

Abstract Title:

Reducing the Incidence of Bronchopulmonary Dysplasia (Bpd) In a 5-Year Period Using a Bundle of Strategies: A Neonatal Intensive Care Unit (Nicu) Quality Improvement Project

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Introduction: Background: Bronchopulmonary dysplasia (BPD), defined as oxygen-dependency at 36 weeks post-menstrual age (PMA), evolves from multifactorial causes. It remains to be a leading cause of early death, a strong predictor of consequent neurologic impairment, and a key reason for resource expenditures and rehospitalizations during the first year of life. The incidence of BPD in infants with a birthweight of 500-1500 grams ranges from 3% to 43% in different centers of the National Institute of Child Health and Human Development Neonatal Research Network. Objectives: This study was conducted to a) determine the incidence of BPD in our medical center within a 5-year period (2009-2014), b) compare our incidence to other NICUs in the Vermont Oxford Network (VON), c) identify evidence-based strategies of prevention, and d) integrate best clinical practices.

Methods: Using a retrospective, descriptive design, the electronic charts of 215 VLBW infants (< 1500 grams), born between 2009 and 2014 at Kaiser Permanente Panorama City Medical Center were

reviewed. Data was collected from Vermont Oxford Network.

Results: The incidence of BPD among the VLBW infants in our NICU showed a significant downward trend during this study period with an average of 17%, almost half lower than the VON data of 30%. Our NICU's 5-year incidence of BPD compared to that of the VON's data is as follows: 2009: 29% vs. 25.2%; 2010: 13.2% vs. 24.9%; 2011: 8.1% vs. 23.9%; 2012: 12.5% vs. 24.4%; 2013: 12.9% vs. 24.5%; and 2014: 10.5% vs. 25.1%. Our NICU adopted a bundle of strategies for BPD prevention that includes: antenatal steroids, early use of surfactants, gentle ventilation (use of volume ventilation, high frequency oscillator, and synchronized, non-invasive ventilation with NAVA-neurally adjusted ventilator assist), caffeine therapy, vitamin A, judicious use of systemic steroids, bronchodilator therapy, inhaled steroid, fluid restriction, infection control, nutritional support and family-centered care philosophy.

Conclusion: Conclusion: This study showed a lower incidence of BPD in our NICU compared to a steady incidence among the NICUs in the VON database. The lower incidence could be attributed to the adoption of evidence-based clinical practice and consistent improvement of quality care by the medical staff.