

Problem/Background

- Current practice is that all newborns exposed to maternal chorioamnionitis should have a limited diagnostic evaluation and receive antimicrobial therapy for 24-48 hours
- Newer data shows that well appearing newborns seldom if ever develop an infection
- Newborns born at ≥35 0/7 weeks' gestation can be stratified into well defined risk levels for early onset sepsis utilizing a neonatal early onset sepsis (EOS) risk calculator and serial physical examination to detect the presence of clinical signs of illness after birth
- Kaiser Permanente developed a web-based risk assessment calculator that combines the individual newborn's clinical assessment and the maternal risk factors (gestational age, maternal temperature, length of rupture, maternal group B streptococcus (GBS) status and treatment) to calculate the possibility of EOS (Early Onset Sepsis) (Figure 1)

Project Implementation

- Sepsis Score to be calculated on all newborns at 2 hours of age by the nurse (Figure 3)
- Physician will be notified if the calculator recommends any action other than routine newborn care (Figure 2)
- The goal is to only obtain septic work ups and/or start antibiotics if the newborn's risk score indicates the need for intervention
- Staff was provided education on practice change at Obstetric (OB) Education Day and at OB staff meeting





Neonatal Antibiotic Stewardship

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Results

- risk for early onset sepsis
- identifying and managing the care of newborns at risk for EOS (Figure 4)

dictor	Scenario	Calculate » Clear		
cidence of Early-Onset		Risk per 1000/births		
estational age 오	days	EOS Risk @ Birth		
ghest maternal htepartum	Fahrenheit 💌	EOS Risk after Clinical Exam	Risk per 1000/births	Clinical Recommendation
mperature 😧		Well Appearing		
OM (Hours) 📀		Equivocal		
Maternal GBS status 오	 Negative 	Clinical Illness		
	 Positive 	Classification of Infant's Clinical Presen	tation Clinical Illness	Equivocal Well Appearing
	O Unknown			
Type of intrapartum antibiotics	 Broad spectrum antibiotics > 4 hrs prior to birth 			
	 Broad spectrum antibiotics 2-3.9 hrs prior to birth 			
	 GBS specific antibiotics > 2 hrs prior to birth 			
	\bigcirc No antibiotics or any antibiotics < 2			

Figure1. Kaiser Early Onset Sepsis Calculator



Figure 4. Screening & Management

Conclusions

- weeks gestation utilizing a risk assessment calculator and clinical assessment
- been validated for this population



Staff education and systemic intervention using a PSDA model can significantly impact patient care by decreasing the administration of antibiotics to newborns at

Use of the EOS calculator along with serial clinical assessment of the newborn can decrease the number of septic work ups and administration of antibiotics while

Other studies in the literature support the use of the EOS calculator to decrease the exposure to antibiotics for newborns without missing any cases of EOS



Figure 2. Physician Notification



• Future research is needed to decrease the use of antibiotics in premature newborns <35 0/7

Continue the practice change for newborns \geq 35 0/7 weeks gestation as the risk calculator has

Acknowledgements/Hospital Team

References

- (4): 365-371
- Infectious Diseases

E ar le **BroMenn Medical Center**

Clinical Exam	n Description		
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 O₂ ≥ 2 hours to maintain oxygen saturations > 90% (outside of the delivery room) 		
Equivocal	 Persistent physiologic abnormality ≥ 4 hrs Tachycardia (HR ≥ 160) Tachypnea (RR ≥ 60) Temperature instability (≥ 100.4°F or < 97.5°F) Respiratory distress (grunting, flaring, or retracting) not requiring supplemental O₂ Two or more physiologic abnormalities lasting for ≥ 2 hrs Tachypnea (RR ≥ 160) Tachypnea (RR ≥ 60) Tachypnea (RR ≥ 60) Temperature instability (≥ 100.4°F or < 97.5°F) Respiratory distress (grunting, flaring, or retracting) not requiring supplemental O₂ Note: abnormality can be intermittent 		

Figure 3. Screen at 2 Hours of Life



Use of Sepsis Calculator, Compliance Data 2020

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 Puopolo, K.M., Benitz, W.E., Zaoutis, T.E. (2018) Management of neonates born at >=35 0/7 weeks gestation with suspected or proven early-onset bacterial sepsis. Pediatrics 2018: vol 142, no 6. Online address: http://pediatrics.aappublications.org/content/142/6/e20182894By Committee on Fetus and Newborn & Committee on

Sepsis Calculator https://neonatalsepsiscalculator.kaiserpermanente.org