

Impact of the Tennessee Initiative for Perinatal Quality Care

"Reduction in Necrotizing Enterocolitis" Project



TIPQC
Tennessee Initiative for
Perinatal Quality Care

www.tipqc.org

PROBLEM

Necrotizing enterocolitis (NEC) remains a significant and devastating condition in neonatal intensive care units (NICUs), predominantly affecting preterm infants, particularly those with very low birth weight (<1500 grams). It is characterized by intestinal inflammation, which can progress to necrosis and perforation, leading to high morbidity and mortality rates. NEC is multifactorial, with associated risk factors including prematurity, formula feeding, intestinal ischemia, bacterial colonization, and the immaturity of the infant's immune system. The disease not only results in immediate complications like sepsis and surgical interventions but also long-term issues like neurodevelopmental impairments and growth failure. Despite advances in neonatal care, NEC incidence has not significantly decreased over the years, making it a critical area for intervention in NICUs.

ACTION

Level III and IV NICUs from across Tennessee have come together to achieve a 25% relative reduction (from the respective facility's baseline over the past 4 years) in NEC in this population by June 2026. The project was launched by four (4) pilot teams in January 2025. Detailed educational instruction occurred at TIPQC's Annual Conference, and the project was made available in July 2025, with an additional eight (8) Level III and IV NICUs joining. Participating hospitals were provided with a toolkit, QI education, data collection tools, content education from nationally recognized experts, and a road map for implementation. Teams participated in monthly huddles, quarterly learning sessions, and annual state-wide meetings, as well as coaching calls from TIPQC. Based on their current practice, these teams implemented evidence-based procedures, protocols, and potentially best practices. Monthly outcome measures captured by each facility include percent of infants with NEC (including NEC mortality) and the percent of overall infant mortality prior to or at 40 weeks' gestational age. Process measures collected include but are not limited to percent of infants receiving mother's own milk and donor breast milk, percent receiving oral immune therapy (OIT), and percent with optimal cord clamping at ≥ 60 seconds after birth. Monthly data capture began in May 2025 for the pilot teams and in July 2025 for the non-pilot teams.

EXPLANATION OF IMPACT

Twelve (12) eligible Tennessee Level 3 and 4 NICUs participated in this project, impacting 914 infants born at <30 weeks' gestation. Studies on oral care with breast milk or colostrum, known as oral immune therapy (OIT), have shown a decrease in NEC and ventilator-associated pneumonia. Half of hospitals (50.0%) lacked an OIT policy at baseline; 91.7% had one by project end. Median OIT was 74.7% (Figure 1).

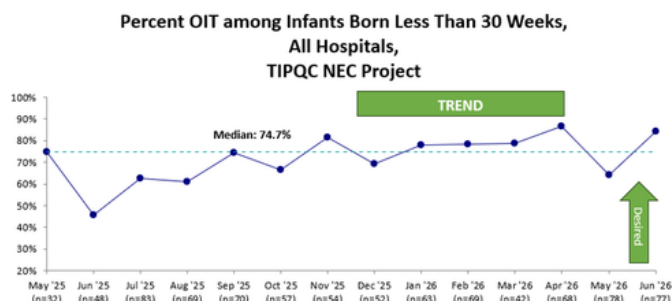


Figure 1: Percent OIT Among Infants Born Less than 30 Weeks Gestation, All Hospitals

Project Statistics

914

Infants in this project

12

Level 3 & Level 4 NICUs
in the state are participating

92%

Hospitals had an OIT policy up from 50%
at start of project

74.7%

Median of infants receiving oral immune
therapy (OIT)

Explanation of Impact Continued

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Data is shared in aggregate and by facility to evaluate current practices and opportunities for improvement. Median NEC was 5.7% from May 2025 through June 2026 (Figure 2), versus a 2021–2024 baseline median of 6.0% (5% relative reduction). NEC remained within common-cause variation, short of the 25% goal.

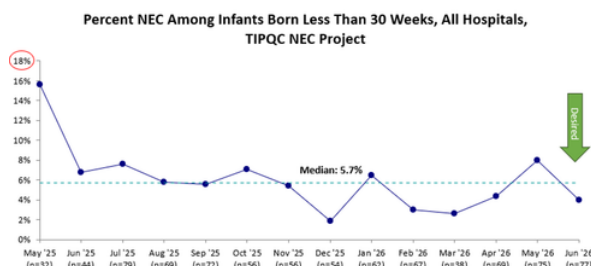


Figure 2 : Percent NEC Among Infants Born Less than 30 Weeks Gestation, All Hospitals

A reduction in mortality due to NEC was also noted. Overall, NEC mortality during the project was 18.4% while 2021-2024 baseline data was at 27.1% (Figure 3). This represents a 32.1% relative reduction in NEC mortality. During the project, the median monthly value for NEC mortality was 8.3%. Half of the participating hospitals had no deaths due to NEC during the project; there were 0 deaths due to NEC in 7 of 14 months of the project.

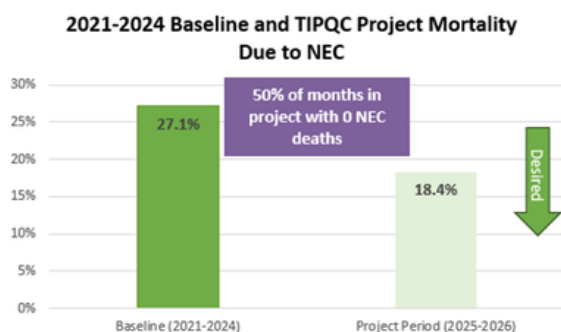


Figure 3: NEC Mortality, Baseline and TIPQC Project Comparison

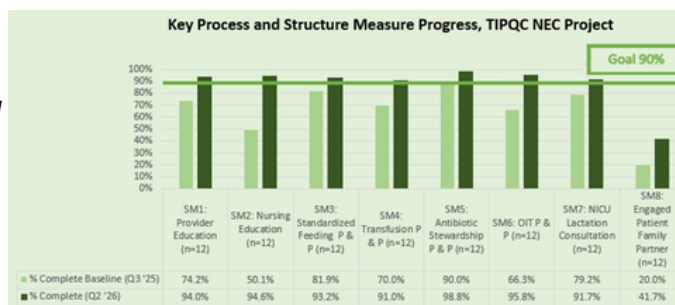


Figure 4: Key Process and Structure Measure Progress

Project Statistics

5.7%

Project median for infants diagnosed with NEC, representing a 5% relative reduction

32%

Relative reduction in NEC mortality

50%

Of hospitals had no deaths due to NEC

50%

Of project months had no deaths due to NEC

Notable progress was made in all key process and structure measures with a 90% goal achieved in all but one measure (Figure 4).

WHO WAS RESPONSIBLE

The collaborative and statewide efforts of TIPQC and the participating hospitals have all contributed to this improvement.

CONTACT

For more information, please contact Brenda Barker, TIPQC Executive Director, at Brenda.Barker@TIPQC.org, or visit our website at www.tipqc.org or <https://tipqc.org/nec/>.