Cook Children's Medical Center
Recommendations for Empiric Antimicrobial Treatment of Sepsis

Table 1: Empiric Treatment Sepsis – No Identified Source

Condition	Rationale	Antimicrobials
Healthy Patient, No Central Line • Neonate (<30 days old)	Common pathogens are different among neonates and differ by age group in children.	• Ampicillin + Gentamicin ± Acyclovir Or • Ampicillin + Cefepime ± Acyclovir
• Non-Neonate		• Ceftriaxone + Vancomycin Cephalosporin allergy- substitute with Meropenem
Healthcare-acquired or Medically Complex Child or Neurologically Devastated (eg, immunocompromised, presence of implanted device such as central line, tracheostomy, >72h hospitalization in past 90 days)	Children with significant hospital contact, immune compromise, or implanted devices may be at higher risk for infections with resistant gram-negative organisms, including but not limited to *Pseudomonas aeruginosa.* Empiric treatment should also include MRSA coverage.	• Cefepime + Vancomycin Cephalosporin - substitute with Meropenem
Oncology Patient	Most infections are caused by beta-lactam susceptible gram-positive cocci, enteric gram-negative bacilli or other beta-lactam susceptible bacteria; *Pseudomonas aeruginosa* may cause severe infection and should be covered empirically in all cases.	• Cefepime + Vancomycin ± Gentamicin Or (if on prophylactic cefepime or allergy to cefepime) • Meropenem + Vancomycin ± Gentamicin
Sickle Cell Patient	Empiric treatment should include coverage for encapsulated bacteria.	• Ceftriaxone Cephalosporin allergy- substitute with Meropenem

Table 2: Empiric Treatment Sepsis with Suspected Source

Condition		Antimicrobials
Suspected Intraabdominal, Sinus/Mastoid, or Lemierre's	Aerobic gram-negative bacilli and *Bacteroides* and other anaerobes are often co-pathogens.	• Ceftriaxone + Vancomycin + Metronidazole Or • Piperacillin-tazobactam Cephalosporin allergy- substitute with Meropenem (will not need metronidazole)
Suspected Toxic Shock Syndrome	Empiric treatment should cover gram-negative organisms, MRSA, and toxic-producing bacteria. Clindamycin is a protein synthesis inhibitor, which may reduce toxin production.	• Ceftriaxone + Vancomycin + Clindamycin Cephalosporin allergy- substitute with Meropenem
Community Acquired Pneumonia with probable sepsis	Empiric treatment should include coverage for encapsulated bacteria. Complicated pneumonia may be caused by *S. aureus* including MRSA.	• Ceftriaxone + Clindamycin or Vancomycin Cephalosporin allergy- substitute with Meropenem
Aspiration Pneumonia • Community acquired	Empiric treatment should cover gram-negative organisms and anaerobes	• Ceftriaxone + Clindamycin Cephalosporin allergy- substitute with Meropenem
• Healthcare-acquired or Medically Complex or Neurologically Devastated (eg, immunocompromised, presence of implanted device such as central line, tracheostomy, >72h hospitalization in past 90 days)		• Cefepime + Clindamycin Or • Piperacillin-tazobactam Cephalosporin allergy- substitute with Meropenem
Ventilator Associated Pneumonia	Empiric treatment should cover encapsulated organisms, S. aureus	• Cefepime ± Clindamycin or Vancomycin (if colonized with MRSA)

	and aerobic gram-negatives, including *Pseudomonas aeruginosa*. MRSA coverage with Clindamycin if known to be colonized with MRSA.	Cephalosporin allergy- substitute with Meropenem
CNS infection: • Meningitis: >30 days old	Bactericidal activity in CSF is necessary for optimal treatment. Empiric treatment should have good CNS penetration and cover *S. aureus*, including MRSA. VP shunt infections should cover MRSA, coagulase negative staphylococcus and gram-negative organisms. Brain abscess infections should cover MRSA, PCN resistant organisms, and anaerobes	• Ceftriaxone + Vancomycin
• Meningitis: <30 days old		• Cefepime + Ampicillin ± Acyclovir
• VP shunt		• Cefepime + Vancomycin
• Brain Abscess or Subdural Empyema		• Ceftriaxone + Vancomycin + Metronidazole Cephalosporin allergy- substitute with Meropenem
Urinary Tract Infection with probable sepsis	Aerobic gram-negative bacilli are the most common pathogens, enterococci are occasional pathogens.	• Ceftriaxone ± Ampicillin (if suspect enterococci) ± Gentamicin Cephalosporin allergy- substitute with Meropenem (will not need ampicillin)
Skin/Soft Tissue • Non-severe	Empiric treatment should cover gram-positive organisms, including MRSA and streptococci. Necrotizing fasciitis may be polymicrobial, including gram-negative and anaerobes; clindamycin is a protein synthesis inhibitor which may reduce toxin production.	• Clindamycin ± Vancomycin ± Nafcillin ± Cefepime
• Necrotizing Fasciitis		• Cefepime ± Vancomycin ± Clindamycin ± Nafcillin ± Metronidazole Cephalosporin allergy- substitute with Meropenem (will not need metronidazole)
Bone and Joint	Empiric treatment should cover *S. aureus*, including MRSA, and streptococci.	• Cefazolin ± Clindamycin ± Vancomycin ± Cefepime

***If allergic to PCN (non-anaphylaxis) can substitute with a cephalosporin**
***If allergic to PCN (anaphylaxis) can substitute with a carbapenem**

****If allergic to cephalosporin can substitute with a carbapenem**

The Sepsis Committee and Antimicrobial Stewardship Program
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