

Process improvement: Increasing skin-to-skin contact during a cesarean birth

### **Abstract**

There are many documented benefits to breastfeeding not only for infants, but for mothers as well. The hospital where I'm employed, which had over 6,600 births last year, wanted to improve maternal/infant skin-to-skin contact rates because this has been shown to increase exclusive breastfeeding rates at discharge. In order to improve both rates, a work group of multidisciplinary healthcare workers was formed. Initially the work group met monthly and then weekly, to review audits, develop and implement education, and then to evaluate if the interventions were successful. Involving front-line personnel, such as healthcare providers, primary nurses, perioperative nurses, Certified Registered Nurse Anesthetists (CRNA), pediatricians, and baby nurses, was instrumental during the process planning.

### **Key Words**

Skin-to-skin contact; exclusive breastfeeding; cesarean birth; Baby-Friendly

### **Introduction**

Breastfeeding is the optimal method of nutrition for infants (American Academy of Pediatrics [AAP] & The American College of Obstetricians [ACOG], 2012). Human breast milk is species specific and gestational specific (ACOG, 2007). If an infant is born prematurely, less than 37 weeks, then the mother's milk will contain key nutrients required during that time of the infant's development. Breast milk contains not only essential nutrients for growth, but also infection fighting components (ACOG, 2007). A review of the literature also confirms

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numerous, long term benefits of breastfeeding for the infant and mother. For the infant, these benefits include decreased rates of sudden infant death syndrome (SIDS), decreased diseases such as asthma, diabetes, and hypertension, and increased cognitive development (Hung & Berg, 2011). Studies have shown many benefits for women who have breastfed, which include decreased risk of postpartum hemorrhage, delayed ovulation (for family planning), increased weight loss, reduced risk of osteoporosis, lower rates of ovarian and breast cancer, and increased maternal-infant bonding (Hung & Berg, 2011). There are societal benefits to breastfeeding as well. The United States would save approximately \$13 billion dollars per year if a majority of infants were exclusively breastfed during their first six months of life (Hung & Berg, 2011). Considering the federal debt is over \$18 trillion dollars (Chantrill, 2015), breastfeeding can alleviate some of our country's financial woes. One should also consider the benefits of breast milk during times of emergency management, such as during a natural disaster. Clean water is needed to prepare formula safely. Unless there are contraindications to breastfeeding, such as positive human immunodeficiency virus (HIV) status, most women, with appropriate support, can breastfeed their infants (ACOG, 2007). Because breastfed children are less likely to become ill, workforce productivity will not be affected by a parent being absent to provide sick care. Also, breast milk does not contribute to landfill waste, as in the case with formula products.

In order to promote breastfeeding and increase the duration of exclusive breastfeeding, various organizations have implemented strategies for promotion of exclusive breastfeeding. The Joint Commission (TJC, 2015) defines exclusive breastfeeding as “a newborn receiving only breastmilk and no other liquids or solids except for drops or syrups consisting of vitamins,

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minerals, or medicines” (p. 1). The Healthy People 2020 goals, which are objectives made every decade to promote health and prevent disease include a target goal that 25.5% of infants will be exclusively breast fed through six months of age (Centers for Disease Control and Prevention [CDC], 2013). Because exclusive breastfeeding is not just a national goal, but a global one as well, the World Health Organization (WHO) and the United Nations Children’s Fund (UNICEF) have developed The Ten Steps to Successful Breastfeeding (see Table 1). Several national organizations support The Ten Steps to Successful Breastfeeding including the CDC, the AAP, and the American Academy of Nurses (World Health Organization [WHO], 2015). Step four of the ten steps states to “help mothers initiate breastfeeding within one hour of birth” (WHO, 2015, p. 1). Skin-to-skin contact should be performed immediately after birth so that breastfeeding may take place (Baby Friendly, USA, 2015). Skin-to-skin contact is defined as placing the baby, after being dried, naked on the mother’s bare chest, and then covered with a warm blanket. Skin-to-skin contact can be implemented in the operating room as long as the sterile field is not compromised.

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**TABLE 1. The Ten Steps to Successful Breastfeeding**

- 1 Have a written breastfeeding policy that is routinely communicated to all healthcare staff.
- 2 Train all healthcare staff in the skills necessary to implement this policy.
- 3 Inform all pregnant women about the benefits and management of breastfeeding.
- 4 Help mothers initiate breastfeeding within one hour of birth.
- 5 Show mothers how to breastfeed and how to maintain lactation, even if they are separated from their infants.
- 6 Give infants no food or drink other than breast-milk, unless medically indicated.
- 7 Practice rooming in-allow mothers and infants to remain together 24 hours a day.
- 8 Encourage breastfeeding on demand.
- 9 Give no pacifiers or artificial nipples to breastfeeding infants.
- 10 Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or births center.

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### **Description of the Problem**

The hospital where I work made a commitment to pursue the Baby-Friendly Designation. Baby-Friendly is a term used by facilities that have met criteria for Baby Friendly USA, Inc. (Baby-Friendly USA, Inc., 2015). The hospital made this commitment due in part to an agreement set forth between the hospital and the National Initiative for Children's Healthcare Quality (NICHQ) with support from the CDC. The NICHQ is an independent, non-profit organization dedicated to improving children's health. The hospital was one of the 90 hospitals selected to participate in the NICHQ initiative. The rationale for pursuing the Baby-Friendly Designation was the low rates of exclusive breastfeeding at discharge. As mentioned earlier, Healthy People 2020 has set goals for exclusive breastfeeding. However, the hospital, state, and country were falling short of these goals.

In order to be successful at improving the breastfeeding rates, the hospital had to assess how we were doing with the Ten Step to Successful Breastfeeding. By identifying the gaps, our team could focus our efforts on the areas that needed improvement. Our initial objective was to meet or exceed TJC goal of the number of infants who were exclusively breastfed at discharge. The Joint Commission goal in 2014 and 2015 was that 75% of mothers exclusively breastfed at discharge. At the hospital, in January 2014, the rate of exclusive breastfeeding at discharge was 52.63%. Originally, 30 chart audits were performed monthly by a lactation consultant. To assist with audits and education, a Baby-Friendly work group was formed. The Baby-Friendly work group consisted of a multidisciplinary team of perioperative nurses, nurse managers, lactation consultants, nurse educators, bedside nurses, the Women, Infants, and Children (WIC) county

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breastfeeding coordinator, clinical nurse leaders, community partners, the women's service line Assistant Vice President of Nursing, and physician champions. It was imperative to have front line teammates involved in this performance improvement process in order to ensure our interventions were feasible. The audit results were shared at the work group meetings and unit huddles. As a result of only monthly audit reviews, our exclusive breastfeeding rates did not significantly increase.

In September 2014, the Baby-Friendly work group began to meet weekly to review additional data that was being collected, which included documentation of skin-to-skin immediately after delivery, rooming in rates, education on hand expression, and breast pump utilization. These measures were part of the ten steps that we needed to improve upon. As a result of these audits, we discovered that we had some work to do as far as improving skin-to-skin contact immediately after birth. Our cesarean birth skin-to-skin rates were only 60%. Baby-Friendly USA recommends at least 80% of uncomplicated births perform skin-to-skin immediately after birth.

### **Description of the Setting**

The tertiary hospital where I work has over 870 beds in an urban, southern city. The hospital has 23 labor, delivery, and recovery rooms (LDRs) and five women's operating rooms (ORs) adjacent to the LDRs. Perioperative nurses are staffed by labor and delivery teammates. Six affiliated clinics feed into our facility. Because we are a teaching hospital, either medical residents, Certified Nurse Midwives, Physician Assistants, or a Registered Nurse First Assist

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(RNFA) assist private physicians with cesarean births. All healthcare providers must attend or complete three hours of breastfeeding education. New inpatient labor and delivery nurses must obtain 20 hours of specific, standardized breastfeeding education in addition to practicum learning with a lactation consultant. After meeting the initial requirement, experienced nurses are required to have five contact hours of breastfeeding education annually. Nurse assistants/scrub technicians are required to have one contact hour annually. The Ten Steps to Successful Breastfeeding are posted in each patient room, in the hallways, the adult and pediatric emergency departments, waiting rooms, the Newborn Intensive Care Nursery (NICN), and at the affiliated clinics.

### **Goals**

Improving skin-to-skin contact immediately after birth, especially during a cesarean birth was one of our goals. Some of the other steps to successful breastfeeding that needed improvement included increasing prenatal breastfeeding education at the affiliated clinics and teaching hand expression or breast pumping, especially if the mother is separated from her infant (e.g. if the infant was admitted to the NICN). By accomplishing these steps, we expected to see an increase in our exclusive breastfeeding rates. This increase in breastfeeding rates would have numerous benefits to the infant and mother dyad. Also, by reaching our goals, we hoped to obtain Baby-Friendly designation. Achieving Baby-Friendly designation would demonstrate our commitment not only to infants, but also to the mothers and families we serve in our community.

## **Review of the Literature**

Benefits of breastfeeding for the infant and mother have already been established. To increase our skin-to-skin contact rates after a cesarean birth, we had to present evidence to support this practice to convince the naysayers. One of the concerns in facilitating skin-to-skin contact in the OR was that the infants would get too cold. In a Cochrane review, Moore, Anderson, and Bergman (2007) conducted a meta-analysis that reviewed 30 randomized controlled trials. Not only did skin-to-skin contact stabilize temperature but it also helped to stabilize infant blood glucose (Moore et al., 2007). In a study by Gouchon et al., (2010), it was found that skin-to-skin contact promoted thermoregulation in the OR. One should consider the mother as the infant warmer; her temperature regulates itself in response to the needs of her infant. If the mother is medically unstable (e.g. under general anesthesia) the father or other support person present could initiate skin-to-skin contact until the mother is able to do so (Camann & Barbieri, 2013). In earlier studies, skin-to-skin contact with the father was as good as an infant warmer in regulating temperature (Erlandsson, Dsilna, Fagerber, & Christensson, 2007). Although temperature regulation was not the dependent variable in Crenshaw's et al. study (2012), healthcare personnel observed that infants during cesarean birth who had skin-to-skin contact with their mothers did not experience hypothermia.



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### **Project methods**

In order to increase skin-to-skin contact after delivery, the plan, do, study, act (PDSA) process improvement method was utilized. The problem was that immediate skin-to-skin contact, lasting at least one hour or until the first breastfeeding, was only being documented 30-50% of the time during the first two quarters of 2014. The goal is for 80% of all mother- infant dyads to perform skin-to-skin as soon as mother and infant are alert and stable after a cesarean birth. In order to do this, audits were revised and education was developed for staff and women prenatally. At the end of the third quarter, the women's service line hired a clinical nurse educator, who in collaboration with the Baby-Friendly work group, planned education for the entire inpatient women's service line. The childbirth nurse educators developed and implemented education for the prepared parents' childbirth classes.

The revised audit was modeled after criteria that Baby-Friendly assesses during their site visits. Skin-to-skin-contact, breastfeeding within one hour, rooming in rates, hand expression education, and exclusive breastfeeding at discharge were examined by documentation, mother's attestation, or both. Each week the work group met to study the audit results and to plan how we would act to get the results needed to ultimately increase our exclusive breastfeeding rates. Towards the end of the fourth quarter, data was collected in real time so that immediate feedback could be given to teammates who were not compliant with the measures. Barriers for non-compliance were discussed between the nurse manager and the nursing staff member so that resolutions could be discussed at our weekly meetings and then initiated.

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Various educational strategies were developed as part of the PDSA. Two skills fairs were implemented, one in November 2014 and one in January 2015. The content taught at the skills fair was dependent on the step(s) of successful breastfeeding that were not being met. During the November skills fair, stations focused on how to teach hand expression, how to set up the electric breast pump, how to implement skin-to-skin at birth, and how to identify infant feeding cues. The inaugural educational newsletter, *Women's Service Line Journal* began in November 2014. Baby-Friendly tips applicable to every unit in the women's service line were provided in this issue and subsequent issues. In December 2014, an audio visual presentation was given at the medical residents' OB/GYN grand rounds that highlighted breastfeeding support, promotion, and how healthcare providers could help to increase exclusive breastfeeding at discharge. Also in December, two brief videos of how to facilitate skin-to-skin contact during a vaginal and cesarean birth were filmed starring women's service line teammates. In January 2015, daily Baby-Friendly trivia was sent via work email to all women's service line teammates, including six affiliated clinics, and select administrators, such as our Chief Nurse Executive (CNE). Trivia questions focused each day on shortfalls in our goal compliance. The winner of the day was the "x" person to respond. The "x" represented how many more days left until our scheduled Baby-Friendly site visit in February. The unit and shift with the most winners was awarded a donut and coffee party. In January 2014, an email describing the Ten Steps to Successful Breastfeeding and the benefits to infants and women was presented to our Medical-Executive committee by our CNE.

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### **Implementation**

In order to move towards our goal, a process change had to be implemented. Before our move towards becoming Baby-Friendly, during a cesarean birth the healthcare provider would lift the infant from the open uterine incision above the level of the drape so that the mother and support person could see their infant. Then the infant would be placed into the perioperative nurse's arms, which were draped with a sterile, warm blanket. The infant was immediately dried, placed on a clean, warm blanket in the infant warmer while simultaneously being assessed and having a cord clamp applied. The assessment included vital signs, Apgar scoring, and weighing. After being weighed, a diaper, warm hat, baby bracelets, and security tag were applied. By this time a second Apgar score was assigned. Finally the infant was wrapped in warm blankets and given to the support person to hold because the mother's arms were usually tethered to the OR table.

Before implementing the process change, a new method had to be developed. A checklist was developed as a guide to restructuring nursing interventions to facilitate skin-to-skin contact after a cesarean birth. The first item on the checklist was for the primary nurse to inform and discuss with the woman the process and rationale for skin-to-skin contact. The next step was to unsnap the woman's gown just prior to uterine incision to allow for skin-to-skin contact. Right after birth the infant was to be dried and then placed on the mother's chest. While on the mother's chest, essential nursing interventions were to be performed such as mouth and bulb suction, if indicated, vital signs, and assigning Apgar scores. Non-essential nursing interventions, such as medicine administration, were to be delayed until the first hour of skin-to-

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skin contact or until the first breast feeding was completed. On the checklist, below the steps, was a section for comments if uninterrupted skin-to-skin contact did not occur. If the mother was medically unstable and could not perform skin-to-skin contact, the rationale was noted in this section. The checklist not only served as a worksheet, but also was utilized for examining barriers from the comment section for facilitating skin-to-skin contact.

Despite having this checklist, implementing skin-to-skin contact immediately and prior to performing nursing interventions was a challenge due to the hard-wired routines of the staff. Therefore, education was conducted that incorporated visual, kinesthetic, and aural learning modalities. At the skills fair held in November 2014, there was a hands on demonstration utilizing an adult and infant mannequin. Methods to facilitate skin-to-skin contact immediately after a birth were simulated. In December 2014, a brief, humorous video of how to perform skin-to-skin in the OR and post anesthesia care unit (PACU) was filmed. At the beginning of the video the perioperative nurse and the CRNA discussed the plan to perform skin-to-skin contact in the OR. Once the dyad was in the PACU, infant hunger cues were depicted and breastfeeding was initiated. While the mother was successfully breastfeeding, a demonstration of how to chart skin-to-skin contact and breastfeeding in the electronic medical record (EMR) was shown.

### **Nursing Implications**

The rate of skin-to-skin contact performed immediately after a cesarean birth was only 25% in January 2014. During that same time period, the rate of mothers who were exclusively breastfeeding at discharge was 52.6%. After the various aforementioned educational strategies

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were performed, there was a substantial increase in skin-to-skin contact immediately after a delivery and exclusive breastfeeding at discharge: One year later, in January 2015, the rate of skin-to-skin contact in the OR improved to 75% and the rate of exclusive breastfeeding at discharge increased to 93.54% (Figure 1). In order to verify the documentation audits each month during this time period, 30 mother attestation audits were also performed. These monthly audits were actually more favorable than the documentation chart audits.

I feel that our teammate's dedication to improving the skin-to-skin contact rates was fueled by seeing the results of their actions. This was especially evident in the mothers who were requesting family-centered maternity care (FCMC). According to the International Childbirth Education Association (ICEA, n. d.), the tenets of FCMC include respect, openness, confidence, knowledge, and atmosphere. In order to carry out FCMC, collaboration is required among healthcare workers. Collaboration is also a key component of perioperative teammates (AORN, 2015, p. 1).

### **Lessons Learned**

There were some barriers in reaching our goal. Firstly, perioperative nurses were told to perform skin-to-skin immediately after birth, but did not have the tools needed to do so. For example, the infant needed to be assessed while they infant was on the mother's chest. However, the infant stethoscope was secured to the infant warmer, too far to reach the infant. Unless the infant was taken from the mother and brought to the warmer, the infant's heart and lung sounds could not be assessed. This barrier was addressed: Additional stethoscopes were

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purchased. Now, there are infant stethoscopes that can be utilized by the head of the mother. Another barrier included the order of nursing interventions performed. There was a lot of discussion amongst teammates of when one should weigh the infant. Teammates felt pressured to weigh the baby, not just from the healthcare provider, but due to the parents wanting to know the weight so they could share it with their family and friends. Delaying the weight involved not only teammate education, but parent education as well.

Another barrier concerned actually performing skin-to-skin contact in the OR. The CDC supports the father or support person to perform skin-to-skin if the mother is medically unstable (CDC, 2013). However, some of the teammates were concerned that the father's chest hair would contribute to a surgical site infection. According to Spruce "There is currently no research examining the risk of exposed chest hair, specifically" (2015, p. 384). Most studies examining surgical site infections involved healthcare workers who were at or near the sterile field. The CDC (personal communication, May 7, 2015) is not aware of any infection control issues reported in the literature concerning the father and the infant performing skin-to-skin contact. Changes in policies and procedures may be indicated to facilitate FCMC in the OR when the mother is medically unstable (CDC, personal communication, May 7, 2015).

It is imperative that perioperative nurse have assistance in facilitation skin-to-skin contact during a cesarean birth. The CRNA and the support person cannot be expected to monitor the safety of the infant. We do not want our skin-to-skin rates to increase, at the risk of also increasing infant falls. With the multiple demands of the perioperative nurse during surgery, having an extra set of hands will not only comply with the Association of Women's Health and

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Obstetric and Neonatal Nursing (AWHONN) and the AAP / ACOG (2012) guidelines, but will ensure the safety and quality of the birth experience for the mother and her family.

As a result of our process improvement, I am delighted to announce that we have obtained Baby- Friendly Designation. Due to the collaborative efforts between disciplines in the women's service line we were able to improve exclusive breastfeeding rates at discharge for infants, thereby increasing long term benefits for the mother/infant dyad. The AORN mission is to promote safety and optimal outcomes for patients undergoing operative and other invasive procedures by providing practice support and professional development opportunities to perioperative nurses" (AORN, 2015, p. 1). Facilitating skin-to-skin contact following a cesarean birth, if there are no contraindications, will do just that.

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