

Abstract of parallel session: 1

Title: Relationship between neonatal care intensity and outcomes across Texas hospitals
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Abstract

Objective: To describe the magnitude of risk adjusted utilization variation in neonatal intensive care (NIC) and the relationship of care intensity to outcomes.

Study population: 1.1 million Texas Medicaid-insured newborns born 2010-14 in cohorts 1) Live births (LB), 2) Very low birth weight singletons (VLBW), and 3) Late preterm singletons (LPT).

Methods: Natality files were linked to newborn and maternal utilization and to mortality files. Risk scores were estimated (i.e. predicted 27 d mortality) for each newborn using variables exogenous to newborn medical care. Logit risk model c-statistics were > 0.85 for all cohorts. Newborns were assigned to hospital providing highest number of newborn days. Risk adjusted utilization risk ratios were estimated for 100 large hospitals. OLS was used to estimate linear relationship between care intensity of hospitals and post-discharge outcomes.

Results: Across the 100 large hospitals, there was marked variation in crude utilization which decreased only slightly in adjusted rates. The coefficients of variation (CV) for adj. NIC days was 54 in LB, 33 in VLBW, and 48 in LPT. For adj. NICU admission rates the CV was 36 in LB, and 25 in LPT cohorts. Similarly, high levels of variation were noted in imaging procedures. No meaningful association was noted between the number of adj. NICU days and 3 outcomes: 27 d readmission, ER visits, and 90-day mortality in VLBW and LPT cohorts, or between adj. NICU admission rates and outcomes in LPT newborns (R-square of all linear models less than 5%).

Conclusion: Even with adjustment for birth health risk, there was an extremely high degree of hospital variation in neonatal intensive care, for both high (VLBW) and low (LPT) risk newborns. Higher intensity of care was not associated with better outcomes suggesting that there may be substantial overuse of medical services in this U.S. newborn population.

Keywords: variation; hospital; outcomes; perinatal; mortality; risk adjustment