Empiric Antimicrobial Therapy in Sepsis Based on Suspected Primary Source
Harborview Medical Center

These recommendations are based on local microbiology and antimicrobial resistance patterns. They should not replace clinical judgment, and may be modified depending on individual patient. Consult pharmacy for renal dosing

1. Sepsis: site unknown (MRSA, resistant Gram-negative bacilli)

- Vancomycin loading dose IV x1 (2 gm if ≥70 kg, 1.5 gm if <70kg), then 15 mg/kg IV q ___ hrs **PLUS**
- Meropenem 1 gm IV q8 hours
- If previous colonization or concerns for highly resistant Gram-negative pathogen such as *Acinetobacter, Pseudomonas*, or ESBL, consider addition of:
  - Amikacin 7.5 mg/kg IV q12 hours **OR** Ciprofloxacin 400 mg IV q12 hours if renal impairment

2. Pneumonia

A. Community-acquired pneumonia [non-aspiration risk] (MRSA, S. *pneumonia*, *Legionella*)

- Vancomycin loading dose IV x1 (2 gm if ≥70 kg, 1.5 gm if <70kg), then 15 mg/kg IV q ___ hrs **OR**
- Linezolid 600 mg IV/PO q12 hours **PLUS**
- Ceftriaxone 1 gm IV q24 hours **PLUS**
- Azithromycin 500 mg IV q24 hours

B. Community-acquired pneumonia [aspiration risk] (MRSA, S. *pneumonia*, *Legionella*)

- Same as non-aspiration risk, use ampicillin-sulbactam 3 gm IV q6 hours to replace ceftriaxone

C. Healthcare-associated [skilled nursing facility or hospital non-ICU, not known to be colonized with *Acinetobacter*] (MRSA, Gram-negative bacilli)

- Vancomycin loading dose IV x1 (2 gm if ≥70 kg, 1.5 gm if <70kg), then 15 mg/kg IV q ___ hrs **OR**
- Linezolid 600 mg IV/PO q12 hours **PLUS**
- Piperacillin-tazobactam 4.5 g IV x1 over 30 mins, 4 hrs later, 3.375 g IV over 4 hours, given q8 hours

D. Late-onset ventilatior-associated [> 4 days of mechanical ventilation or hospitalization] (MRSA, resistant Gram-negative bacilli including *Acinetobacter*, *Pseudomonas*, ESBL)

- Cefepime 2 gram IV q8 hours **OR** Meropenem 1 gm IV q8 hours if known *Acinetobacter* or other highly drug resistant organism colonization/infection
- If ANY ONE OR MORE of the following: positive MRSA surveillance, gram stain consistent with S. aureus, unknown surveillance status **OR** clinically unstable:
  - Vancomycin loading dose IV x1 (2 gm if ≥70 kg, 1.5 gm if <70kg), then 15 mg/kg IV q ___ hrs

3. Bloodstream

A. Community [Injection drug use] or Hemodialysis (MRSA, Gram-negative bacilli)

- Vancomycin loading dose IV x1 (2 gm if ≥70 kg, 1.5 gm if <70kg), then 15 mg/kg IV q ___ hrs **PLUS**
- Gentamicin 5 mg/kg IV q24 hours (1 mg/kg with HD for dialysis patients)

B. Hospital-acquired, Gram stain available

- Gram positive awaiting culture identification:
  - Vancomycin loading dose IV x1 (2 gm if ≥70 kg, 1.5 gm if <70kg), then 15 mg/kg IV q ___ hrs
- Gram negative awaiting culture identification:
  - Meropenem 1 gm IV q8 hours

4. Necrotizing Soft Tissue Infection

(MRSA, Group A strep, *Clostridium sp* and mixed anaerobes, Gram-negative bacilli)

- Vancomycin loading dose IV x1 (2 gm if ≥70 kg, 1.5 gm if <70kg), then 15 mg/kg IV q ___ hrs **PLUS**
- Penicillin 4 million units IV q4 hours **PLUS**
- Clindamycin 1200 mg IV 6 hours **PLUS**
- Gentamicin 5 mg /kg IV q24 hours **OR**
- Ciprofloxacin 400mg IV q12h to replace Gentamicin if renal impairment

5. Intra-abdominal

A. Community (Enteric Gram-negative bacilli, anaerobes)

- Ertapenem 1 gm IV q24 hours

B. Hospital-acquired (Resistant Gram-negative bacilli, anaerobes)

- Piperacillin-tazobactam 4.5 g IV x1 over 30 mins, 4 hrs later, 3.375 g IV over 4 hrs, given q8 hrs **OR**
- Meropenem 1 gm IV q8 hours
- If GPC in clusters on Gram stain or concern for MRSA, add
  - Vancomycin loading dose IV x1 (2 gm if ≥70 kg, 1.5 gm if <70kg), then 15 mg/kg IV q ___ hrs

6. Urinary

A. Community (Enteric Gram-negative bacilli, anaerobes)

- Piperacillin-tazobactam 4.5 g IV x1 over 30 mins, 4 hrs later, 3.375 g IV over 4 hrs, given q8 hrs

B. Hospital-acquired (Resistant Gram-negative bacilli, anaerobes)

- Meropenem 1 gm IV q8 hours
- If GPC seen on Gram stain, add
  - Vancomycin loading dose IV x1 (2 gm if ≥70 kg, 1.5 gm if <70kg), then 15 mg/kg IV q ___ hrs

7. Neutropenic fever (oncology patients) and sepsis

(MRSA, Resistant Gram-negative bacilli including *Acinetobacter*, *Pseudomonas*, ESBL)

- Vancomycin loading dose IV x1 (2 gm if ≥70 kg, 1.5 gm if <70kg), then 15 mg/kg IV q ___ hrs **PLUS**
- Cefepime 2 gm IV q8 hours **PLUS**
- Amikacin 7.5 mg/kg IV q12 hours **OR**
- Ciprofloxacin 400 mg IV q12 hours to replace Amikacin if renal impairment

8. Suspected candidemia should be considered in septic patients with any of the following risk factors: total parenteral nutrition, prolonged broad-spectrum antibiotics, hematologic malignancy or transplant, femoral catheterization, or Candida colonization at multiple sites.

- Micafungin 100 mg IV q24 hours

9. Significant penicillin allergy (i.e. hives, anaphylaxis)

- Replace meropenem or piperacillin-tazobactam with ciprofloxacin 400mg IV q8h +/- amikacin 7.5mg/kg IV q12h except for hospital acquired intra-abdominal infection, replace with (ciprofloxacin 400mg IV q8h + metronidazole 500mg IV/PO q6h +/- amikacin 7.5mg/kg IV q12h) OR tigecycline 100mg IV x 1 followed by 50 mg IV q12h
- For pneumonia, replace ceftriaxone or ampicillin-sulbactam with moxifloxacin 400mg IV/PO q24h
- For necrotizing skin and soft tissue infection, omit penicillin
- For community acquired intra-abdominal infection, replace ertapenem with levofloxacin 750mg IV/PO q24h + metronidazole 500mg IV/PO q6h