

Title: Transition to Safe Sleep in the Neonatal Intensive Care Unit (NICU): Multi-disciplinary Program Implementation facilitated through the Electronic Medical Record (EMR)

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Background: Sudden unexpected infant death (SUID) results in thousands of deaths in the United States each year. Although nationwide rates of sudden infant death syndrome have decreased since the start of the *Safe to Sleep* campaign, other types of sleep-related deaths are increasing. Premature infants are significantly more at risk for SUID. Although rationale exists for prone positioning of NICU patients early in hospitalization, they can be found in unsafe sleep environments after 32-weeks corrected gestational age, against clear guidelines from the American Academy of Pediatrics (AAP).

Aim/Objective: The purpose of this evidenced-based, quality improvement (QI) project was to implement a multidisciplinary program, facilitated through the EMR, to support appropriate transition from therapeutic positioning to Safe Sleep practices at the appropriate time for eligible infants.

Planning/studying the intervention: The IHI's *Model for Improvement*, was utilized to plan and implement the QI project. The *Theory of Planned Behavior* served as a theoretical framework to address behavior changes by normalizing Safe Sleep practices in the unit, educating staff prior to implementation to adjust attitudes, and improve nurses' perceived control of the environment with algorithm development and implementation.

Measures: The project consisted of algorithm development, staff, provider and parent education, policy implementation, visual cues, use of swaddle sacks and development of EMR standard orders and documentation. Outcome measures were evaluated by assessment of knowledge acquisition in comparison of pre- and post- education tests of knowledge, and of compliance by completion of EMR chart audits and pre- and post-intervention bedside audits.

Analysis/Outcomes: Overall staff knowledge of the AAP Safe Sleep Recommendations improved from 64.7% to 88% post-education. Changes in bedside practices were significant, with loose bedding below infants' heads (burp cloths) decreasing from 98% to < 5%, decrease in routine hat use from 51% to 6%, increase in use of swaddle sacks from 79% to 92%, and appropriate use of a flat head of bed increasing from 81% to 94%. Appropriate use of a crib card was demonstrated 72% of the time. Compliance with EMR updates was significant, with 92% of infants having the standard order entered in the EMR, and > 97% of infants having Safe Sleep parent teaching documented prior to discharge. Shift safety EMR documentation of infants who qualified for Safe Sleep was correctly charted at 69%. Nurse attitudes regarding Safe Sleep practices in the NICU were measured using Likert-scale questions post-education/project implementation, with 95% of participants stating they strongly agree or agree that it is important to demonstrate Safe Sleep in the NICU, even if babies are on a central monitor.

Summary/Discussion: Knowledge surrounding AAP Recommendations of Safe Sleep practices in the NICU was increased. In conjunction with implementation of a standing EMR order and updated EMR nursing documentation, significant changes in bedside practices were demonstrated with proper positioning, a decrease in routine hat use, and use of appropriate bedding. Despite a high percentage of positive responses related to nurse attitude, participation decreased between pre- and post-educational tests of knowledge (N =38 pre-, N= 22 post), which may be less reflective of true nursing attitudes. Transition from therapeutic positioning to Safe Sleep practices at the appropriate time for eligible infants can be achieved with multidisciplinary education and visual cues facilitated with the use of a standing order and required documentation in the EMR.