

Antibiotic Stewardship for Neonatal Early Onset Sepsis

Nebraska Perinatal Quality Improvement Collaborative

The Challenge

Antibiotics are essential in fighting infections in newborns. But wide variations in antibiotic prescribing for newborn infections can lead to unnecessary or prolonged antibiotic exposure resulting in short- and long-term adverse outcomes such as:

- Mother-baby separation that interferes with bonding and successful breastfeeding
- Creation of antibiotic resistant bacteria
- Alterations in gut microbiome
- Increased incidence of necrotizing enterocolitis in preterm newborns
- Higher incidence of chronic conditions, including asthma, allergies, and obesity



Our Approach

The Nebraska Perinatal Quality Improvement Collaborative (NPQIC) has developed a toolkit of resources to provide Nebraska birthing hospitals with the necessary education and support to implement best practices for identification and management of newborns at risk for early onset sepsis. The toolkit will focus specifically on risk stratification of newborns using the Neonatal Early-Onset Sepsis Calculator.



What Can Your Hospital Do?

The CDC developed guidance in 2019 to measure and improve how antibiotics are prescribed by clinicians to better treat infections, protect patients from harms caused by unnecessary antibiotic use, and combat antibiotic resistance.

The 2018 AAP Clinical Report provides recommendations to protect infants at risk for infection by focusing on strategies to help clinicians:

- Carefully weigh the risks and benefits before administering antibiotics
- Identify risk and response for neonatal early onset sepsis diagnosis
- Improve clinical practices to support decisions involving appropriate antibiotic administration

Initiative Aims:

- Decrease the number of well appearing newborns, born at ≥ 35 weeks who receive antibiotics.
- Decrease the number of newborns with a negative blood culture who receive antibiotics for longer than 36-48 hours.



Key Strategies

- Small group learning sessions provide physicians and nurses with education on early-onset sepsis (EOS) risk factors, assessment tools, and guidelines.
- Networking provides an opportunity for teams to share and receive support from one another.
- On-going support from NPQIC during the implementation process.
- Access to resources and staff education.
- Free coaching sessions upon request.



Resources

- [Neonatal Early-Onset Sepsis Calculator](https://neonatalespsiscalculator.kaiserpermanente.org)
<https://neonatalespsiscalculator.kaiserpermanente.org>
- [AAP Management of Infants at Risk for Group B Streptococcal Disease \(2019\)](https://pediatrics.aappublications.org/content/144/2/e20191881)
<https://pediatrics.aappublications.org/content/144/2/e20191881>
- [AAP Management of Newborns Born at \$\geq 35\$ 0/7 Weeks' Gestation With Suspected or Proven Early-Onset Bacterial Sepsis \(2018\)](https://pediatrics.aappublications.org/content/142/6/e20182894)
<https://pediatrics.aappublications.org/content/142/6/e20182894>
- [AAP Management of Newborns Born at \$\leq 34\$ 6/7 Weeks' Gestation With Suspected or Proven Early-Onset Bacterial Sepsis \(2018\)](https://pediatrics.aappublications.org/content/142/6/e20182896)
<https://pediatrics.aappublications.org/content/142/6/e20182896>
- [Estimating the Probability of Neonatal Early-Onset Infection on the Basis of Maternal Risk Factors \(2011\)](https://pediatrics.aappublications.org/content/128/5/e1155)
<https://pediatrics.aappublications.org/content/128/5/e1155>
- [ACOG Committee Opinion: Intrapartum Management of Intraamniotic Infection \(2017\)](https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2017/08/intrapartum-management-of-intraamniotic-infection)
<https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2017/08/intrapartum-management-of-intraamniotic-infection>
- [ACOG Committee Opinion: Prevention of Group B Streptococcal Early-Onset Disease in Newborns \(2020\)](https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2020/02/prevention-of-group-b-streptococcal-early-onset-disease-in-newborns)
<https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2020/02/prevention-of-group-b-streptococcal-early-onset-disease-in-newborns>

Get Involved

Simple, straightforward steps can make a big difference in your center's antibiotic stewardship practices and create better outcomes for infants in your care. Contact us at info@npqic.org for more information.

THE NEBRASKA PERINATAL QUALITY IMPROVEMENT COLLABORATIVE

The Nebraska Perinatal Quality Improvement Collaborative (NPQIC) is a statewide network of perinatal clinicians, nurses, hospitals, and public health leaders that aims to improve the delivery and access of evidence-based healthcare for all Nebraska mothers and newborns.

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