

Title of Abstract:

Length of Stay Reduction Through Improved Neonatal Outcomes in Very Low Birth Weight Infants: A Six-Year NICU Quality Improvement Project

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Abstract Description:

Background: Numerous studies have demonstrated correlations between increased average length of stay (aLOS) and specific morbidities such as necrotizing enterocolitis (NEC), nosocomial infection (NI) and chronic lung disease (CLD) at 36 weeks post-menstrual age (PMA) in very low birth weight (VLBW) infants. Efforts to reduce these morbidities by optimizing current "standard" Neonatal Intensive Care Unit (NICU) care could reduce odds of prolonged hospital stay, hence, generate cost savings.

Objectives: 1. Determine aLOS in our center among VLBW infants and compare it with other centers in the Vermont Oxford Network (VON). 2. Determine relationships between aLOS and clinical outcomes focusing on NEC, NI, CLD and mortality (excluding early deaths). 3. Describe center characteristics and practice strategies associated with the outcomes of interest.

Methods: The data were collected from VON database as part of a retrospective study on 184 VLBW infants admitted between 2010 and 2015 at Kaiser Permanente Panorama City Medical Center (KPPCMC) NICU, a designated level III NICU.

Results: The aLOS at KPPCMC during the 6-year study period was 14.2 days shorter than aLOS at VON centers (50.94 days vs 65.14 days) with four times less number of infants with extreme length of stay (1.2% vs 4.9%). The rates of NEC, NI, CLD and mortality at our center compared with VON centers were: 1.8% vs 4.9%, 1.8 vs 12.6%, 10.2% vs 25.4% and 3.2% vs 10.1% respectively. Our NICU focused on providing adequate staffing and multi-disciplinary approach to care with fewer medical personnel involved in direct care, thus, limiting practice variations.

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We have also adopted evidence-based practices thru collaborative quality improvement initiatives, literature review and analyses of performance data and processes of care.

Conclusion: The aLOS and rates of NEC, NI, CLD and mortality in VLBW infants at KPPCCMC are consistently lower compared to other centers at VON. These findings confirm previously established association of shorter aLOS with reduced incidence of NEC, NI and CLD and showed direct relationship of aLOS and mortality. Distinctive features of our NICU staffing and structure and adoption of bundle of strategies for prevention of major NICU morbidities are some of the factors that may have influenced our aLOS and outcomes.

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