



## Generic Sample Guideline

Early Onset Sepsis (EOS) Sepsis Risk Calculator (SRC) Use for the Nursery Populations of $\geq 35$ Weeks Gestation <b>Sample guideline</b>	
Effective Date:	Replaces Resource:
	New
	Resource Owner:

### Introduction:

Guideline for using the Sepsis Risk Calculator (SRC) for evaluation and management of Early Onset Sepsis (EOS) term and late preterm infants ( $\geq 35$  0/7 weeks) admitted to the well newborn nursery or Neonatal Intensive Care Unit (NICU).

### Scope:

This resource applies to all (insert name of your hospital here) providers and staff caring for newborns admitted to the well newborn nursery or NICU.

### Resource Details:

#### I. Definitions

SRC: developed by Kaiser for use in the clinical setting and should be completed within one hour following delivery and documented in EHR

Late Preterm Infant (LPI): gestational age 34 0/7 weeks to 36 6/7 weeks; this guideline pertains only to LPI of gestational age 35 0/7 weeks and above

Term infant:  $\geq 37$  completed weeks gestation

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**EOS SRC Use for the Nursery Populations of  $\geq 35$  Weeks Gestation**

Antepartum: the period during pregnancy before labor start

Intrapartum: the period during labor and delivery

**II. Newborn Clinical Presentation**

- a. The SRC risk score incorporates the clinical presentation of the newborn to determine the appropriate management plan using the following criteria:
  - i. Clinical Illness (anticipate transfer to NICU/tertiary care facility)
    1. Persistent need for NCPAP/HFNC/mechanical ventilation (outside of the delivery room)
    2. Hemodynamic instability requiring vasoactive drugs
    3. Neonatal encephalopathy/Perinatal depression
      - a. Seizure
      - b. APGAR Score  $< 5$  at five minutes
    4. Need for supplemental oxygen  $\geq 2$  hours to maintain oxygen saturations  $\geq 90\%$  outside of the delivery room (\*see discussion in section iii)
  - ii. Equivocal (may be cared for in well nursery or be transferred to NICU/tertiary care facility)
    1. Persistent physiologic abnormality  $\geq 4$  hours
      - a. Tachycardia (HR  $\geq 160$ )
      - b. Tachypnea (RR  $\geq 60$ )
      - c. Temperature instability ( $\geq 100.4^{\circ}\text{F}$  ( $38^{\circ}\text{C}$ ) or  $\leq 97.5^{\circ}\text{F}$  ( $36^{\circ}\text{C}$ ))
      - d. Respiratory distress: grunting, flaring, retracting not requiring supplemental O<sub>2</sub>
    2. Two or more physiologic abnormalities lasting for  $> 2$  hours
      - a. Tachycardia (HR  $\geq 160$ )
      - b. Tachypnea (RR  $\geq 60$ )
      - c. Temperature instability ( $\geq 100.4^{\circ}\text{F}$  ( $38^{\circ}\text{C}$ ) or  $\leq 97.5^{\circ}\text{F}$  ( $36^{\circ}\text{C}$ ))
      - d. Respiratory distress: grunting, flaring, or retracting not requiring supplemental O<sub>2</sub>

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- iii. Well appearing—no persistent physiologic abnormalities (may be cared for in the well newborn nursery). **Babies in oxygen do not meet this category but in Colorado this results in many “ill” babies. Many nurseries at altitude have created exceptions for infants in low flows of supplemental oxygen, and without respiratory distress. There is no published data for how to approach this. If you would like to explore this option, contact [info@cpcqc.org](mailto:info@cpcqc.org) to discuss with a CASC team member.**
  
- b. **Use the SRC Calculator in Epic, or other EHR build, or on the weblink in the references below.** Set the incidence rate at 0.5/1000 live births (CDC national occurrence).
  - i. Enter all required parameters in Epic and calculate the SRC risk score.
  - ii. SRC calculator parameters
    1. Gestational age in completed weeks and days
    2. Highest maternal antepartum/intrapartum temperature
    3. Rupture of membranes duration, in hours
    4. Maternal GBS status (positive, negative, unknown)
    5. Maternal intrapartum antibiotics administered
    6. Antibiotic agent(s) **(Epic EMR users may find that the default Epic prompt has improper verbiage on this issue. Please contact [info@cpcqc.org](mailto:info@cpcqc.org) for Epic team guidance if needed.)**
      - a. GBS-specific: penicillin G; ampicillin; or cefazolin only
      - b. Vancomycin and clindamycin are considered “no antibiotics” if given alone (Puopolo 2019)
      - c. Broad-spectrum antibiotics are generally defined as: two or more antibiotics given in combination for concern for chorioamnionitis: ampicillin AND gentamicin, OR cefazolin AND gentamicin, OR clindamycin or vancomycin AND gentamicin. Alternative single agent regimens are: ampicillin-sulbactam (Unasyn), OR Piperacillin-tazobactam, OR Cefotetan, OR Ertapenem (ACOG 2017)
    7. Time interval from initial dose to delivery
  - c. The newborn will fall into groups of management according to the SRC risk score/category.

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- III. Newborn Management Based on Interpretation of the SRC Risk Score (always notify provider of any change in clinical status, and for any recommendations b through e, below)**
- a. Routine care
    - i. Routine care as a well newborn – refer to Newborn Admission order set
    - ii. Routine vitals
    - iii. Discharge per routine
  - b. Frequent vital signs without culture
    - i. Vitals every 3-4 hours for 48 hours
  - c. Frequent vital signs with blood cultures
    - i. Obtain order for culture
    - ii. Vitals every 3-4 hours until discharge
  - d. Blood culture and consider antibiotic treatment
    - i. Obtain order for culture, draw before antibiotics are started
    - ii. Vitals every 3-4 hours
    - iii. Antibiotics may be ordered per provider
  - e. Blood culture and antibiotic treatment
    - i. Obtain order for blood culture, draw before antibiotics are started
    - ii. Vitals every 3-4 hours
    - iii. Antibiotics per order of provider

When empiric antibiotics are indicated: Providers are directed to standard published doses of ampicillin and gentamicin for empiric therapy, available through the institutional link to [\[facility's neonatal medication reference\]](#) or [\[preferred handbook\]](#).

When cultures are negative, antibiotics should be discontinued within 36 to 48 hours. [Some centers have achieved discontinuation of antibiotic use within 24 hours. If you would like to explore this option, contact \[info@cpcqc.org\]\(mailto:info@cpcqc.org\) to discuss with a CASC team member.](#)

Reasons for rare exceptions when antibiotics are continued despite negative cultures are documented in the medical record. The diagnosis of EOS is made by using blood or CSF cultures. EOS cannot be diagnosed by using laboratory tests, such as a complete blood cell count or CRP.

**IV. Laboratory Evaluation**

- a. Blood culture:
  - i. Indication: follow SRC recommendation

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- ii. Collection (refer to CASC toolkit for more complete information about blood culture collection):
  - 1. Site: sterile peripheral draw or newly placed umbilical catheter
  - 2. Blood volume: 1 mL or greater
  - 3. Timing: prior to initiation of antibiotics
  - 4. Adhere to sterile technique per hospital guideline to avoid blood culture contamination
- iii. Impact on management: recommend pediatric infectious disease consult for guidance with positive blood culture
- b. Lumbar Puncture (LP):
  - i. Indications:
    - 1. Infants with “clinical illness” and with neurologic symptoms (eg mental status changes, seizures, apnea in term infant)
    - 2. Infants with blood culture positive for pathogen
  - ii. Timing:
    - 1. Before starting antibiotics for infants in category “1” above
    - 2. Post-antibiotics for infants in category “2” above
  - iii. Impact on management:
    - 1. Abnormal CSF findings may increase recommended duration of antibiotic treatment and impact monitoring for complications as well as impact long-term prognosis
    - 2. Recommend pediatric infectious disease consult for guidance when CSF findings are abnormal
- c. In general, ancillary tests such as a CBC or CRP should not be used to determine when and whether antibiotics should be initiated (refer to 2018 Puopolo reference below for a more robust discussion of ancillary tests).

**V. Reassessment**

- a. If the newborn displays abnormal clinical signs at any point within the first 24 hours, a complete newborn assessment is documented in the EHR. Contact the provider about the abnormal clinical signs using the SBAR format.
- b. Newborn management plan, based on the SRC risk score and current clinical presentation, is documented in the EHR.
- c. If the clinical presentation changes, the overall SRC risk score and the appropriate management plan may change and is documented in the EHR.
- d. Additional signs and symptoms of clinical illness such as lethargy or apnea may be considered by the provider for individualized decision making but are not validated characteristics in the sepsis calculator model.

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**IV. Documentation**

The SRC risk score and recommendations are documented in the patient's medical record.

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**References**

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