Safe Sleep Practices in the NICU: A Quality Improvement Project

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INTRODUCTION

- The American Academy of Pediatrics (AAP) recommendation of placing infants supine to sleep began in the 1990's and at that time there was a great reduction in Sudden Unexplained Infant Deaths (SUID).
- SUID still remains the third leading cause of infant mortality in the United States (Gelfer & Tatum, 2014).
- The primary prevention of SUID is placing infants on their back to sleep in a crib with a tight fitted sheet and no extra blankets, bumper pads, or pillows in the bed (AAP, 2011).
- In the setting of a Neonatal Intensive Care Unit (NICU), many patients are at higher risk of SUID due to specific risk factors such as prematurity and anomalies (Gelfer, Cameron, Masters & Kennedy, 2013).
- Achieving back to sleep in the NICU setting can prove to be difficult as prone positioning, elevation of the head of the bed and infant positioning devices or blanket rolls are often used in the beginning of an infant's hospital stay.
- Studies have reported that only 52% of NICU nurses advise parents to place their infant supine and in safe sleep positioning (Fowler et al., 2013).

PURPOSE

The purpose of this quality improvement project is to evaluate a staff nurse education program on approaching improvement in the rate of infants in the NICU being placed in safe sleep. The goal of this project is to increase the number of infants in a level IV NICU who are placed in safe sleep positioning. The current safe sleep compliance identified by monthly bedside audits is 23%.

PICOT

The PIOT question is: For NICU infants placed in cribs (P) how does initial education, bedside training and a safe sleep algorithm (I) affect the number of infants placed in safe sleep (O) over a two month period (T).

OBJECTIVES

1. One hundred percent of nursing staff will receive the initial safe sleep training and education on the safe sleep algorithm in a mandatory unit education program.
2. There will be a 25% improvement in safe sleep compliance
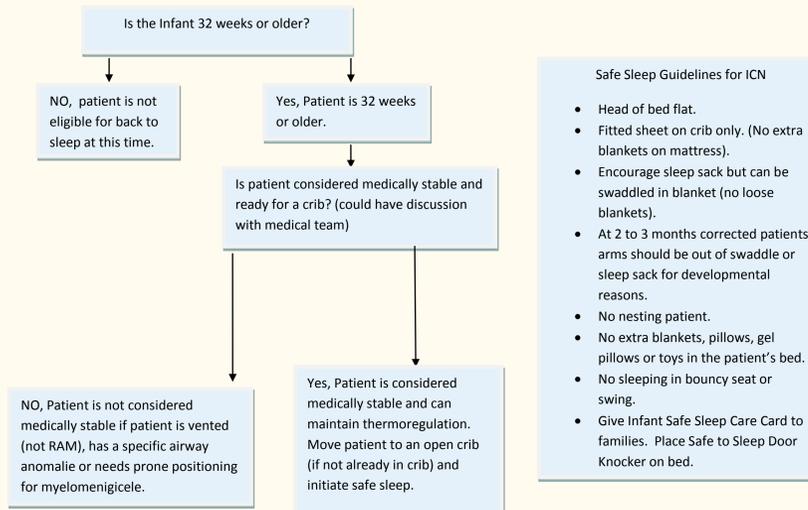
MATERIALS AND METHODS

Design: A quality improvement project was made possible by providing education to nursing staff to increase safe sleep practices in the NICU setting. The program was evaluated using data collection of bedside audits twice a month at one month (time point 1) and two months (time point 2) post-implementation. The target population for this project was a purposive, convenience sample of infants who are inpatient in the NICU.

Intervention: Education interventions for nursing staff included a presentation to all NICU staff of: a) safe sleep practices in the NICU, (b) barriers to providing safe sleep practices in the NICU, (c) how to utilize the safe sleep algorithm, (d) the continuation of education to staff during bedside audits.
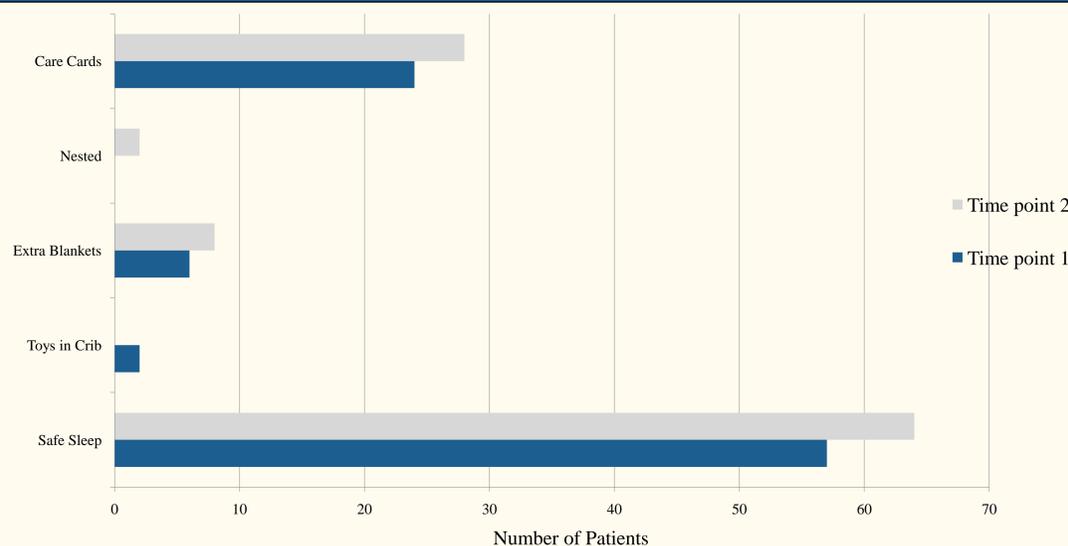
Tools/Measures: Using a confidence interval level of 95%, a maximum of 5% margin error, and a population size of 136, with a 50% response distribution (Raosoft). The calculated sample size of 136 bedside audits was not available for each time point, all 127 available bedside audits were utilized for the data analysis. The Chi-square Test of Independence was used to compare the changes in outcomes between initial bedside audits to follow- up bedside audits. Nominal data will be analyzed using the Chi-square test and ratio levels will be analyzed using the independent t-test. The phi coefficient (ϕ) was used as an index to describe the magnitude of the effect from the intervention with values .10, .30, and .50 corresponding to small, medium and large respectively.

Outcome Variables. The primary outcome variable was safe sleep positioning for infants, secondary outcome variables included: assessing for elevated HOB, if the patient was prone or side sleeping, if there were extra blankets, toys, pillows, if the patient was nested with blankets, and if there was a safe sleep care card on the infant's crib.

NICU SAFE SLEEP ALGORITHM

Is the Infant 32 weeks or older?

NO, patient is not eligible for back to sleep at this time.

Yes, Patient is 32 weeks or older.

Is patient considered medically stable and ready for a crib? (could have discussion with medical team)

NO, Patient is not considered medically stable if patient is vented (not RAM), has a specific airway anomalie or needs prone positioning for myelomenigicele.

Yes, Patient is considered medically stable and can maintain thermoregulation. Move patient to an open crib (if not already in crib) and initiate safe sleep.

Safe Sleep Guidelines for ICN
- Head of bed flat.
- Fitted sheet on crib only. (No extra blankets on mattress).
- Encourage sleep sack but can be swaddled in blanket (no loose blankets).
- At 2 to 3 months corrected patients arms should be out of swaddle or sleep sack for developmental reasons.
- No nesting patient.
- No extra blankets, pillows, gel pillows or toys in the patient's bed.
- No sleeping in bouncy seat or swing.
- Give Infant Safe Sleep Care Card to families. Place Safe to Sleep Door Knocker on bed.

RESULTS

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During the 127 bedside audits that were assessed there were no infants who had their head of the bed elevated, were in prone sleeping position, or had pillows in the crib for either time point.

Extra Blankets/Burp cloths in Crib. Time point 1 showed six patients with extra blankets in their cribs and time point 2 showed eight patients with blankets in the crib. There was no statistical significance found between the two time points, $\chi^2 (1) = .026$, $p =.87$.

Toys in the Crib. Time point 1 showed 2 infants with toys in their cribs while time point 2 showed that no infants had toys in their cribs, $\chi^2 (1) = 2.49$, $p =.11$.

Nested in Rolled Blankets for Positioning. One infant was placed in a bed with nested blankets in time point 2, while in time point 1 no infants were placed in nested blankets. There was no statistically significant difference between the two time points, $\chi^2 (1) = .82$, $p = .36$.

Care Cards Placed on Crib. Time point 1 showed 24 care cards placed on cribs and time point 2 showed 28 care cards on cribs. There was no statistically significant difference between the two time points $\chi^2 (1) = .06$, $p = .81$. While it was not statistically significant there was an increase of four care cards from time point 1 and time point 2.

Safe Sleep Positioning. There was no statistical difference between time point 1 and time point 2, $\chi^2 (1) = .11$, $p=.75$. With 92% of infants being placed in safe sleep in time point 1 and 91% of infants being placed in safe sleep at time point 2, which is marked contrast to the original baseline assessment of 23% safe sleep compliance.

CONCLUSIONS

OBJECTIVES:

1. OBJECTIVE MET. 100% of nursing staff watching safe sleep compliance education was met as 100% of nursing staff where mandatorily required to either be at the live presentation or to watch the presentation on the computer later.
2. OBJECTIVE MET. The objective of 25% improvement of Safe Sleep compliance was also met as there was more than a 69% increase in safe sleep positioning.

- With 92% of infants being placed in safe sleep in time point 1 and 91% in time point 2, which is marked contrast to the original baseline assessment of 23% safe sleep compliance.
- Although there was no statistically significant data, there were clinically significant improvements to safe sleep compliance compared to previous months.

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