Quality of Care Strategies and Subsequent Improvement of Kangaroo Care Incidence Rates in Premature Infants

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Background: Kangaroo care (KC) is the simple practice of a parent holding their diaper-clad infant against their bare chest (Cleveland Clinic, 2015). This practice was developed in Bogota, Columbia in the late 1970s in response to the increasingly high preterm infant death rates. There, premature infant death rates were 70%, but doctors found that those with prolonged skin-to-skin contact increased survival rates for those infants, (Cleveland Clinic, 2015). The benefits of performing KC with infants have long been studied and proven. KC has been shown to decrease infant mortality by 36%, as well as decreasing pain measures and respiratory rates in infants (Boundy et al., 2016). KC has also been shown to decrease the risk for neonatal sepsis, hypoglycemia, hypothermia, and hospital readmission (Boundy et al., 2016) KC has benefits to parents as well, such as increasing feelings of autonomy and parental-infant attachment, (Jefferies & Canadian Pediatric Society, Fetus and Newborn Committee, 2012). KC has also been shown to decrease stress in both mother and father (Cong et al., 2015). Despite the research and endorsement of KC from the World Health Organization (World Health Organization [WHO], 2003), incidence rates of KC are still low in the neonatal ICU at the Kentucky Children’s Hospital. Several barriers to KC exist in the Kentucky Children’s Hospital's NICU and this study strives to address them.

Aims: This study aims to determine barriers to KC and develop and implement strategies aimed at these barriers to increase KC utilization from 41% to ³ 75% for eligible infants. Barriers identified include lack of provider confidence in helping provide kangaroo care, poor nursing education on KC, perceived extubation risk, lack of parent participation, negative nursing attitudes towards KC, lack of encouragement of KC by providers, unfavorable nurse to patient ratio, inconsistent electronic medical record (EMR) documentation and lack of parent education. Strategies that were implemented included nursing education on KC, changing NICU culture towards KC, standardizing safe methods of transferring infant to and from parent and parent education and participation.

Methods: KC occurrence was monitored in a total of 364 infants with a birth weight ≤ 1250 grams. Strategies implemented were education of nurses, improved nurse-to-patient ratio, emphasis of KC in multidisciplinary rounding, improved documentation of KC, obtaining securement devices to prevent extubation or dislodgement of invasive lines, involvement of respiratory therapists in transferring intubated infants, and providing KC pamphlets and one-on-one education to NICU patients. These strategies were implemented in stages, with a total of 4 stages across a 4 month period. Weekly KC occurrence was reviewed on all NICU infants with birth weight ≤ 1250 grams and on all new admits by the clinical nurse specialist.

Results: KC utilization was analyzed in two separate time periods- August through December 2016 and January through July 2017. The mean utilization for the 2016 period was 41% and the mean utilization for the 2017 period was 63.8%. This reflects a 20% increase in occurrence following the measures implemented to improve KC rates (p=0.02, t-test for independent variables).

Conclusion: A substantial increase was made in the use of KC in low birth weight infants due to the implementation of a variety of measures. These measures and the results have indicated that establishing KC as a standard of care in very low birth weight infants is obtainable. Successful control and remediation of barriers to KC was achieved, as shown by the resulting increase in utilization. However, it is not possible to determine which interventions had the greatest impact, based on the current data. The improvement can be attributed to a combination of the strategies implemented. Audits will continue being collected each month on KC to verify a continued increase.
Title:
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Abstract Summary:
Kangaroo care (KC)’s benefits to infant and parent have long been studied and proven. However, KC incidence rates remain low in the neonatal ICU (NICU) at Kentucky Children’s Hospital. This study strives to address barriers to KC by developing and implementing specific strategies to increase KC utilization in the NICU.

Content Outline:

1. Introduction
   1. Kangaroo care is the simple act of a parent holding their diaper clad infant against their bare chest
   2. Kangaroo care has many proven benefits to parents and infants, especially low birth weight and premature infants
3. Kangaroo care incidence at UK's NICU still remains low, despite all this.

2. Body
   1. Study goal: to increase utilization of KC from 41% to 75%
   2. This study first strived to analyze the barriers to kangaroo care in our NICU
      1. Barriers that were identified included lack of provider confidence in helping
         provide kangaroo care, poor nursing education on KC, perceived extubation risk,
         lack of parent participation, negative nursing attitudes towards KC, lack of
         encouragement of KC by providers, unfavorable nurse to patient ratio,
         inconsistent electronic medical record (EMR) documentation and lack of parent
         education
   3. Strategies aimed at overcoming these barriers were then developed and implemented in
      stages
      1. Stage one: Nursing education, simulations, improved nurse-patient ratios,
         revision of clinical practice guidelines regarding kangaroo care
      2. Stage two: integration of KC discussions into daily multidisciplinary rounds,
         standardized EMR practices and education
      3. Stage three: involvement of respiratory therapy in transferring patients, obtainment of securement
         devices for infant’s lines
      4. Stage four: implementation of weekly, one-on-one parent education about kangaroo care

   1. Methods:
      1. Performing weekly KC occurrence review on all new admits and babies <1250 grams
      2. Continuing evaluations of occurrence rates monthly

   • Comparison of KC occurrence rates before and after implementation of strategies

   1. Results:
      1. Mean utilization in 2016: 41%
      2. Mean utilization in 2017: 63.8%

   • Conclusion
      1. Rates improved by over 20%
         1. We were able to successfully control and remedy barriers to KC, as shown by the
            resulting increase in utilization
         2. The improvement can be attributed to a combination of the strategies
            implemented
      2. Moving forward
         1. Other NICUs could utilize these strategies to increase their own KC utilization
            rates
         2. Further studies can be performed regarding which strategies specifically improve
            rates most

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**Professional Experience:** 2016-Present: Nursing Research Intern in the Neonatal ICU at the University of Kentucky 2018-Present: Nurse Extern in the NICU at the University of Kentucky 2018-Present: Member of STTI Student at the University of Kentucky's College of Nursing Numerous presentations at research conventions and conferences around the country, including the Southern Nursing Research Society Conference in 2018.

**Author Summary:** Sarah Anderson is a Senior BSN student at the University of Kentucky. She has been a research intern with the College of Nursing for 2 years, where she has completed research focused on kangaroo care in the neonatal intensive care unit. This past March, she travelled to Atlanta and presented her findings at the Southern Nursing Research Society Conference, among other conferences. She is looking forward to continuing her research and her education.