Newborn Clinical Guideline – Early Onset Sepsis (using the EOS calculator)

Identifying newborns at risk for sepsis remains challenging. 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 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 *Strep* species, *Enteroccocus*, and *Staph aureus*.**

Infants requiring immediate 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 if clinically ill** (AAP Red Book, 2018)

Complete diagnostic work up for sepsis includes:
Blood culture only.
Consider CXR if respiratory symptoms are present and lumbar puncture if clinically indicated.

Admission to the NICU: All infants undergoing an evaluation for presumed sepsis due to clinical signs/symptoms or if infant has a positive blood culture should be transferred to the NICU for ongoing care and evaluation.

Risk base factors for sepsis (see algorithm next page for specific management):

1. **Maternal intrapartum temperature**
2. **Prolonged rupture of membranes**
3. **Gestational age**
4. **GBS status**
5. **Mothers with inadequate intrapartum antibiotic prophylaxis for GBS (none or less than 4 hours prior to delivery)**

Classification of Infant's Clinical Presentation (based on EOS calc)

Clinical Illness:

- **Persistent need for NCPAP / HFNC / mechanical ventilation (outside of the delivery room)**
- **Hemodynamic instability requiring vasoactive drugs**
- **Neonatal encephalopathy /Perinatal depression**
- **Seizure Apgar Score @ 5 minutes < 5**
- **Need for supplemental O_2 ≥ 2 hours to maintain oxygen saturations > 90% (outside of the delivery room)**

Equivocal Exam:

Persistent physiologic abnormality ≥ 4 hrs

- **Tachycardia (HR ≥ 160)**
- **Tachypnea (RR ≥ 60)**
- **Temperature instability (≥ 38˚C or < 36.5˚C)**
- **Respiratory distress (grunting, flaring, or retracting) not requiring supplemental O_2**

Two or more physiologic abnormalities lasting for ≥ 2 hrs

- **Tachycardia (HR ≥ 160)**
- **Tachypnea (RR ≥ 60)**
- **Temperature instability (≥ 38˚C or < 36.5˚C)**
- **Respiratory distress (grunting, flaring, or retracting) not requiring supplemental O_2**

Note: abnormality can be intermittent

Well Appearing:

No persistent physiologic abnormalities

GBS Prophylaxis Indicated for:

1. **GBS+ in late gestation during current pregnancy except when delivery by C-section with intact membranes before onset of labor**
2. **GBS bacteruria during current pregnancy**
3. **Previous infant with invasive GBS disease**
4. **Unknown GBS status with any of the following:**
   - <37 weeks gestation
   - ROM>18h
   - Maternal fever (>38.0C)

If a mother does not receive IV Penicillin, Ampicillin or Cefazolin >4h prior to delivery it is considered inadequate and a risk factor for sepsis.

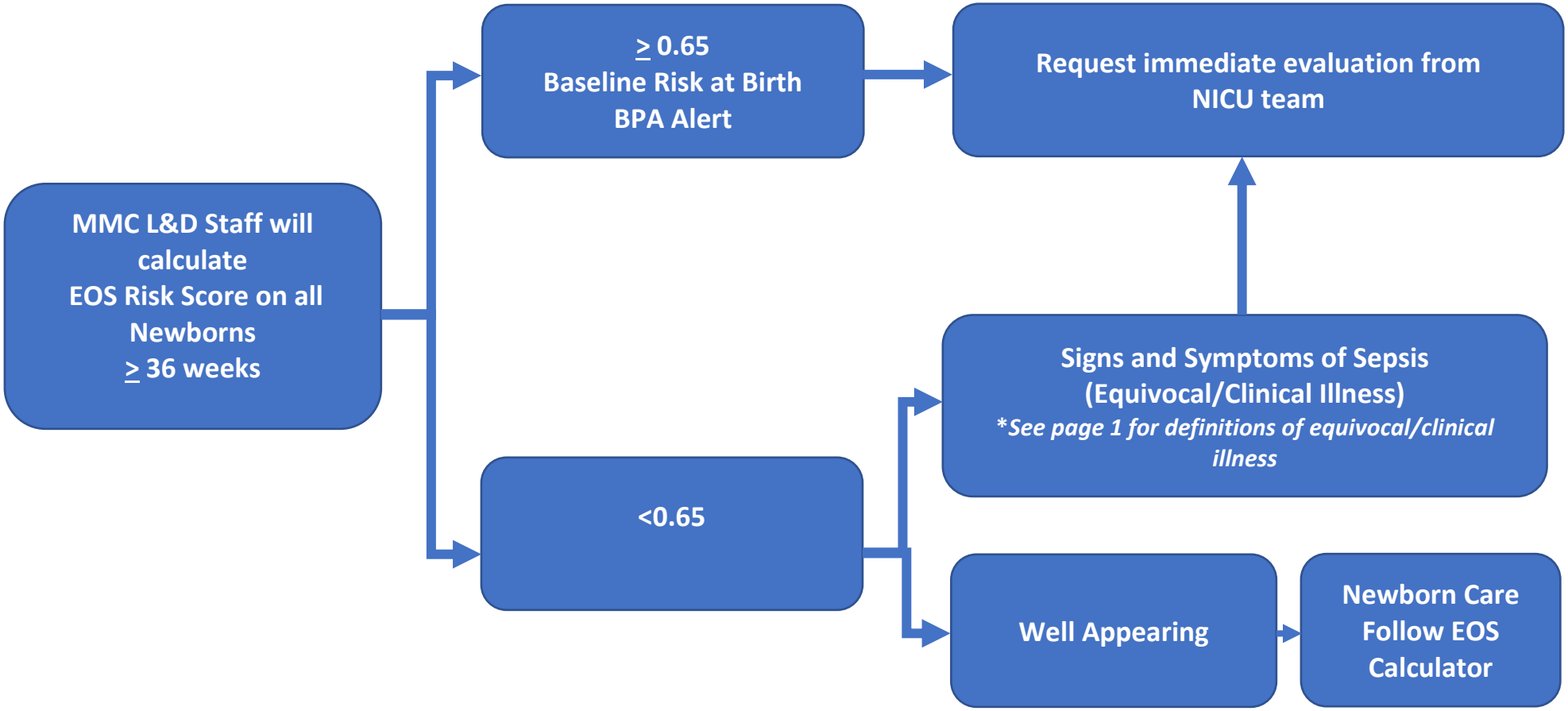
Other potential signs of sepsis may include the following:

fetal tachycardia	**hypothermia**
fever	**pallor**
hyperbilirubinemia	**bulging fontanelle**
apnea	**temperature instability**
hypoglycemia	**tachycardia**
hypotonia/lethargy	

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 36 hours given IV, or IM initially if access difficult to obtain (levels pre-and post-third dose)

Newborn Clinical Guideline – Early Onset Sepsis

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



This guideline is not intended to replace the physician's clinical judgement or to establish a single protocol applicable to all such newborns at risk for early onset sepsis. Some clinical problems may not be adequately addressed by this guideline which cannot be considered to represent an exclusive approach to care. As always, physicians are urged to document management strategies.
Revised Oct. 2019 based on AAP Management of Infants at Risk for GBS Disease, 144(2) Aug 2019