

THE TEXAS NICU PROJECT (TNP)

FINAL REPORT — EXECUTIVE SUMMARY



TEXAS
Health and Human
Services

Neonatal intensive care has greatly reduced newborn mortality and morbidity across the United States, but many aspects of the quality, outcomes, and efficiency of this care remain incompletely documented and poorly understood. In the past twenty years, Texas has witnessed high growth in neonatal intensive care unit (NICU) use and capacity. A *Texas Tribune* article from March 20, 2011, reported that between 1998 and 2009, NICU beds increased by 84% while births grew by 18%. Previous studies have identified persistent regional and hospital variation in newborn care, while neonatal intensive care remains challenging and expensive to families and insurers. Improving the *value* of care has been elusive, particularly as the recent growth in NICUs has primarily served newborns with low illness acuity. Depending simply on where they are born, newborns today face real differences in their care and outcomes that are not routinely publicly reported, while stakeholders (e.g. families, state Medicaid programs, and insurance plans) face wide variations in spending.

THE TEXAS NICU PROJECT (TNP) is the first large-scale, population-based study of Medicaid-insured newborns and neonatal intensive care in the world. Its analyses examine overall and regional variation in newborn care, specifically illness-adjusted (e.g. birth weight and other perinatal risk factors) use of intensive care for different newborn conditions and associated health outcomes. Patient and provider factors are also studied to reveal and explain the causes of variation, and to identify potential opportunities for improvement in care.

SUMMARY OF FINDINGS: Striking variation was observed in the care of Medicaid-insured newborns across regions and hospitals, with or without adjustment for differences in health risk. This variation in rates in NICU services and imaging occurred in both high- and low-risk newborns. Given these utilization differences, it is not surprising that program payments also varied across regions, even after controlling for differences in price and regional costs. Preliminary analyses failed to find neither benefit nor harm in differences in NICU length of stay. If confirmed for other types of care, there may be opportunities to reduce the intensity of care and payments, and increase the value of newborn care in the Texas Medicaid program.

NOTABLE EXAMPLES OF HOSPITAL DIFFERENCES IN NEWBORN CARE

(Measures are adjusted for newborn health status indicators)

In very low birth weight singleton newborns (<1500 grams), the average number of special care days (defined as an elevated level of care reported on a facility or professional medical claim) in the fifty largest hospitals ranged from 40.5 to 77.8 days. In 24 of these hospitals, more than 90% of special care days were billed at an intensive level, while in 9 hospitals less than 70% of these days were billed at this highest level. The use of head MRIs to detect brain injuries and abnormalities varied from 4.5% to 68.6% of newborns. The median costs varied over two-fold across regions.

In late pre-term singleton newborns (gestational age between 34-36 weeks), in the hundred largest hospitals the percent admitted to NICUs ranged from 11.7% to 48.0%, with an over 10-fold difference in the average number of special care days. Depending on the hospital providing the newborn care, the number of chest and abdominal x-rays varied over 17-fold. The median costs differed by two-fold across regions.

CONCLUSIONS AND RECOMMENDATIONS:

The TNP provides a detailed description of strikingly different practice styles and program payments across regions and hospitals in Texas for Medicaid-insured newborns. Little of this variation could be explained by differences in illness risk or severity. There are likely to be many causes of this variation — the availability of resources in the hospital and the community, weaknesses in the medical evidence for care options, differing interpretations by clinicians with regard to both research studies and practice guidelines, and the challenge of including family preferences in clinical decision-making. For Medicaid payments, difference in prices is also a factor. From these analyses, the TNP makes the following recommendations:

1. Establishment of the Texas Perinatal Care Surveillance System (TPCSS)

Routine measurement of the newborn population health risk, and its associated patterns of utilization, outcomes, and payment will accelerate improvement and policy development for Texas Medicaid-insured newborns. The TNP-developed datasets and cohorts provide the basis for a unique state-based perinatal surveillance system. The inclusion of additional state datasets would enable an *annual* set of perinatal care and outcome measures. A critical second of function of the TPCSS would be to facilitate clinical and policy-relevant analyses that help address important questions about the care of mothers and newborns in nine high priority areas:

1. *Update data and measures with 2015-17 data.*
2. *Extend data for All-Payer perinatal care surveillance.*
3. *Examine the association of inpatient care patterns and payments and outcomes.*
4. *Evaluate the relationship of NICU volume and newborn outcomes.*
5. *Assess geographic constraints and opportunities in Texas newborn care.*
6. *Study the relationship of hospital characteristics and newborn care patterns, payments, and outcomes.*
7. *Validate the TNP NICU definition.*
8. *Analyze professional and hospital billing practices.*
9. *Examine the clinical and economic outcomes of extreme prematurity.*

2. Develop the Texas Perinatal Quality Care Collaborative (TPQCC)

Perinatal quality collaboratives of clinicians in many states have led to improvements in the care of mother and newborns. In Texas, the Texas Collaborative for Healthy Mothers and Babies (TCHMB) is situated in the University of Texas System and currently has projects in breast feeding, labor induction, and increased access to reproductive healthcare. The Texas Perinatal Advisory Council (PAC), created by House Bill 15 of the 83rd Texas Legislature (Regular Session), develops and recommends criteria for designating levels of hospital-based neonatal and maternal care. This legislation also includes a provision requiring hospitals to "regularly submit outcome and other data to [HHS] as required or requested." Regional Advisory Councils (RACs) have participated in the HHS PAC's NICU and Maternal Care Designation Programs, and have also been charged by the PAC with being the regional conduit to improve Texas perinatal care. The RAC's regional presence lends itself to clinician-initiated and led improvement projects, although additional funding and a wider participation by perinatal providers would be likely needed to affect the care provided to most newborns. At an Austin meeting of the RACs in August 2018, attendees tentatively identified projects in the appropriate use of newborn diagnostic imaging and temperature control.

The findings of the Texas Neonatal Intensive Care Unit Project come at an auspicious time for Texas physicians and hospitals who are already engaged in extensive efforts towards achieving the Triple Aims. For newborn care, the participation of many Texas NICUs in the Vermont-Oxford Network is a starting point that can be extended to newborns with a birthweight of greater than 1500 grams. A better understanding of best practice with lower payments in the Medicaid population would benefit all newborns, including those with commercial insurance, thus improving the overall public health of these vulnerable Texans. In the perinatal period, it could lead to higher survival, less morbidity, and less separation of newborns and families. But, the benefits of high-quality perinatal care also extend into childhood and beyond to the full life course — lower medical costs and better lives. These are aims all Texans can agree on.

◀ To learn more about The Texas NICU Project, please contact: ▶

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