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Implementation of early-onset sepsis calculator in the newborn nursery at local community medical center in Baltimore, Maryland

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Antibiotics are the most commonly prescribed medications in the neonatal population. Early antibiotic exposure is associated with asthma, allergic reaction, autoimmune disease and obesity later in childhood. In this newborn setting, the providers most commonly refer to the 2010 CDC guideline for managing infants at risk for early-onset sepsis (EOS). However, the interpretation of the guideline varies among providers. Evidence suggests that implementing a neonatal earlyonset sepsis (EOS) calculator decreases the number of infants requiring antibiotic prophylaxis and reduces antibiotic exposure safely. The purpose of this quality improvement (QI) scholarly project was to implement the EOS calculator for infants ≥35 weeks gestational age (GA) with infection risk factors but well appearing in a newborn nursery (NBN) at an urban medical center setting in Maryland to reduce the need for laboratory evaluation and antibiotic exposure, as well as to standardize the practice. Focus-Analyze-Develop-Execute/Evaluate (FADE) was the quality improvement (QI) model used for this project. All infants born at ^{3} 35 0/7 weeks' gestation (n= 190) at the study hospital were enrolled over 11 weeks, September 9, 2018, to November 22, 2018. A retrospective chart review was also conducted to establish a baseline of comparison (n= 144). Based on the data, 174 out of 190 infants (91.6%) were managed utilizing the EOS calculator from birth to 12 hours of life. Seven out of one hundred and seventy-four infants (4%) received sepsis laboratory evaluation, compared to 25 infants out of 144 (17.3%) before the implementation. The percentage of infants needing laboratory evaluation significantly decreased with the use of the EOS calculator ($p < 0.05$). The results of this project reveal a decrease in laboratory evaluation and prophylactic antibiotic use by utilizing the EOS calculator. The significant declines suggest that continued and widespread use of the EOS calculator has a significant impact on antibiotic usage in this well newborn nursery.

Biography

Ke-Ni N Tien has been in Neonatal Clinical Practice sine 1991, having worked in Taiwan and some of the Nation's top ranked Neonatal Intensive Care Units. She currently serves as a Neonatal Nurse Practitioner (NNP) full-time with Cleveland Clinic Children's and part-time with Johns Hopkins Children's Center. He holds an earned Master of Science in Nursing at Arizona State University in 2007 and is currently a Doctoral Candidate in Nursing Practice (DNP) with the University of Maryland. Her interests concentrate on the synthesis of neonatal research, education and quality improvement projects, transforming data driven interdisciplinary team approaches into tangible improvement outcomes.

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