

Title of Abstract:

IMPROVEMENT OF RESPIRATORY OUTCOMES BY USE OF NON-INVASIVE VENTILATION IN A LEVEL IV NICU

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Abstract Description:

Purpose of the study: The use of non-invasive respiratory support with bubble continuous airway pressure (BCPAP) has successfully decreased the incidence of chronic lung disease (CLD) in some centers. The California Perinatal Quality Care Collaborative (CPQCC) data shows that the rates of CLD are higher in our 84-bed level IV NICU than in comparable NICUs. To address this issue, in 2013 we developed a well-defined protocol that utilized BCPAP as the primary mode of ventilatory support in both the delivery room (DR) and in the NICU for babies who weigh <1,500 grams. The purpose of this study was to evaluate the effectiveness of this intervention on the rate of DR intubation and incidence of CLD.

Methods: All inborn babies <30 weeks gestation and weighing 250-1500 grams received resuscitation following strict NRP guidelines and were then placed on BCAP immediately with Hudson prongs as the primary apparatus.

Babies who required surfactant therapy were briefly intubated and then extubated back to BCPAP. This process allowed very-low-birth-weight (VLBW) infants to maintain adequate functional residual capacity in order to decrease the risk of reintubation. In addition, all babies in the NICU who showed signs of respiratory failure or required >35% oxygen underwent a trial of BCPAP as an attempt to avoid intubation and mechanical ventilation. CPQCC outcomes for the rate of DR intubation, BCPAP before intubation and CLD in 2013 were compared to the two years prior (2011 & 2012).

Summary of Results: Implementation of the BCPAP protocol in 2013 was associated with a 12.5% increase in DR BCPAP usage, a 13% decrease in DR endotracheal intubation, a 6% decrease in

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post-delivery-room invasive conventional ventilation, and a 9.7% decrease in oxygen supplementation at 36 weeks corrected when compared to 2011-2012.

Conclusions: The introduction of BCPAP as the primary mode of ventilatory support helped to increase the rate of BCPAP usage and decrease the rate of intubation and mechanical ventilation in both the DR and the NICU. This was associated with an overall decrease in our CLD rate.

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