Neuro.Wiki

Empirical Antibiotics & Prophylaxis in the ICU

Empirical antibiotic coverage and surgical / procedural prophylaxis for the neuro-ICU. Verify doses; adjust for renal function and the local antibiogram.

Surgical & procedural prophylaxis

Procedure	First line	Second line (β-lactam allergy / MRSA)	Duration
Neurosurgery (craniotomy)	Cefazolin 2 g IV (3 g if ≥120 kg) within 60 min of incision; redose q4h intra-op	Vancomycin or Clindamycin	≤24 h post-op
EVD / ventriculostomy	Cefazolin 2 g IV (3 g if ≥120 kg) at insertion; antibiotic-impregnated catheter preferred	Vancomycin (β-lactam allergy)	Single peri-insertion dose; **prolonged prophylaxis not recommended**
Head & Neck	Cefazolin or Cefuroxime + metronidazole (clean-contaminated), or Ampicillin/sulbactam (Unasyn)	Vancomycin or (Clindamycin + Gentamicin)	≤24 h post-op

Empirical coverage by infection

Infection	Definition	First line (empiric IV)	Home / oral step-down (if stable, no cultures)	Duration
HAP / VAP	HAP: >48 h after admission. VAP: >48 h after intubation	**Pseudomonal:** Pip/Tazo, Cefepime, or Meropenem **MRSA:** Vancomycin or Linezolid	Levofloxacin 750 mg PO daily once improving & MRSA/Pseudomonas excluded	7 days; stop vanc if MRSA not isolated after 72 h
CAP	Community-acquired; onset before or ≤48 h after admission	Ceftriaxone + Azithromycin (add Vancomycin or Pip/Tazo if MRSA / Pseudomonas risk)	Amoxicillin/clavulanate + Azithromycin, **or** Levofloxacin 750 mg PO daily (alt: Doxycycline 100 mg BID)	5 days if afebrile 48–72 h & stable
UTI	1–4 days since admission / >4 days since admission	Ceftriaxone / Pip-Tazo	Ciprofloxacin 500 mg PO BID or TMP-SMX DS BID (uncomplicated: Nitrofurantoin 100 mg BID)	Uncomplicated 7 d; complicated 7–14 d
Cellulitis	No abscess / penetrating trauma (**Strep**). Abscess / penetrating trauma (**MRSA**)	**Strep:** nafcillin 2 g q4h or cefazolin 2 g q8h **MRSA:** vancomycin	**Non-purulent (Strep):** Cephalexin 500 mg QID **Purulent (MRSA):** TMP-SMX DS BID or Doxycycline 100 mg BID	5–7 days (extend if slow response)
Surgical site infection	**Clean** wound / **perineal, GI, genital** surgery	**Clean:** nafcillin 2 g q4h or cefazolin 2 g q8h **Perineal / GI / genital:** metronidazole 500 mg IV q6h + cefazolin or ceftriaxone	**Clean:** Cephalexin 500 mg QID **Perineal / GI:** Amoxicillin/clavulanate 875 mg BID	Source control + 7–14 days
C. difficile	Non-severe / severe (WBC ≥15k or Cr ≥1.5 mg/dL). Fulminant: hypotension, ileus, or megacolon	**Fidaxomicin** 200 mg PO BID (preferred) **Vancomycin** 125 mg PO QID **Fulminant:** Vancomycin 500 mg PO/NG QID + Metronidazole 500 mg IV q8h (+ vanc enema if ileus)	Already oral — complete the fidaxomicin/vancomycin course at home. Recurrence *prevention*: **Bezlotoxumab** ×1; fecal microbiota (**Rebyota**/**Vowst**) *after* the antibiotic course	10 days (initial); longer if fulminant

Price of commonly used antibiotics (illustrative): Vancomycin 1 g $4.28 · Metronidazole 500 mg $1.10 · Ciprofloxacin 400 mg $1.70 · Levofloxacin 500 mg $3.84 · Cefazolin 2 g $2.00 · Cefoxitin 2 g $6.10 · Cefuroxime 1.5 g $3.57 · Clindamycin 900 mg $7.85 · Ertapenem 1 g $77.94 · Gentamicin 80 mg $0.69.