# Suspected Sepsis

| INFECTION | MOST LIKELY ORGANIMS | THERAPY CATEGORY | ANTIMICROBIALS | COMMENTS |
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| **NEONATAL SEPSIS**<br>• Less than 4 weeks of age AND community-acquired<br>**OR**<br>• early-onset sepsis if hospitalized in the NICU | Group B strep<br>*Enterobacteriales*<br>*Enterococcus* spp<br>*Listeria*<br>HSV | First line | **Ampicillin IV**: Lexicomp dosages<br>**AND**<br>**Gentamicin* IV**: Lexicomp dosages<br><br>**If meningitis suspected**:**<br>Refer to meningitis section<br><br>**If suspicion of HSV*** add:**<br>**Acyclovir IV**: Lexicomp dosages | Antibiotics should ideally be initiated after blood, urine and CSF cultures have been sent.<br><br>*Refer to Protocol for the Use and Therapeutic Drug Monitoring of Aminoglycosides at the Montreal Children's Hospital (MCH)<br><br>****If meningitis suspected**, Cefotaxime preferred.<br>If CSF gram stain shows gram positive cocci or gram positive rods, add gentamicin 1 mg/kg/dose IV q8h for synergy in case of GBS or Listeria<br><br>*** Suspect HSV if presence of 1 or more of:<br>- Ill-appearing<br>- Altered mental status<br>- Hypothermia<br>- Seizures<br>- Presence of vesicles<br>- Exposure to maternal genital HSV lesions<br>- Elevated ALT<br>- CSF pleocytosis (using standard neonatal reference ranges) with a negative gram stain AND leukopenia or thrombocytopenia<br>(*refer to Febrile Young Infant Pathway*) |
| **SUSPECTED SEPSIS**<br>• 4 weeks of age and | *Strep pneumoniae*<br>N. *meningitidis*<br>Staph *aureus* | First line | **Ceftriaxone 50-75 mg/kg/dose IV q24h**<br>(max. 2 g/dose) | * Suspect HSV if presence of 1 or more of:<br>- Ill-appearing<br>- Altered mental status |

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| above<br>• Community-acquired | 1-3 months:<br>Group B strep<br>*Enterobacteriales*<br>*Enterococcus* spp<br>*Listeria* | | **If patient with sickle cell disease, use instead:**<br>**Cefotaxime 50 mg/kg/dose IV q8h** (max. 2 g/dose)<br><br>**If meningitis suspected:** Refer to meningitis section<br><br>**If suspicion of HSV* (up to 6 weeks of age), add:**<br>**Acyclovir 20 mg/kg/dose IV q8h** | - Hypothermia<br>- Seizures<br>- Presence of vesicles<br>- Exposure to maternal genital HSV lesions<br>- Elevated ALT<br>- CSF pleocytosis (using standard neonatal reference ranges) with a negative gram stain AND leukopenia or thrombocytopenia<br>(*refer to Febrile Young Infant Pathway*) |
| | | **Penicillin allergy** | Same | |
| **LATE-ONSET SEPSIS IN NICU**<br><br>Hospital-acquired (if 3 days of hospitalization or more) | Group B strep<br>Staph *aureus*<br>*Enterobacteriales*<br>P. *aeruginosa*<br>*Enterococcus* spp<br>*Listeria*<br>C. *albicans* | First line | **Cefazolin IV** * :<br>Lexicomp dosages<br>**AND**<br>**Gentamicin IV** ** :<br>Lexicomp dosages<br><br>**If ventilator-associated pneumonia or necrotizing enterocolitis also suspected, use instead:**<br>**Piperacillin-tazobactam IV**: Lexicomp dosages<br><br>**If meningitis suspected:**<br>**Ampicillin IV:** Lexicomp dosages<br>**AND**<br>**Cefotaxime IV:**<br>Lexicomp dosages<br><br>**If septic shock:**<br>**Meropenem IV**:<br>Lexicomp dosages<br>**+**<br>**Vancomycin*** IV** :<br>Lexicomp dosages<br><br>**If suspicion of invasive** | *Consult protocol: *The prescription and use of vancomycin in the Neonatal Intensive Care Unit (NICU)* to determine if when to replace cefazolin by vancomycin<br><br>**Refer to Protocol for the Use and Therapeutic Drug Monitoring of Aminoglycosides at the Montreal Children's Hospital (MCH)<br><br>*** Refer to the Guidelines for the prescription and the therapeutic drug monitoring of vancomycin at the Montreal Children's Hospital<br><br>£ Clinical clues concerning for invasive candidiasis:<br>Persistent hyperglycemia and thrombocytopenia, lack of response to broad-spectrum antibiotics, multi-organ involvement.<br><br>Suspect HSV if presence of 1 or |

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| | | | **candidiasis[£] add:**<br>**Amphotericin B deoxycholate IV**:<br>Lexicomp dosages<br><br>**If suspicion of HSV[Δ] (up to 6 weeks of age), add:**<br>**Acyclovir IV** : Lexicomp dosages | more of:<br>- Ill-appearing<br>- Altered mental status<br>- Hypothermia<br>- Seizures<br>- Presence of vesicles<br>- Exposure to maternal genital HSV lesions<br>- Elevated ALT<br>- CSF pleocytosis (using standard neonatal reference ranges) with a negative gram stain AND leukopenia or thrombocytopenia<br>(*refer to Febrile Young Infant Pathway*) |
| **HOSPITAL-ACQUIRED SEPSIS**<br><br>PICU and other inpatient units | Staph *aureus*<br>*Enterobacteriaceae*<br>P. *aeruginosa*<br>*Enterococcus* spp | First line | **Piperacillin-tazobactam 240-300 mg/kg/DAY IV DIVIDED q6-8h** (max. 4 g/dose)<br><br>**If septic shock:**<br>**Meropenem 20 mg/kg/dose IV q8h** (max. 1 g/dose)<br><br>**If meningitis suspected or cannot be excluded:**<br>**Meropenem 40 mg/kg/dose IV q8h** (max. 2 g/dose) | |
| | | **Penicillin allergy** | **Meropenem 20 mg/kg/dose IV q8h** (max. 1 g/dose)<br><br>**If septic shock or meningitis suspected:**<br>**Meropenem 20 mg/kg/dose IV q8h** (max. 2 g/dose) | |
| **SUSPECTED CENTRAL-LINE ASSOCIATED BLOODSTREAM INFECTION** | CoNS (coagulase-negative staphylococci)<br>Staph *aureus* | First line | **Outside of the NICU:**<br>**Piperacillin-tazobactam 240-300 mg/kg/DAY IV DIVIDED q6-8h** (max. 4 | Consider catheter removal if feasible.<br><br>If catheter is retained, consider |

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| | *Enterobacteriales*<br>*Enterococcus* spp<br>P. *aeruginosa* | | g/dose)<br><br>**AND**<br>**Vancomycin*** 15 mg/kg/dose IV q6h**<br><br>**In the NICU:**<br>**Cefazolin IV** *: Lexicomp dosages<br>**AND**<br>**Gentamicin IV** **: Lexicomp dosages | adjunctive antibiotic lock therapy.<br><br>*Consult protocol: *The prescription and use of vancomycin in the Neonatal Intensive Care Unit (NICU)* to determine if when to replace cefazolin by vancomycin<br><br>**Refer to Protocol for the Use and Therapeutic Drug Monitoring of Aminoglycosides at the Montreal Children's Hospital (MCH)<br><br>*** Refer to the Guidelines for the prescription and the therapeutic drug monitoring of vancomycin at the Montreal Children's Hospital |
| | | **Penicillin allergy** | **Outside of the NICU:**<br>**Meropenem 20 mg/kg/dose IV q8h** (max. 1 g/dose)<br>**AND**<br>**Vancomycin*** 15 mg/kg/dose IV q6h** | |

**REFERENCES:**

**Empiric Antimicrobial Therapy Guide: Version 9, May 2025**