Antibiotic guidelines in NICU improve prescription practices for vulnerable infants

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Yale University School of Medicine neonatal intensive care unit (NICU) significantly reduced the number of cases of late-onset sepsis, a leading cause of death among pre-term infants, by implementing guidelines designed to eliminate overuse of antibiotics, according to new research published in *Infection Control & Hospital Epidemiology*, the journal of the Society for Healthcare Epidemiology of America. The antibiotic stewardship guidelines reduced variability in treating common infections, improving clinical adherence to best practices.

"It can be difficult to distinguish infections from other disease symptoms in pre-term infants. Timely interventions for a true infection are critical, but unnecessary exposures toantibiotics can result in antimicrobial resistance, increased risk for serious health conditions, or even death," said Nneka Nzegwu, DO, attending physician in neonatal-perinatal medicine at Brigham and Women's Hospital and an author of the study. "We are encouraged that antimicrobial stewardship in the NICU is gaining focus and attention. Our hope is that our experience assists others on a similar journey."

A multidisciplinary team developed the antibiotic stewardship program consisting of clinical guidelines published to the hospital-based intranet to curtail provider-to-provider variability in prescriptions, as well as a unit-wide educational effort to introduce the principles of stewardship, review guidelines, and present outcomes measures. Using electronic medical records, a daily report of all prescribed antimicrobials was reviewed by stewardship team members, providing timely prescriber

oversight and feedback.

Researchers found that as a result of the intervention, healthcare-associated infections decreased, including evaluations for late-onset sepsis, with an average reduction of 2.65 late-onset sepsis evaluations per year and per provider. Overall, in 2011, a year before the stewardship program was implemented, the NICU had an average of 21.2 late-onset sepsis evaluations per 100 days, which decreased to 8.4 evaluations by 2016.

The study found that physicians followed clinical guidelines for prescribing antibiotics for 98.75 percent of treatments performed, and no infants with clinical infections developed a recurrent infection after seven days of discontinuing their antibiotic treatment.

"So few antimicrobial stewardship programs provide NICU-specific guidelines to cut down on unnecessary prescription practices," said Matthew Bizzarro, MD, medical director of the NICU at Yale-New Haven Children's Hospital and an author of the study. "Our use of an electronic medical record-generated daily report, with additional information on the rationale behind each prescription event was somewhat novel and incredibly useful in providing timely feedback and review of prescriber practices."

More information: Matthew Bizzarro, Nneka Nzegwu, Michelle Rychalsky, Loren Nallu, Xuemei Song, Yanhong Deng, Amber Natusch, Robert Baltimore, George Paci. "Implementation of an Antimicrobial Stewardship Program in a Neonatal Intenstive Care Unit." Web (July 27, 2017).

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