

Tintinalli's Emergency Medicine: A Comprehensive Study Guide, 9e >Sepsis

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TABLE 151-2Empiric Antibiotic Selection in Severe Sepsis and Septic Shock

Host	Likely Pathogens	Initial Antibiotic Selection
Adults (nonneutropenic) without an obvious source of infection	<i>Staphylococcus aureus</i> , streptococci, gram-negative bacilli, others	Imipenem, 500 milligrams every 6 h to 1 gram IV every 8 h <i>or</i> Meropenem, 1 gram IV every 8 h <i>or</i> Doripenem, 500 milligrams IV every 8 h <i>or</i> Ertapenem*, 1 gram IV every 24 h <i>plus</i> Vancomycin [†] , 15 milligrams/kg loading dose
Adults (nonneutropenic), suspected biliary source	Aerobic gram-negative bacilli, enterococci	Ampicillin/sulbactam, 3 grams IV every 6 h <i>or</i> Piperacillin/tazobactam, 4.5 grams IV every 6 h <i>or</i> Ticarcillin/clavulanate, 3.1 grams IV every 4 h <i>plus</i> Metronidazole, 15 milligrams/kg IV load then 7.5 milligrams/kg every 8 h
Adults (nonneutropenic), suspected pneumonia	<i>Streptococcus pneumoniae</i> , methicillin-resistant <i>S. aureus</i> , gram-negative bacilli, <i>Legionella</i>	Ceftriaxone, 1–2 grams IV every 12 h <i>plus</i> Azithromycin, 500 milligrams IV, then 250 milligrams IV every 24 h <i>plus</i> Levofloxacin, 750 milligrams IV every 24 h <i>or</i> moxifloxacin, 400 milligrams IV every 24 h <i>plus</i> Vancomycin [†] , 15 milligrams/kg loading dose
Adults (nonneutropenic), suspected illicit use of IV drugs	<i>S. aureus</i>	Vancomycin [†] , 15 milligrams/kg loading dose

Adults with petechial rash	<i>Neisseria meningitidis</i> , RMSF	Ceftriaxone, 2 grams IV every 12 h <i>or</i> Cefotaxime, 2 grams IV every 4–6 h <i>Consider</i> Addition of doxycycline 100 milligrams IV every 12 h for possible RMSF
Adults (nonneutropenic), suspected intra-abdominal source	Mixture of aerobic and anaerobic gram-negative bacilli	Imipenem, 500 milligrams IV every 6 h to 1 gram IV every 8 h <i>or</i> Meropenem, 1 gram IV every 8 h <i>or</i> Doripenem, 500 milligrams IV every 8 h <i>or</i> Ertapenem, 1 gram IV every 24 h <i>or</i> Ampicillin/sulbactam, 3 grams IV every 6 h <i>or</i> Piperacillin/tazobactam, 4.5 grams IV every 6 h <i>plus</i> Metronidazole, 15 milligrams/kg IV load then 7.5 milligrams/kg every 8 h [#]
Adults (nonneutropenic), suspected urinary source (hospitalized with pyelonephritis)	Aerobic gram-negative bacilli, enterococci	Levofloxacin, 750 milligrams IV every 24 h <i>or</i> Moxifloxacin, 400 milligrams IV every 24 h <i>or</i> Piperacillin/tazobactam, 4.5 grams IV every 6 h <i>or</i> Ceftriaxone, 1–2 grams IV every 12–24 h <i>or</i> Ampicillin, 1–2 grams IV every 4–6 h <i>plus</i> Gentamicin, 1.0–1.5 milligrams/kg every 8 h [‡]

Adults (nonneutropenic), suspected urinary source (complicated urinary tract infection/urinary catheter)	Enterobacteriaceae, <i>Pseudomonas aeruginosa</i> , enterococci, rarely <i>S. aureus</i>	<p>Piperacillin/tazobactam, 4.5 grams IV every 6 h</p> <p><i>or</i></p> <p>Imipenem, 500 milligrams every 6 h to 1 gram IV every 8 h</p> <p><i>or</i></p> <p>Meropenem, 1 gram IV every 8 h</p> <p><i>or</i></p> <p>Doripenem, 500 milligrams IV every 8 h</p> <p><i>or</i></p> <p>Ampicillin, 1–2 grams IV every 4–6 h</p> <p><i>plus</i></p> <p>Gentamicin, 1.0–1.5 milligrams/kg every 8 h[‡]</p>
Neutropenic adults	Aerobic gram-negative bacilli, especially <i>P. aeruginosa</i> , <i>S. aureus</i>	<p>Ceftazidime, 2 grams IV every 8 h</p> <p><i>or</i></p> <p>Cefepime, 2 grams IV every 8 h</p> <p><i>or</i></p> <p>Imipenem, 500 milligrams IV every 6 h to 1 gram IV every 8 h</p> <p><i>or</i></p> <p>Meropenem, 1 gram IV every 8 h</p> <p><i>or</i></p> <p>Piperacillin/tazobactam, 4.5 grams IV every 6 h</p> <p><i>plus</i></p> <p>Levofloxacin, 750 milligrams IV every 24 h <i>or</i> moxifloxacin, 400 milligrams IV every 24 h</p> <p><i>plus</i></p> <p>Vancomycin[†], 15 milligrams/kg loading dose</p> <p><i>and consider</i></p> <p>Fluconazole, 400 milligrams IV every 24 h <i>or</i> micafungin, 100 milligrams every 24 h</p>
Patients with suspected anaerobic source: intra-abdominal, biliary, female genital tract infection; necrotizing cellulitis; odontogenic infection; or anaerobic soft tissue infection	Anaerobic bacteria plus gram-negative bacilli (also see suspected biliary or intra-abdominal source, above)	<p>Metronidazole, 15 milligrams/kg IV load, then 7.5 milligrams/kg every 8 h[#]</p> <p><i>or</i></p> <p>Clindamycin, 600–900 milligrams IV every 8 h</p>

Patients with indwelling vascular devices	Coagulase-negative <i>Staphylococcus</i> , methicillin-resistant <i>S. aureus</i>	Vancomycin [†] , 15 milligrams/kg loading dose
Patients with potential for <i>Legionella</i> species infection		Azithromycin, 500 milligrams IV, then 250 milligrams IV every 24 h <i>or</i> Erythromycin, 800 milligrams IV every 6 h <i>should be added to the regimen</i>
Asplenic patients	<i>S. pneumoniae</i> , <i>N. meningitidis</i> , <i>Haemophilus influenzae</i> , <i>Capnocytophaga</i>	Ceftriaxone, 1 gram IV every 24 h up to 2 grams IV every 12 h if meningitis

Abbreviation: RMSF = Rocky Mountain spotted fever.

*Ertapenem has no antipseudomonal coverage and is not recommended in many intensive care units due to concerns of potentiating pseudomonal antimicrobial resistance.

[†]Methicillin-resistant *S. aureus* colonization is extremely high, and consideration should be given to including vancomycin in addition to the antibiotic recommendations. Vancomycin dosage is typically suggested at 15 milligrams/kg but can delay effective antimicrobial activity; initial dosages of 25 to 30 milligrams/kg have been recommended by some authorities. If the patient has an allergy to vancomycin, linezolid 600 milligrams IV can be substituted.

[‡]Multiple daily dosing: 2 milligrams/kg load then 1.7 milligrams/kg every 8 h.

[#]Metronidazole is often prepackaged as 500-milligram bags. Dosing at 500 milligrams IV every 6 or 8 h to approximate the milligram per kilogram dosing may speed time to antibiotic administration.