Sepsis: Septic Calculator - Assessment of Early-Onset Sepsis in Infants > 35 Weeks

Neonatal Sepsis Calculator

- Neonatal Early-Onset Sepsis Calculator.
- Set incidence to the KEMH rate of 0.4/1000 live births.

Key Points

- This guideline applies to all infants born at ≥ 35 weeks and cared for at KEMH and covers early-onset sepsis (EOS) risk with any bacteria.
- Three categories of infants require a blood culture and antibiotic treatment without delay:
  - Unwell appearing infants.
  - Infants whose sibling had EOS.
  - Infants whose mother currently has Group A Streptococcal infection (GAS disease).
- Contact the on-call paediatric staff for any queries or concerns about an infant.

Definitions and Parameters used for Assessment of Risk for Neonatal Sepsis

Maternal Risk Factors:

- Gestational age (in weeks and days).
- Highest maternal antepartum temperature (in decimal degrees Celsius; for the purpose of this guideline, antepartum maternal temperature refers to any maternal temperature prior to birth, i.e. antepartum and intrapartum maternal temperature).
- Rupture of membranes (in hours).
- GBS status (positive, negative, unknown).
- Maternal intrapartum antibiotics (type of antibiotic, time interval to delivery in hours).

Classification of maternal intravenous antibiotics:

- Broad-spectrum antibiotics: other Cephalosporins, Fluoroquinolone, Piperacillin/Tazobactam, Meropenem or any combination of antibiotics that includes an Aminoglycoside or Metronidazole.
Newborn Clinical Presentation:
The EOS risk score then incorporates the clinical presentation of the infant to determine the appropriate management plan. The newborn clinical presentation is assessed as:
- Well appearing.
- Equivocal signs.
- Clinical illness.

Definition of Equivocal Clinical Signs

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<tr>
<th>Clinical Parameters Assessed</th>
<th>Equivocal Signs</th>
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<tr>
<td>Heart rate &gt; 160/min</td>
<td>2 clinical parameters abnormal for &gt;2hrs</td>
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<tr>
<td>Respiratory rate &gt; 60/min</td>
<td>or</td>
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<tr>
<td>Temperature &gt; 38.0°C or &lt; 36.4°C</td>
<td>1 clinical parameter abnormal for 4hrs</td>
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<td>Respiratory distress (grunting, nasal flaring or costal recessions)</td>
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- Any infant with abnormal clinical parameters requires urgent paediatric review.
- Any infant with equivocal signs requires observation in the neonatal unit.

Clinical Illness
- Unwell babies will be managed in the neonatal unit.

How to Use the Sepsis Calculator
- Neonatal Early-Onset Sepsis Calculator.
- Set incidence to the KEMH rate of 0.4/1000 live births.
- Enter all required parameters and calculate EOS risk score.

Interpretation of EOS Risk Score Results and Infant Management

Management Plan for GREEN Group:
- Routine care.
- Early discharge possible.

Management Plan for YELLOW Group:
- Require: BLOOD CULTURE AND OBSERVATION.
- No routine full blood count or CRP.
- Infants with equivocal signs require observation in the neonatal unit; when signs have normalised.
- Observations (3 hourly vital signs) may continue on the postnatal wards until blood culture result available.
- Infants with medium risk, but normal exam may be observed (3 hourly vital signs) on postnatal wards until blood culture result available.
- If abnormal clinical parameters develop, the infant requires urgent paediatric review.
• If equivocal signs develop, infant requires transfer to neonatal unit.

Management Plan for **RED Group:**

• **TAKE BLOOD CULTURE AND TREAT WITH EMPIRIC ANTIBIOTICS.**
  • for details, see sepsis treatment guideline and antibiotic monographs.
  • With the blood culture, take full blood count and CRP.
  • Repeat CRP next morning (usually no earlier than 8-12 hours after first CRP).
  • Unwell infants and those with equivocal signs will be treated in the neonatal unit until stable and may then continue treatment and observation on the postnatal wards.
  • Well infants requiring antibiotics may be treated on the postnatal wards and require 3 hourly vital signs until blood culture result available.

**Documentation of EOS Risk and Clinical Assessment in Medical Notes**

• The EOS risk score should be documented on the neonatal history sheet by the staff attending the delivery (midwife, nurse or doctor).

• The **EOS Risk score after Clinical Exam** should be calculated as early as possible after delivery, when a set of neonatal observations are available.

• Documentation of the **EOS Risk score after Clinical Exam** should be on the front of the neonatal history sheet under ‘Complications of this pregnancy’. Document:
  • Date/time.
  • ‘EOS risk score: [insert calculated score]’.
  • Management category, i.e. green, yellow or red based on baby’s clinical condition.

• If the EOS risk score was not completed in the birth room/theatre, then this should be performed at the earliest opportunity and the result documented as above.

• If the infant displays abnormal clinical signs at any point within the first 24 hours, a complete newborn assessment needs to be documented in the medical notes.

• Infant management plan, based on the EOS risk score and current clinical presentation needs to be documented in the medical notes.

• If baby’s clinical presentation changes, the overall EOS risk score and the appropriate management plan may change and needs to be documented in the medical notes.
### Related WNHS policies, procedures and guidelines

**Neonatal Early-Onset Sepsis Calculator**

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<thead>
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