftriaxone or pip-tazo; carbapenem if ESBL risk; remove / change catheter
Skin / necrotising	Group A strep, S. aureus, polymicrobial	Pip-tazo (or meropenem) + vancomycin + clindamycin; URGENT debridement
Meningitis	Pneumococcus, meningococcus, Listeria	Ceftriaxone + vancomycin + dexamethasone; add ampicillin if Listeria risk
Line / CR-BSI	Coag-neg staph, S. aureus, Candida	Vancomycin + antipseudomonal β -lactam; REMOVE line; echinocandin if Candida risk
Candidaemia	Candida spp.	Echinocandin (caspofungin / micafungin); remove lines, ophthalmology review

ANTIMICROBIAL DOSES

adult IV, adjust for renal function · what each covers → Antibiotic Spectrum sheet

Piperacillin-tazobactam	4.5 g q6-8h (extended 3-4 h)	Metronidazole	500 mg q8h
Cefepime	2 g q8h	Clindamycin	900 mg q8h (antitoxin)
Meropenem	1-2 g q8h (extended infusion)	Azithromycin	500 mg q24h
Ceftriaxone	2 g q24h (q12h meningitis)	Gentamicin	5-7 mg/kg q24h (TDM)
Vancomycin	25-30 mg/kg load → AUC 400-600	Caspofungin	70 mg load → 50 mg q24h
Linezolid	600 mg q12h (no renal adjust)	Aciclovir	10 mg/kg q8h (if HSV)

RISK FACTORS & DOSING

COVER MRSA IF

prior MRSA, recent IV antibiotics, dialysis, high local prevalence, septic shock. → vancomycin or linezolid.

DOUBLE PSEUDOMONAS COVER

structural lung disease, recent broad antibiotics, prolonged stay, neutropenia. Add an aminoglycoside in shock / high resistance.

DOSE IN CRITICAL ILLNESS

give FULL loading doses ($\uparrow$ Vd); extended / continuous β -lactam infusion; vancomycin by AUC (TDM); adjust for renal function / CRRT.

PEARLS & PITFALLS

- Take cultures before antibiotics - but never delay antibiotics to get them in septic shock.
- De-escalate at 48-72 h on cultures; most ICU infections need only 5-7 days.
- Source control (drain, debride, remove the line) matters more than the antibiotic choice.
- Critical illness expands the volume of distribution - give the full loading dose, then use TDM.

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

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

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