Early Onset Sepsis Clinical Practice Guideline

Identifying newborns at risk for sepsis remains challenging. Please continue to use clinical judgment when evaluating individual babies. Bacterial sepsis continues to be a major cause of morbidity and mortality in newborns. The CDC defines early onset sepsis as a blood or cerebrospinal fluid culture-proven infection occurring with the first 7 days of life. The incidence has been reduced by intrapartum antibiotic prophylaxis for the prevention of early onset group B Streptococcal (GBS) disease from approximately 2/1000 infants in the early 1990’s to 0.5/1000 (CDC incidence). GBS is still the most common pathogen; more than half of GBS cases occur in infants of mothers with negative GBS cultures, emphasizing the need to remain vigilant for signs of sepsis in all newborns. Other etiologies include E. coli, other Streptococcus species, Enterococcus, and Staph aureus.

RISK FACTORS FOR SEPSIS INCLUDE (see management below):
- Chorioamnionitis
- Infant of multiple births where one newborn has GBS sepsis
- Prolonged rupture of membranes ≥ 18 hours
- Maternal intrapartum temperature ≥ 38.0 C
- GBS positive mother with inadequate treatment (less than 4 hrs)
- Previous infant with early onset GBS sepsis

Additional signs of sepsis may include the following:
- Fetal tachycardia
- Fever
- Hyperbilirubinemia
- Apnea
- Hypoglycemia
- Hypotonia
- Lethargy
- Hypothermia
- Pallor
- Tachypnea
- Grunting
- Bulging fontanelle
- Temperature instability
- Tachycardia
- Abdominal distension

INFANTS REQUIRING IMMEDIATE COMPLETE DIAGNOSTIC EVALUATION AND INITIATION OF EMPIRIC ANTIBIOTIC THERAPY:
1. Infants with signs or symptoms of sepsis regardless of presence or absence of risk factors
2. Infant of multiple births, where one newborn is/has been diagnosed with GBS sepsis

Complete diagnostic work up for sepsis includes:
- Complete blood count with differential, CRP, blood culture, serum glucose; repeat CBC, CRP’s as appropriate
- Consider CXR if respiratory symptoms are present and lumbar puncture if clinically indicated.

Consultation:
- NICU should be consulted to help guide further management decisions if an infant is undergoing an evaluation for presumed sepsis due to clinical signs/symptoms or if infant has a positive blood culture.

RISK FACTORS FOR SEPSIS INCLUDED IN RISK BASE SCREENING (see algorithm next page for specific management):
- Maternal intrapartum temperature ≥ 38.0 C
- Prolonged rupture of membranes ≥ 18 hours
- Gestational age
- Mothers with inadequate intrapartum antibiotic prophylaxis for GBS (none or less than 4 hours prior to delivery)

ABNORMAL LABS THAT MAY WARRANT INITIATING TREATMENT OR CONSULTATION INCLUDE*:
- WBC < 6,000
- L/T ratio of > 0.3
- Elevated CRP > 10.0 mg/L

* regarding laboratory studies, the likelihood of sepsis increases substantially if multiple lab parameters are abnormal

THERAPY:
- Antibiotics: (if meningitic dosages are necessary, consult Neofax)
  - Ampicillin 50 mg/kg/dose STAT and then q 12 hours given IV, or IM initially if access difficult to obtain
  - Gentamicin 5 mg/kg/dose STAT and then q 6 times daily given IV, or IM initially if access difficult to obtain (levels pre-and post-third dose)

Laboratory:
- If blood culture positive- Consult Neonatology (will likely need repeat blood culture and CSF culture) Consider repeat CBC and CRP daily, until normalized
Clinical Guideline to Evaluate Newborns at Risk for Early Onset Sepsis (EOS)

Signs or Symptoms of Sepsis

Maternal Chorioamnionitis

34 0/7 - 36 6/7 weeks gestation and at least one risk factor:
- ROM ≥18 hrs
- Maternal temp ≥38.0 C
- GBS prophylaxis indicated but inadequate

≥ 37 weeks gestation and at least one risk factor:
- ROM ≥18 hrs
- Maternal temp ≥38.0 C
- GBS prophylaxis indicated but inadequate

Routine Newborn Care
- Q4h vitals
- NBN Admission if ≥36 weeks and ≥2kg

NICU Delivery Team performs EOS Risk Calculator for infants ≥34 weeks

Full Evaluation and Initiation of Antibiotics
- Admission to the NICU for initial management
- Observation recommended for minimum of ≥24h

Empirc antibiotics, Vitals per NICU

NICU Admission

BCx, *
- Vitals Q4h x 24h

NBN Admission
- Screening CBC and CRP at 12h
- 48h of observation
- NBN Admission only if ≥36 weeks and ≥2kg

*NICU Team may draw BCx in L&D

CBC and CRP at 12h
- Q4h vitals

OPTIONAL: Following documented clinical exams, the evaluation and treatment may be determined by the EOS Risk Calculator within the 12h of life.

Consider BCx, empiric antibiotic therapy and/or NICU consult for the following abnormal lab values:
- CRP (>10 mg/L)
- WBC <6
- 1:T ratio >0.3

The risk of sepsis increases if more than one of these values is abnormal.

EOS RISK CALCULATOR
https://neonatalsepsiscalculator.kaiserpermanente.org/
Incidence 0.5/1000 live births (CDC)