



Evaluation of nursing knowledge of early initiation of breastfeeding in preterm infants in a hospital setting



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Abstract Infant breastfeeding initiation before 32 weeks postconceptional age is not standard practice in neonatal intensive care units (NICUs). Based on the literature, preterm infants can initiate breastfeeding when they are physiologically stable. The purpose of this research was to evaluate nurses' knowledge regarding the early initiation of breastfeeding in preterm infants in a northeastern tertiary children's hospital NICU. A pre-test/post-test study design was used. Eighteen allied health professionals, average age 41 years, with 11–15 years in a NICU setting and two breastfeeding mothers supported per week, were recruited. Participants' paired pre-test and post-test average scores respectively were 57.6% and 72.04%, $p < 0.014$. Barriers to early initiation of breastfeeding were the absence of mothers at bedside, insufficient kangaroo care, inconsistent professional support of breastfeeding, and family dysfunction. Early initiation of breastfeeding is within the physical capabilities of the preterm infant. However, institutional and social barriers impede infant success.

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Introduction

Breast milk is the gold standard of nourishment for the growth and development of a neonate (American Academy of Pediatrics, [AAP], 2012). Breastfeeding also has benefits for the mother; it

helps to facilitate bonding between mother and child via skin-to-skin contact in addition to stimulating uterine involution, which decreases the likelihood of a postpartum hemorrhage (Davidson et al., 2012). Breastfeeding is also crucial to the maintenance of the mother's milk supply (Daly et al., 1993; Davidson et al., 2012; Meier et al., 2013a,b). Though the Baby-Friendly Hospital Initiative (BFHI) encourages the initiation of

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breastfeeding within the first hour after birth ([Baby-Friendly USA, 2010](#)), infants born prior to 32 weeks postconceptional age (PCA) are often unable to initiate feedings until weeks after birth due to medical instability ([Nyqvist, 2008](#); [Meier et al., 2013a,b](#)). The physical safety of the infant comes into question when early breastfeeding is attempted in preterm infants because the infant must be able to coordinate sucking and swallowing with breathing. However, comparisons between preterm infants' responses to breastfeeding versus bottle-feeding (i.e. heart rate, respiratory rate, transcutaneous oxygen pressure, and resting energy expenditure) have demonstrated that preterm infants are consistently able to breastfeed without suffering the physiological issues seen with bottle-feeding (i.e. bradycardia, apnea, oxygen desaturation, and increases in energy expenditure) ([Meier and Pugh, 1985](#); [Meier and Anderson, 1987](#); [Meier, 1988](#); [Bier et al., 1993, 1997](#); [Nyqvist et al., 1999](#); [Chen et al., 2006](#); [Berger et al., 2009](#)). Despite the clear benefits of breastfeeding in the preterm infant population, the rates of breastfeeding in neonates less than 32 weeks PCA are low when compared to infants born at a later PCA ([Pimenta et al., 2008](#)).

Current research regarding the early initiation of breastfeeding in preterm infants led by Swedish researcher Kerstin Nyqvist suggests that preterm infants can initiate breastfeeding when physiologically stable. [Nyqvist et al. \(2001\)](#) examined the development of sucking competence in 26 preterm infants born between 32.1 and 37.1 weeks PCA using direct observation, the Preterm Infant Breastfeeding Behavior Scale (PIBBS), and electromyography (EMG) tracings from the orbicularis oris muscle in the mouth. Their findings suggested sucking competency in these infants as early as 32 weeks PCA though individually there were wide variations in obtainment of sucking competence unrelated to age. In a different study, [Nyqvist \(2008\)](#) studied 15 infants between 26 and 31 weeks PCA. Breastfeeding was initiated when the infant was physiologically stable. Infant breastfeeding cues (rooting, licking, and short bursts of sucking) were observed from 29 weeks PCA with full breastfeeding achieved with a range of PCA from 32 to 38 weeks in 12 of the 15 infants. It is important to note that the infants involved in this study spent approximately 21 h per day skin-to-skin, thus demonstrating the importance of kangaroo mother care (KMC) in the attainment of breastfeeding in preterm infants.

In the United States, there is a wide variance across NICUs regarding how preterm infants are transitioned from enteral feedings to full oral

feedings, specifically whether this transition is with the breast or the bottle. Nurses and other healthcare professionals within the hospital setting lack knowledge of the general state of the science regarding the early initiation of breastfeeding in preterm infants. In delaying the initiation of breastfeeding due to concerns about respiratory distress or aspiration that are not evidence based, we could in fact be doing these infants a disservice with regards to their growth and development ([Nyqvist, 2013](#)).

The purpose of this research was to evaluate the current knowledge of nurses and other healthcare professionals regarding the early initiation of breastfeeding within a tertiary NICU, before and after an educational presentation of the state of the science.

Methods

Design and sample

A pre-test/post-test study design was used. A convenience sample of multidisciplinary NICU healthcare professionals was recruited via flyers, emails, and word of mouth. Inclusion criteria for participants included: being a licensed healthcare professional working in the NICU and able to read, write, and comprehend English. The sample in this pilot investigation was 28% and 56% of the minimum calculated to be necessary for a full-scale investigation (effect size based on a power of 0.08) ([Polit and Beck, 2011](#)). Approval for this study was obtained through university and healthcare center institutional review boards.

Data collection

At entry participants completed a demographic questionnaire that included: age, gender, total number of years worked in current profession, total years worked in NICUs and in the present NICU, hours worked per week, and number of mothers assisted per week with breastfeeding.

Procedure

Participants completed a 10-question pre-test evaluating their knowledge regarding the early initiation of breastfeeding. Following the pre-test, participants engaged in a 20-min PowerPoint integrated literature review presentation on early breastfeeding initiation for preterm infants of less than 32 weeks.

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