Title of Abstract:

REDUCING THE INCIDENCE OF BRONCHOPULMONARY DYSPLASIA (BPD) IN A 7-YEAR PERIOD USING A BUNDLE OF STRATEGIES: A NEONATAL INTENSIVE CARE UNIT (NICU) QUALITY IMPROVEMENT PROJECT

Name of Abstract Submitter:

Maria Fe Villosis, MD - Neonatologist, NICU Director KP Panorama City Medical Center

Organization:

Kaiser Permanente

Co-Author / Co-Investigators:

Maria Fe Villosis, MD, Teresa C. Ambat MD, Kambiz Kevin Rezaie MD, Nerissa Badillo, RN, MN , NNP-BC, CNS, MBA, Ma. Teresa C. Ambat, MD

Abstract Description:

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 7-year period (2009-2015), 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.

Methodology: Using a retrospective, descriptive design, the electronic charts of 254 VLBW infants (< 1500 grams), born between 2009 and 2015 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 12.5%, about half lower than the VON data of 24.7%. Our NICU's 7-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%; 2014: 10.5% vs. 25.1% and 2015:0% vs. 23.7%.

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, invasive and non-invasive ventilation with NAVA-neurally adjusted ventilator assist), caffeine therapy, vitamin A, judicial use of systemic steroids, bronchodilator therapy, inhaled steroid, conservative management of PDA, fluid restriction, infection control with treatment of Mycoplasma and Ureaplasma, nutritional support and family-centered care philosophy.

Conclusion:

This study showed a 0% incidence of BPD in our NICU for 2015 compared to a steady incidence among the NICUs in the VON database. This outcome could be attributed to the adoption of evidence-based clinical practice and consistent improvement of quality care by the medical staff.

Funding Acknowledgement (if applicable):

None