

<u>Session/Poster#</u>	<u>Presenter</u>
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Implementation of a NEC prevention bundle to decrease the incidence of NEC in preterm and/or VLBW infants in a level III NICU

Background: Necrotizing Enterocolitis (NEC) is one of the most common gastrointestinal emergencies in preterm infants. The incidence of NEC is reported to be 2-7.5% in very low birth weight (VLBW) infants. Standardized protocols and checklists have been shown to decrease the incidence of NEC.

Objective: A Quality Improvement (QI) initiative at a Level III NICU that aimed to reduce the incidence of NEC by 20% over a 2-year period, from January 1st, 2021, to December 31st, 2022.

Methods: Infants with gestational age <32 weeks and/or weight <1500g at birth were included. The QI Model for Improvement and Key Driver Diagram were used to build the NEC prevention bundle that comprised of a 9-point checklist. We studied 5 interventions: 1) Use of mother's own milk or donor human milk, 2) Adherence to the unit feeding protocol, 3) Discontinuation of antibiotics within 48 hours of negative blood cultures, 4) No routine checking of gastric residuals, 5) Removal of central lines at 100 ml/kg/day of feeding volume. The primary outcome measure was the incidence of clinically proven NEC and the process measure was adherence to the NEC bundle.

Results: 2 PDSA (Plan-Do-Study-Act) cycles comprising of 74 infants were conducted. The adherence rates to our process measure improved from 97% to 100% for use of human milk, 68% to 83% for adherence to the feeding protocol, 81% to 88% for antibiotic discontinuation at 48 hours, 76% to 94% for not checking gastric residuals and 71% to 92% for central line removal. Our outcome measure of NEC incidence decreased from 7% to 5.3% and 5.3% to 2.8% at the end of the first and second PDSA cycles respectively. This was a 60% reduction from baseline.

Conclusion: The NEC prevention bundle reduced the incidence of NEC by 60%. Reduction in NEC rate improves overall morbidity and mortality and leads to improved long-term neurodevelopmental outcomes and quality of life in preterm and VLBW infants.