

## **Antibiotic use in neonatal intensive care units**

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Antimicrobial agents are the most commonly prescribed class of medications in neonatal intensive care units (NICUs). Suspicion of infection is often difficult to differentiate from other evolving pathologic processes in neonates, yet it can progress rapidly, with potentially disastrous consequences. This often leads to challenges in the initiation, selection, and duration of antimicrobial therapy. Early and decisive treatment with powerful antimicrobials tends to be the preferred clinical mantra. Broad-spectrum antibiotic exposure has been associated with altered bacterial colonization, resulting in the emergence of resistant organisms and increased rates of fungemia, necrotizing enterocolitis (NEC), and mortality. Our group recently demonstrated that among infants without culture-confirmed sepsis or NEC, the highest antibiotic utilization rate (AUR) quartile had significantly greater morbidity and mortality than the other three AUR quartiles. We also identified an association between high AUR and a composite outcome of death or adverse neurodevelopmental outcomes at 18-21 months' corrected age. These findings highlight the importance of using antibiotics judiciously in NICU settings, which may minimize the collateral damage associated with antibiotic therapy and benefit neonatal outcomes. Therefore, NICU is a key location in which to deploy and perfect Antimicrobial Stewardship principles.