

Neonatal Early Onset Sepsis (EOS) Care Guideline



Inclusion Criteria:

- ≤ 72 hours old, transferred from birth hospital, inborn
- Signs or symptoms of infection (e.g. respiratory distress, hypoglycemia, hypothermia)
- +/- History of maternal chorioamnionitis diagnosed by obstetrician
- +/- Risk factors of early onset sepsis and/or abnormal screening labs (CBC, +/- CRP)

Sepsis Calculator – Kaiser

<https://neonatalesepsiscalculator.kaiserpermanente.org/>

Assessment

- Vital signs
- Physical exam

Interventions

- NICU admission for monitoring, evaluation, and treatment
- Labs: CBC with manual differential, blood culture
- Hemodynamic support as needed
- Consider lumbar puncture for CSF evaluation (see further recommendations)
- Consider holding enteral feeds if in respiratory distress or clinically unstable
- Intravenous hydration as needed
- Blood gas and CXR for respiratory symptoms

Antibiotics - Refer to order set for dosing

- Ampicillin and Gentamicin – NICU Sepsis Order Set
- Consider cefepime instead of gentamicin if meningitis strongly suspected or significant concern for renal failure

Further Recommendations

- Lumbar puncture should be performed in infants with a:
 - positive blood culture
 - high probability of sepsis based on clinical signs or abnormal lab data
 - no clinical improvement when treated with appropriate antimicrobial therapy
- Minimize unnecessary antibiotic exposure by discontinuing antibiotics at 36 hours if blood culture negative and clinical status reassuring.
- Abnormal CBC should not be the sole indication for prolonging antibiotic duration in an asymptomatic patient or a child who had brief transitional symptoms.
- Duration of antibiotic therapy should be based on culture results and clinical status.

Considerations

- Risk factors for EOS include: prematurity, history of prolonged rupture of membranes (> 18 hrs); inadequate GBS intrapartum antibiotic prophylaxis for the mother; history of maternal fever during labor
- Consider viral etiology if the patient does not respond to antibiotic therapy or has elevated liver enzymes or cardiac dysfunction
- ID consult if patient does not respond to antibiotic therapy, has positive blood culture or has hemodynamic instability

• Ampicillin –

- 75 mg/kg IV q12h, Dosing Guidelines: GA ≤ 34 wks or ≤ 2000g and PNA 8-28 days
- 75 mg/kg IV q6h, Dosing guidelines: PNA < 7 days, CNS meningitis, endocarditis, severe infection
- 50 mg/kg IV q12h, Dosing Guidelines: GA ≤ 34 wks or ≤ 2000g and PNA ≤ 7 days
- 100 mg/kg IV q8h, Dosing Guidelines: PNA ≤ 7 days, CNS meningitis
- 50 mg/kg IV q8h, Dosing Guidelines: GA > 34 wks or > 2000g and PNA ≤ 28 days

• Gentamicin –

- 5 mg/kg IV q48h, Dosing Guidelines: ≤ 29 wks (< 7 days) or asphyxia, renal dysfunction, Indocin
- 4 mg/kg IV q36h, Dosing Guidelines: ≤ 29 wks or asphyxia, renal dysfunction, PDA or Indocin and 8 – 28 days Post Natal
- 4 mg/kg IV q24h, Dosing Guidelines: <29 wks, asphyxia, renal dysfunction, PDA or Indocin and ≥ 29 days Post Natal
- 4.5 mg/kg IV q36h, Dosing Guidelines: 30 – 34 wks and < 7 days Post Natal
- 4 mg/kg q24h, Dosing Guidelines: 30 - 34 wks and ≥ 8 days Post Natal

Safety Monitoring

- Gentamicin nephrotoxicity:
 - Gentamicin trough should be obtained if planning on duration longer than 36 hours

Neonatal Early Onset Sepsis Care Guideline References

- Flannery, D. D., Edwards, E. M., Coggins, S. A., Horbar, J. D., & Puopolo, K. M. (2022). Late-Onset Sepsis Among Very Preterm Infants. *Pediatrics*, *156*(6). <https://doi.org/10.1542/peds.2022-058813> (Level III)
- Kuzniewicz, M. W., Puopolo, K. M., Fischer, A., Walsh, E. M., Li, S., Newman, T. B., . . . Escobar, G. J. (2017). A Quantitative, Risk-Based Approach to the Management of Neonatal Early-Onset Sepsis. *JAMA Pediatrics*, *171*(4), 365-371. <https://doi.org/10.1001/jamapediatrics.2016.4678> (Level III)
- Puopolo, K. M., Benitz, W. E., & Zaoutis, T. (2018). Management of Neonates Born at $\geq 35\ 0/7$ Weeks' Gestation With Suspected or Proven Early-Onset Bacterial Sepsis. *Pediatrics*, *142*(6). <https://doi.org/10.1542/peds.2018-2894> (Level V)
- Puopolo, K. M., Benitz, W. E., & Zaoutis, T. E. (2018). Management of Neonates Born at $\leq 34\ 6/7$ Weeks' Gestation With Suspected or Proven Early-Onset Bacterial Sepsis. *Pediatrics*, *142*(6). <https://doi.org/10.1542/peds.2018-2896> (Level V)