

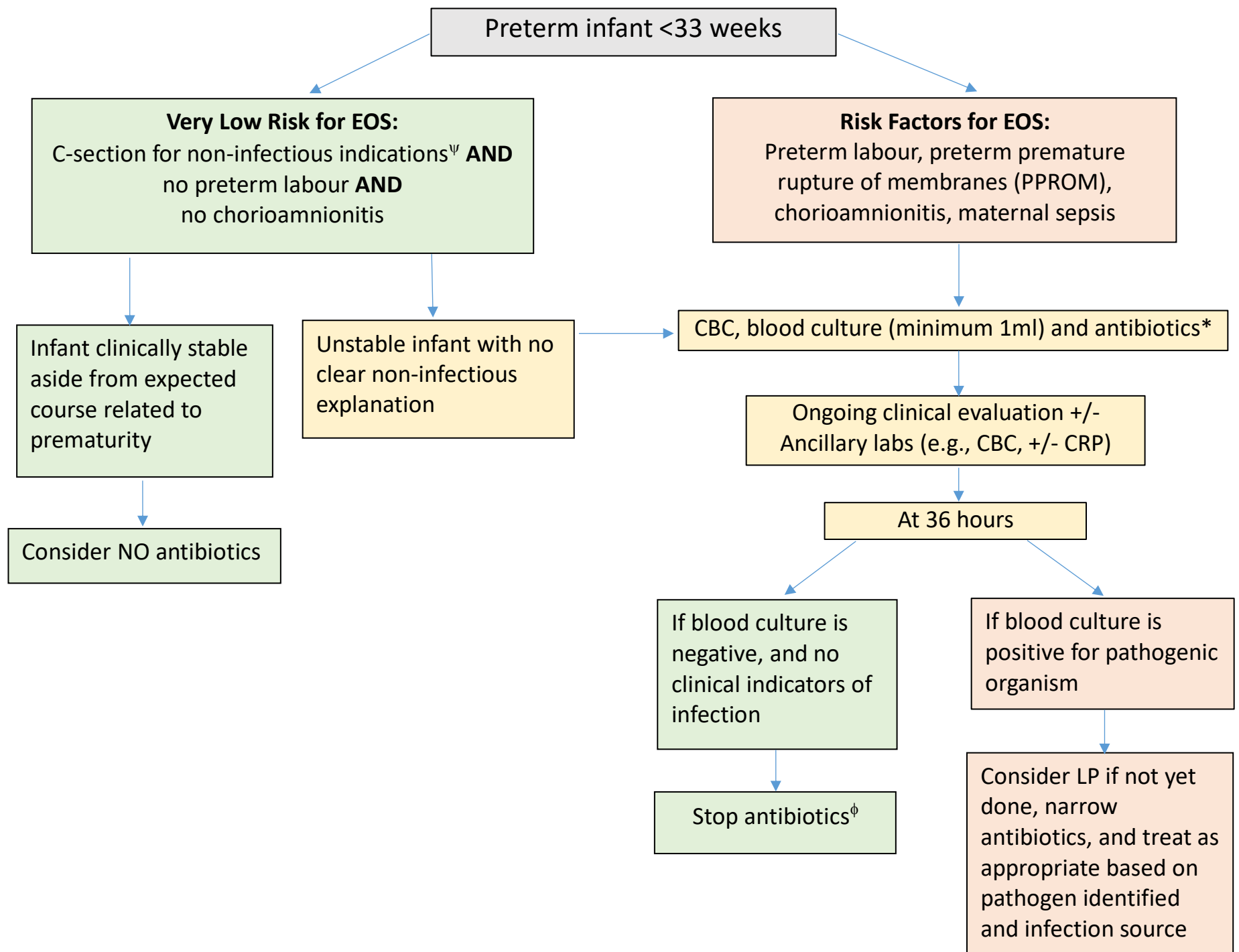
Early Onset Sepsis Guideline for Preterm Infants

PURPOSE:

- Reduce unnecessary antibiotic exposure in preterm infants at very low risk of early onset sepsis (EOS).

RATIONALE:

- 1) Higher antibiotic utilization in preterm infants, particularly in first week of life, is associated with higher morbidity, mortality, and longer lengths of stay^{1, 2}.
- 2) Preterm infants delivered for maternal/fetal indications without infectious risk factors are at low risk for EOS³.
- 3) Blood culture volumes should be optimized (minimum 1mL) to reduce false negative results.



^ψ**Non-infectious indications:** pre-eclampsia, IUGR, placental insufficiency, abruption, maternal/fetal illness due to non-infectious reasons

Signs of early onset sepsis: respiratory distress, apnea, temperature instability, tachycardia, poor perfusion, hypotension, metabolic acidosis, hypotonia, lethargy, seizures

***Choice of antibiotics:** first line ampicillin PLUS gentamicin OR tobramycin; consider alternate antibiotics based on maternal colonization status, local antibiogram and infant's clinical status

^φ**Antibiotics beyond 36 hours:** in case there are concerns of ongoing sepsis, e.g., maternal sepsis on appropriate treatment, inadequate blood culture volumes, unexplained inflammatory parameters, continued use of antibiotics should be evaluated every day. LP and repeat blood culture should be considered on individual basis.

Examples of abnormal labs: WBC <5, ANC <1 (unrelated to IUGR)

DISCLAIMER:

This guideline outlines the approach to the management of early-onset sepsis in NICU patients. It is not intended as a substitute for clinical judgment. Clinical judgement must supersede any algorithm-based care. If any specific questions arise, please contact the Neonatologist.

References

1. Ting, JY, Synnes, A, Roberts, A, et al. Association of antibiotic utilization and neonatal outcomes in very-low-birth-weight infants without proven sepsis. *JAMA Pediatr* 2016;170:1181–1187.
2. Ting, JY, Synnes, A, Roberts, A, et al. Association of antibiotic utilization and neurodevelopmental outcomes among extremely low gestational age neonates without proven sepsis or necrotizing enterocolitis. *Am J Perinatol* 2018;35:972–978.
3. Garber SJ, Dhudasia MB, Flannery DD, Passarella MR, Puopolo KM, Mukhopadhyay S. Delivery-based criteria for empiric antibiotic administration among preterm infants. *J Perinatol*. 2021;41(2):255-262.
4. Puopolo KM, Benitz WE, Zaoutis TE, COMMITTEE ON FETUS AND NEWBORN, COMMITTEE ON INFECTIOUS DISEASES. Management of Neonates Born at ≤ 34 6/7 Weeks' Gestation with Suspected or Proven Early-Onset Bacterial Sepsis. *Pediatrics*.2018;142(6).
5. Mukhopadhyay S, Puopolo KM. Clinical and Microbiologic Characteristics of Early-onset Sepsis Among Very Low Birth Weight Infants: Opportunities for Antibiotic Stewardship. *Pediatr Infect Dis J*. 2017;36(5):477-481.
6. Mukherjee A, Davidson L, Anguava L, Duffy DA, Kennea N. NICE neonatal early onset sepsis guidance: greater consistency, but more investigations, and greater length of stay. *Arch Dis Child Fetal Neonatal Ed*. 2015;100(3):F248-9.
7. Flannery, DD, Ross, RK, Mukhopadhyay, S, Tribble, AC, Puopolo, KM, Gerber, JS. Temporal trends and center variation in early antibiotic use among premature infants. *JAMA Netw Open* 2018;1:e180164.
8. Ting, JY, Roberts, A, Sherlock, R, et al. Duration of initial empirical antibiotic therapy and outcomes in very low birth weight infants. *Pediatrics* 2019;143(3):e20182286.
9. Kuzniewicz MW, Mukhopadhyay S, Li S, Walsh EM, Puopolo KM. Time to Positivity of Neonatal Blood Cultures for Early-onset Sepsis. *Pediatr Infect Dis J*. 2020;39(7):634-640.
10. Huggard D, Powell J, Kirkham C, Power L, O'Connell NH, Philip RK. Time to positivity (TTP) of neonatal blood cultures: a trend analysis over a decade from Ireland. *J MaternFetal Neonatal Med*. 2021.