A BUNDLE OF CARE THAT LED TO SUSTAINED LOW INCIDENCE OF NECROTIZING ENTEROCOLITIS IN VERY LOW BIRTH WEIGHT INFANTS: A 10-YEAR QUALITY IMPROVEMENT PROJECT

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BACKGROUND:

Necrotizing enterocolitis (NEC) is the most common gastrointestinal emergencies in preterm newborns and remains a serious complication associated with significant morbidity and mortality in this population.

Over the past two decades, multicenter groups have reported reductions in the incidence of NEC among preterm infants. Although highly variable, an average rate exceeding 5% was reported by the majority. This coincided with reports of modifications in practice using continuous quality improvement (CQI) initiatives aimed specifically at reducing NEC risk or reducing risk of mortality and many morbidities associated with extreme prematurity.

OBJECTIVE:

To evaluate the result of NEC prevention CQI on the incidence of NEC among very low birth weight (VLBW) infants admitted to Kaiser Foundation Hospital Panorama City (KFH-PC) NICU from 2009-2018

METHODS:

A cohort of 439 VLBW infants admitted to KFH-PC NICU from 2009-2018 was included in this retrospective study utilizing VON database.

RESULTS:

NEC incidence at KFH-PC NICU decreased from baseline of 6.7% in 2009 to an average incidence of 1.5% with a range of 0-4.9% during the years 2010-2018. The VON observed: expected ratio in the most recent epoch (2016-2018) was 0.5 (5^{th} and 95^{th} confidence limits 0.2 and 0.9, respectively). At KFH-PC NICU, the average rate of discharge on breastmilk was 91% during the study period. The practice modifications we implemented focusing on feeding strategies included: standardized feeding protocol, exclusive human milk diet, human milk-based fortifiers, and recent addition of probiotics. Infection prevention, controlling use of antibiotics and antacids were also integral to our bundle of care.

CONCLUSION:

Practice modifications based on evidence from clinical trials targeting reduction in NEC which were executed through CQI initiatives at KFH-PC NICU led to sustained reduction in its NEC rate lower than most reports in recent publications.