The Impact of the Tennessee Initiative for Perinatal Quality Care

Chronic Lung Disease (CLD) Improvement Project MIDTERM

TIPQC
Tennessee Initiative for Perinatal Quality Care

www.tipqc.org

PROBLEM

Chronic Lung Disease (CLD) or Bronchopulmonary Dysplasia (BPD) is defined as the need for oxygen or respiratory support at 36-weeks postmenstrual age. It remains the most common complication of prematurity. Infants who develop CLD have a higher incidence of mortality. Morbidities are also higher in infants that develop CLD and include long-term neurodevelopmental delays and late onset sepsis. Infants that develop CLD also have increased utilization of medical resources and are more likely to be readmitted to the hospital during the first year of life. The Vermont Oxford Network (VON) database revealed a median hospital rate of CLD to be 31.3%, for infants 22-29 weeks' gestational age in 2021. The median 2020 rate in VON for ten hospitals in TIPQC was 41.7%.

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 3 years) in CLD in this population by June 2025.

The project was launched by four (4) pilot teams in January 2024. Detailed educational instruction occurred at TIPQC's Annual Conference, and the project was made available in July 2024, with an additional six (6) Level III and IV NICUs joining. The participating hospitals were provided 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 CLD (by Grades 1-3) among targeted population (infants born at less than 30 weeks' gestational age at participating NICUs, including transfers admitted within 24 hours of birth), percent mortality of targeted infants with any CLD and Grade 3 CLD, percent of "final disposition" of infants with CLD, percent mortality of targeted infants prior to 36 weeks, and percent of infants discharged home on oxygen prior to 36 weeks. Monthly data capture began in January 2024 for the pilot teams and in July 2024 for the non-pilot teams. Data is shared in aggregate and by facility to evaluate current practices and opportunities for improvement.

Project Statistics

10

Level 3 & 4 NICUS

311

Completed Infant records

124

Incomplete infant records, pending infant discharge

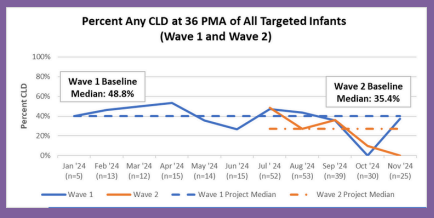

*Figure 1**

**Data accessed 2/17/25 is preliminary based on ongoing NICU discharge.*

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EXPLANATION OF IMPACT

During (January 2024-November 2024 infant birth dates), the four pilot hospitals have a project median of 40.0% during their 11 months of participation with a 2020-2022 baseline of 48.8%. The six non-pilot hospitals have a project median of 27.0% for their first five months of participation and a 2020-2022 baseline median of 35.4%. This data is shown by wave in Figure 1. As a collaborative through November 2024, the median CLD rate is 35.9% and the 2020-2020 collaborative baseline is 37.4% (Figure 2). Further data is needed to assess a possible change outside of normal variation. Data is preliminary based on ongoing NICU discharge, and access on 2/17/25.

Of note, mortality among those diagnosed with CLD during the project has been consistently at 0% compared to a 2020-2022 collaborative baseline of 2.7% mortality among those diagnosed with CLD. This data is preliminary based on ongoing NICU discharge.

As of 2/17/25, ten teams participating in this QI project have submitted a total of 311 completed infant data records with 124 records in process as infants are yet to be discharged. The midterm report includes analysis for records with completed data only.

WHO WAS RESPONSIBLE

The collaborative and statewide efforts of TIPQC and the participating hospitals have all contributed to this improvement. The participating hospitals are continuing their efforts to implement all of the best practices in the Tennessee Tiniest Babies bundle with the goal to further improve the process and outcome measures.

CONTACT

For more information, please contact Brenda Barker, TIPQC Executive Director, at brenda.barker@vumc.org, or visit our website at https://tipqc.org/project-chronic-lung-disease/

Project Statistics

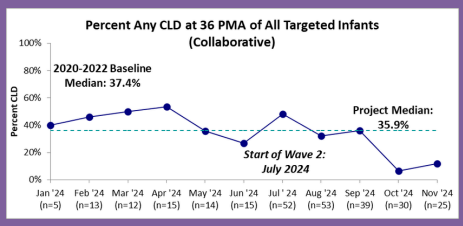

*Figure 2**

**Data accessed 2/17/25 is preliminary based on ongoing NICU discharge.*