

### **Abstract Title:**

EVALUATING TIME TO ANTIBIOTIC ADMINISTRATION IN THE NEONATAL INTENSIVE CARE UNIT: IDENTIFICATION OF BARRIERS TO IMPROVE WORKFLOW

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### **Abstract Description:**

Neonatal sepsis remains a leading cause of infant mortality. Multiple centers have explored utilization of an ideal, one-hour antibiotic administration time to reduce morbidity and mortality. A recent review examined hospital-acquired infections in neonates and found that optimizing antibiotic administration was a rather expansive effort. They found effective measures included reducing antibiotic delays through education, standardizing the evaluation of sepsis, and streamlining online ordering through electronic medical record. Based on these data we implemented an ongoing quality improvement (QI) initiative aimed at optimizing time to antibiotic administration.

Our chart review identified 622 infants who had received antibiotics following admission to the UC Davis NICU. 293 were excluded due to having the initial dose administered outside of the unit. 290 infants were reviewed from January 2017-June 2018 the highest average time to antibiotics was 7.12 hours (from initial order to medication administration) within a single month. We performed a root cause analysis, examining each step of the process, from pharmacy verification, drug delivery to the NICU, and administration in order to identify targets for improvement.

In January 2018 we began a 2-month intervention period of nursing and resident education while continuing prospective data review, tracking time to antibiotic administration. As of June 2018, we observed an average time to medication administration of 2:04 with a standard deviation of 47 minutes. We are currently in the process of collecting survey responses from the nursing staff to further identify other barriers to timely antibiotic administration.

## CAN 2019

Our analysis suggested that antibiotic delay is a common yet preventable problem in the NICU. Our multi-system approach allowed us to target our deficiencies by improving education, optimizing time-sensitive antibiotic administration, and raising awareness of the importance of prompt treatment of sepsis in critically ill neonates. In this ongoing QI project, we plan to utilize staff survey data and continue staff education to further reduce our antibiotic administration times closer to the current best practice recommendations of under one hour.