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Occupational Therapy's Approach to Implement a Kangaroo Care Program

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A Capstone Project

Submitted in partial fulfillment of the requirements for the

Post-Professional Doctor of Occupational Therapy (Dr.OT) Degree

at Nova Southeastern University

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Abstract

Kangaroo care is considered best practice in the neonatal intensive care unit (NICU), though sadly is not implemented routinely in many units. The benefits of kangaroo care are well documented and include increased weight gain, thermoregulation, improved sleep, brain growth, decreased stress, improved oxygenation, and self-regulation. This project was initiated to develop, execute and evaluate a comprehensive kangaroo care program in a level 4 NICU. The nurses were interviewed within the NICU where the program was implemented to discover that many nurses did have some knowledge of kangaroo care but did not feel confident or comfortable supporting kangaroo care practice as part of their bedside care. This program was developed utilizing information from the literature on implementation science and best practice in nursing education. The education included a voice-over PowerPoint and a simulation lab. The program was a collaborative effort among nursing. Parents' needs were integral to program success and were addressed through parent-friendly education. A family support specialist was integral to review educational materials and ensure that the material was appropriate for the parents. The results demonstrated that the type of education provided was effective to increase the knowledge and confidence of the nurses and increase the percentage of kangaroo care practices. Occupational therapists are well suited to educate, support, and facilitate kangaroo care within a NICU as kangaroo care aligns with co-occupations and promoting parental occupations, advocacy, and caretaking skills.

Keywords: kangaroo care, occupational therapy, evidence-based, stakeholder buy-in, team leaders, family-centered, family support specialist, co-occupation, voice-over PowerPoint, implementation science, simulation, parent occupation, advocacy, efficacy

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Chapter 1

Introduction

The neonatal intensive care unit is a stressful environment for the infant and the family. A premature birth creates tremendous anxiety for parents to the point of dysfunction causing an inability to interact with their infant and the medical staff in the unit (Zelkowitz, Bardin & Papageorgiou, 2007). The infant experiences numerous environmental stressors that are overwhelming to an immature and fragile system which can impede appropriate growth and development. Parents are at a loss as to what they can do to help their small premature infant and often feel guilty and inadequate. Parents struggle to navigate the world of the neonatal intensive care unit and have to learn how to engage and care for their infant (Cardin, 2020). If a parent perceives they are contributing to the needs of their infant their confidence in their caretaking skills is positively impacted which increases their participation and interest (Price & Miner, 2009).

Kangaroo care is a caregiving occupation that parents in the neonatal intensive care unit can engage in with their infants; kangaroo care is considered best-practice and is well supported by research (Ludington-Hoe, 2011; Ludington-Hoe, 2013; WHO, 2003). Kangaroo care is where an infant that only has a diaper on is placed on their parent's bare chest and skin-to-skin lying between the breasts. Kangaroo care benefits both the infant and the parent. Kangaroo care is a practice that positively impacts growth, weight gain, improved infant sleep, increases brain development, breast milk production, promotes breast feeding, decreases parental stress, and promotes bonding, engagement, and care-taking skills (Bergman, 2014; Ludington-Hoe, 2013; WHO, 2003). Despite evidence-based benefits and recommendations, kangaroo care is often not standard practice in many neonatal intensive care units. The literature recognizes that there are

barriers to practice and properly educating nursing and parents can positively impact a program's success (Ludington-Hoe, Morgan & Abouelfettoh, 2008). A successful program must also have support from management, policies and guidelines for process to practice and stakeholder buy-in to ensure a program's sustainability and fidelity (Ludington-Hoe, Morgan & Abouelfettoh, 2008).

Background of the Neonatal Intensive Care Unit

Premature infants are exposed to a sterile, loud, and hectic environment which is a sharp contrast to the quiet, muffled, and protective world of their mother's womb. Their immature system is challenged to sustain their physiological status while simultaneously trying to integrate their sensory systems to be able to interpret and respond to their world and cope with the necessary medical interventions and procedures necessary to keep them alive (Als, 1982). Their immature brains are continuing to grow and develop and are impacted by every touch, smell, sound, movement and procedure during their stay in the neonatal intensive care unit. Each and every experience that an infant endures be it positive or negative has long lasting effects on the infant's neurodevelopmental growth and functional outcomes (Als, 1982). Als (1982) recognized that a parent will seek any sign that their infant relates to them through social interaction such as an eye opening to their voice or a reflexive smile.

Parents are overwhelmed by their premature infant's small and fragile appearance coupled with the stress of a high-tech unit which makes parenting and engagement with their infant a challenge (Price & Miner, 2009). Parents want to be involved in their infant's care but need to be provided the appropriate education and support. Bergman (2014) speaks to the quality of an infant's survival or their overall developmental outcome after all the care has been provided to keep an infant alive and surviving. Bergman (2014) believes that no infant (full-term

and healthy to small and premature) should be separated from their parent but should be with them on their chest, skin to skin also termed kangaroo care to bring about the best outcomes for development and brain growth. The typical practice within most hospital units of preterm and term infants is to place the infant in a bassinette or crib separated from their parent while hooked up to multiple wires, intravenous lines and/or tubing. Bergman (2014) believes that infants; especially preterm infants need to be on their parent's chest as much as possible for best developmental outcomes, parental bonding, and development of caretaking skills; as in the practice of kangaroo care.

For over thirty years kangaroo care has been researched in the United States by Dr. Susan M. Ludington-Hoe who continues to focus her research on the impact of kangaroo care. Dr. Ludington-Hoe and colleagues developed clinical practice guidelines to support kangaroo care (Ludington-Hoe, Morgan & Abouelfettoh, 2008). Not only does support come from Ludington-Hoe and colleagues but research from Africa over the last 28 years (Bergman, 2014) and the World Health Organization (WHO, 2003). All sources strongly recommend kangaroo care as a standard of practice for infants, full-term to pre-term. Kangaroo care is especially beneficial to those in the neonatal intensive care unit, where the infants are most vulnerable and at risk for neurodevelopmental delays and disorders (Ludington-Hoe, 2013; Bergman, 2014). A pediatrician Edgar Rey in Bogota, Columbia first introduced the practice to the Instituto Materno Infantil out of desperation to keep small premature infants alive. The institute served the poorest among those that lived in the foothills of the surrounding mountains in shacks or makeshift homes (Corner, 2017). The mortality rate was over 70% but with the implementation of kangaroo mother care the infants were surviving and the results for both the infant and mother were notable with increased growth, development, increased breast feeding, and bonding (Rey &

Martinez (1986). If kangaroo care can positively impact an impoverished population with very limited resources, the impact for neonatal intensive care units with unlimited resources is even greater (Ludington-Hoe, 2011; Ludington-Hoe, Morgan & Abouelfettoh, 2008). Despite the level of medical care and advances of modern medicine; there is still a great number of infants that are born prematurely.

Significance for a Kangaroo Care Program

More than 380,000 premature infants are born in the United States (March of Dimes, 2016). The Center for Disease Control and Prevention states that in 2018, preterm births affected 1 out of every 10 deliveries (CDC, October 21, 2019). A preterm birth is an infant born before 38 weeks' gestation. Tremendous growth and development occur in the last weeks of pregnancy which are especially important for the brain, lungs, and liver. Infants born before 32 weeks' gestation have higher rates of death and disability (March of Dimes, 2016).

State, Local, and Unit Demographics

In 2017, preterm birth and low birth rate resulted in 17% of infant deaths (CDC, October 21, 2019). According to Miami Matters (2020, July) 84.2% of pregnant women in Miami-Dade County received prenatal care compared to the statewide average of 75.9 %. The percentage of low-birth weight infants born less than 5 pounds and 8 ounces has increased since 2003 at a rate of 8.6% and is highest among African American mothers followed by White mothers and then Hispanic mothers (Miami Matters, 2020, July). The March of Dimes does indicate that preterm births are higher for African American women (14%) compared to Hispanics (9.8%) and Whites (9.2%) (March of Dimes: Peristats, 2020). Results from two studies conclude that socioeconomic status is not the reason for preterm births among African Americans because the incidence of preterm births was the same for college-educated African American women compared to non-

educated African American women (Johnson, Green, Vladutiu & Manuck, 2019). These results suggest that other factors are contributing to premature deliveries among African Americans (Johnson, Green, Vladutiu & Manuck, 2019). Mohamed, Thota, Browne, Diamond and Al-Hendy (2014) research supported their hypothesis that low vitamin D levels might be the contributing factor to preterm births in African American women (Mohamed, Thota, Browne, Diamond & Al-Hendy, 2014). It is important to keep in mind the incidence of preterm births among all ethnic groups in order to tailor and meet the needs of all families in any program that serves a multicultural community. The neonatal intensive care unit that is being served for this Capstone is comprised of a multicultural community including Hispanics, African Americans, Caribbean, Jamaican, Haitian and Caucasian. There are no exact percentages for this unit, but there is a slight majority of Hispanics, followed by African Americans, Haitians, and then Caucasians.

Description of Neonatal Intensive Care Unit

The neonatal intensive care unit for this project has 36 private rooms, two of which are designated twin rooms. Each room has a couch that can be converted to a double bed, two chairs, a nightstand, a private shower with sink and toilet, television, and a storage closet for personal items for the family and infant. Each room has an outside view with shades and a curtain to separate the parents' sleeping area from the infant's area. The unit itself has a lounge for parents with a microwave, a drink dispenser with water and ice, coffee and tea with a small dining area to eat, and a modestly sized living area with a television. There is an outside lobby area for families and friends to visit right off the elevator bank. Parents are provided clean linens on a daily basis and rooms are cleaned daily by custodial staff. Mothers are encouraged to pump for breastmilk and are provided their own breast pump, bottles and attachments, and one free

meal of their choice a day. The hospital community has a center downstairs within the building that provides free laundry facilities to launder the baby's personal items. There is a Starbucks in the main lobby of the building at a cost to the family. All of the services and amenities are within 5 minutes or less walking distance. Each family has a primary nurse and assignments are two to three patients per nurse unless the patient is critical and requires a one-to-one assignment. Care assistants are shared. The unit design and staffing require nurses to be organized and creative to provide care and support to each infant and their family. Additional key players in the unit that educate, and support families are the lactation consultant, social worker, psychologist, family support specialist, developmental therapists, and physicians.

Nursing Impact

Nursing and staff provide education and information to the parents of their patients and understand the importance of being consistent and clear. Families need to develop trust in the nurses that care for their baby and understand the "whys" in order to implement what they are being taught. Parents are bombarded with information and need to be able to have an open dialogue to ask questions for clarification. Written information and pictorial handouts should be given to reinforce the learning process (Nimbalkar & Sadhwani, 2019). Recognizing and validating the stress that each family experiences and the impact on their ability to retain information is important for the healthcare team to remember. Parents need and require information to be repeated numerous times and taught in different ways to be understood and retained (Nimbalkar & Sadhwani, 2019). In the unit where the program is to be implemented the percentage of Hispanic nurses is more than half which works well in serving the Hispanic community. Nurses need to recognize a family's culture and the impact culture plays on their perception of healthcare (Williamson & Harrison, 2010). The unit also serves a population of

African Americans as well as Caucasians with the same sensitivity to culture. It is not always easy to understand cultural differences but efforts to create an environment of respect and learning promote an atmosphere for success (Williamson & Harrison, 2010). The nurses can drive a program and garner support from other team members because nursing is the backbone of any strong hospital-wide program. The way in which staff teach and present information is critical to understanding and implementation. (Nimbalkar & Sadhwani, 2019).

Health Literacy

Health literacy has its foundation in educational research, adult learning, and the promotion of health (Nutbeam, 2008). Health literacy is the ability of an individual to gather, communicate, integrate and comprehend health information and services to make health decisions appropriate for them or their family member (Center for Disease Control and Prevention, September 17, 2020). Health literacy and patient/family empowerment go hand in hand and require concentrated efforts to ensure success). Consistency and a well-formulated plan are necessary to determine what strategies will work to meet the educational needs of each individual family (Nimbalkar & Sadhwani, 2019). Health care providers must understand and feel comfortable with the information to teach and recognize that each family has a specific learning style. Presenting the information verbally and then reinforcing it with written material is an example of providing various means to learning. The ability to understand the information or material presented either verbally, demonstrated, written or a combination will ensure that the information is understood and can be applied (Nimbalkar & Sadhwani, 2019). Many individuals can read and write in English but have difficulty understanding health information (health literacy) (Beagley, 2011). Health care providers need to be sensitive to a family's culture and values as well as their own biases which, may influence staff perceptions (Beagley, 2011).

NICU nurses and therapists must recognize the unique educational needs of each family. Providing information and educating parents in a neonatal intensive care unit poses challenges, such as clarifying medical language, understanding how time constraints, family obligations, travel time, and distance do not allow for extended visiting time with their infant. Awareness of health literacy and its impact on parent's ability to navigate the health care setting will help to develop a program that meets each family's needs (Dusing, VanDrew & Brown, 2012).

Education Needs for Nursing

Nurses require education to feel confident to be able to support parents to practice kangaroo care (Penn, 2015). Considerations for nursing should include education and simulation practice of kangaroo care to ensure what is best practice for safe clinical experiences with an evidence-based foundation to promote kangaroo care (Kukla & Ludington-Hoe, 2017). The nurse puts the safety of the infant first and understands that the health of the infant is primary; however, if educated on the benefits and the proper technique to safely transfer an infant to their parent's chest a kangaroo care program can be successfully safe (Penn, 2015). Nurses need the support of management and written protocols and procedures to ensure consistency and fidelity (WHO, 2003; Ludington-Hoe, Morgan & Abouelfettoh, 2008).

Occupational Engagement and Occupational Justice

The occupational therapy profession values the ability to engage in meaningful activities or occupations (McColl, 1998). Parents need support and education to understand the importance of their role in their infant's care and the impact on development. The high-tech world of the neonatal intensive care unit often makes parents feel inadequate and does not naturally promote care taking skills and engagement (Price & Miner, 2009). Kangaroo care is an exclusive activity that only the parent can do with their infant and promotes parent engagement

and caretaking skills. Promoting parent engagement early and throughout the neonatal intensive care experience helps make the adjustment to home easier. Parents are more at ease due to being involved with their infants early which, fosters a sense of confidence long after their discharge to home (Cardin, 2020). The occupational therapist plays a vital role in working with parents to build their confidence and supports their efforts to develop caretaking skills and parenting roles through education and hands-on experiences. A parent's engagement with their infant improves communication with the team which aligns with family-centered care. Kangaroo care is a practice that parents can do, which is unique to each parent and the benefits observed are immediate and long-lasting (Ludington-Hoe, 2013; Ludington-Hoe, Morgan & Abouelfettoh, 2008). Parents should be offered the opportunity to practice kangaroo care. Policies and procedures need to be clearly outlined to support nursing in their efforts to offer safe opportunities to parents (Ludington-Hoe, Morgan & Abouelfettoh, 2008). Occupational justice requires us to consider any inequalities that arise when the ability to participate in an occupation is prohibited, confined, restricted, marginalized, exploited, excluded, or restricted (Braveman & Bass-Haugen, 2009). A disparity in healthcare is an inequality and must be addressed by those that can enact change (Braveman & Bass-Haugen, 2009).

Family-Centered Care

Family-centered care is considered best practice and must be a part of any well-rounded neonatal intensive care unit program (Davidson, Long, Hart, Wickline, Kentish-Barnes, Coombs, Franck, Kon, Harvey, Swoboda & Levy, 2017). Kangaroo care is a perfect fit to promote and support parents to care for their infants and aligns with the philosophy of family-centered care. Parents gain confidence when they are able to develop care-taking skills for their infant and this type of engagement validates the parenting role. Family-centered care embraces the family as

partners in decision making and considers parents an essential contributor (Craig, Glick, Phillips, Hall, Smith & Browne, 2015). Parents who feel valued and consider themselves a part of the team and not on the sidelines are better able to be there for their infants which is the ultimate goal (Davidson, Long, Hart, Wickline, Kentish-Parnes, Coombs, Franck, Kon, Harvey, Swoboda & Levy, 2017). Kangaroo care when implemented correctly is an avenue of engagement that only a parent can offer to their infant and produces many benefits for the infant and the parent; therefore, kangaroo care must become standard practice in all neonatal intensive care units (Ludington-Hoe, Morgan & Abouelfettoh, 2008).

The Proposed Solution to Implement a Kangaroo Care Program

The kangaroo care program for this capstone will be conducted in a Level IV neonatal intensive care unit (provides an advanced level of care for premature infants and critically ill newborns) in south Florida but can be applied to other neonatal intensive care units of all levels. Currently, in this facility kangaroo care is not standard practice. Kangaroo care is designed to provide parents the opportunity to hold their infants for one to two hours at a time skin-to-skin on their parent's bare chest. The concentrated periods of holding promotes bonding, helps a parent to learn about their infant, how to care for their infant, and positively impacts an infant's neurodevelopmental growth (Chiu & Anderson, 2009; Kukla & Ludington-Hoe, 2013). Currently, kangaroo care is not consistently practiced by the bedside nurses; as nursing staff report needing targeted education and training in kangaroo care. Also, of concern is the need for support from management and at the bedside.

The capstone student will approach the nurse educator, the lactation specialist, the nurse Clinical Committee in the NICU, and the family support specialist to propose elevating the kangaroo care program to ensure that all infants that are deemed appropriate are offered the

opportunity to kangaroo care with their parent. The family support specialist has the first-hand experience as a parent of a preemie in a neonatal intensive care unit. She can provide invaluable input regarding the parent's perspective, the emotional toll, and what are the most effective educational approaches for parents. The lactation specialist will be instrumental in understanding the impact of a premature birth and how breastfeeding and kangaroo care are intertwined. The Clinical Committee composed of nurses from both the day and night shifts will share invaluable experiences regarding the barriers and challenges the nurses have encountered with kangaroo care and why the practice is inconsistent.

The goal is to develop a quality improvement program to increase kangaroo care practice within the unit by educating nurses and parents on the benefits and safe practice measures. Involving the major stakeholders in program development will help to ensure sustainability and fidelity (quality of intervention) (Saunders, 2016). Chapter three will expand on the input and development shared by the nurse educator, the family support specialist, the lactation specialist, and the Clinical Committee. The capstone student utilized four models as a guide which include Kotter's 8 Steps Change Model, the Person-Environment-Occupation Model, the Synactive Theory of Development model, and an extension of the Synactive Theory of Development Model: The Universe of Developmental Care Model.

Purpose:

The purpose of this Capstone is to ensure kangaroo care is standard practice for all *eligible* infants in the neonatal intensive care unit.

Short term Objectives:

- The Team Leaders will receive education and simulation training to teach the purpose, benefits, and practice of kangaroo care to their designated team of nurses

- The Team Leaders will be able to teach the proper standing transfer technique to their team of nurses.
- The family support specialist and the lactation specialist will support kangaroo care and be consistent in their delivery
- Parents will be educated on kangaroo care by verbal communication, hands-on teaching, and visual aids including an information poster in the room, a handout, a video, and a bedside calendar
- The NICU team (Neonatologists, Nurses, Nurse Managers, and Nurse Practitioners) will understand the importance of kangaroo care and will promote it as standard practice with their patients and families

Long-Term Goals:

- The number of kangaroo care practices will increase by 50% (the data percentages will be tracked and available from the Quality and Safety department)
- All nursing staff will consistently provide quality kangaroo care education to families

Definition of Terms

Kangaroo mother care, kangaroo care, and skin-to-skin contact are terms used in the literature to describe kangaroo care, but each term has a specific meaning. Kangaroo mother care (KMC) is the practice where the mother places the baby between the breasts with nothing between the baby's skin and the mother's skin except for the infant's diaper. The infants are carried and cared for exclusively by the mother to promote lactation and breastfeeding. Originally this practice occurred in Bogota, Columbia as a means to save the lives of small and fragile infants (Chiu & Anderson, 2009). Skin-to-skin contact appears to be used interchangeably with kangaroo mother care and kangaroo care. In the article by Chiu and

Anderson (2009) the one distinction that is made for kangaroo mother care is that it is done exclusively by the mother for all care, breastfeeding and begins from the moment they are born. In the article by Sweeney, Rothstein, Visintainer, Rothstein and Singh (2016) and Jones (2018), skin-to-skin contact is called kangaroo care and no distinction is made between skin-to-skin contact and kangaroo care. It is interesting to note that in the article by Cho, Kim, Kwon, Cho, Kin, Jun and Lee (2016) the researchers speak to how kangaroo care was developed in Bogota, Colombia and they do not use the term kangaroo mother care as it is indicated in the original article of the Bogota, Colombia experience by Rey and Martinez (1986). According to the United States Institute for Kangaroo Care (2015) the terms, kangaroo care and skin-to-skin contact are used analogously to mean the same thing. The baby is placed chest down with only a diaper on against their mother's bare chest between the breasts with a blanket covering the back of the baby. Based on the literature kangaroo mother care should be solely used to describe the dyad between mother and infant in close contact over an extended period of time and all care is given by the mother. The mothers provide total care including expressing breast milk, breastfeeding, and providing warmth to their infant. In this program, the term kangaroo care will be used to describe the caregiving co-occupation by mothers and fathers of the infant, holding the infant diaper-clad on the bare chest between the breasts.

Summary of Introduction

Presently in the neonatal intensive care unit, kangaroo care is inconsistent, and many nurses hesitate to encourage parents to practice because they do not feel they have enough education and/or physical support. The purpose of this capstone is to make kangaroo care standard practice for eligible infants. The program needs to be nurse driven and therefore nurses need to be provided appropriate education, understand where to find the policy and procedures to

practice, and be given the physical support to assist parents as needed. Input from stakeholders is vital to ensure the program's relevance and fidelity and that the program is embraced and valued. Management needs to be supportive of nursing efforts to elevate the program. The program will provide an educational component. Team leaders will be given an in-service to be able to then train and support their peers at the bedside. The team leaders will come from the Clinical Committee and are composed of nurses on both day and night shifts which will ensure peer training by team leaders to all shifts. The family support specialist has been instrumental to bring the parent perspective and will continue to be involved in the development of all written materials for parents and in supporting the practice. The lactation specialist plays a key role as well in tying in kangaroo care and the support of breast milk production among the mothers during each consultation. The capstone student understands the importance of developing caretaking skills and engagement opportunities for each family within an environment that generally hinders the role of the parent. The parent experiences stress and anxiety that can be abated. Kangaroo care is a wonderful practice that engages the parent, promotes dialogue, and helps to develop caretaking skills so integral to the care of their baby (Ludington-Hoe, 2013).

A successful kangaroo care program provides the stage to positively influence the infant's development, promotes bonding, supports breast milk production, and ultimately facilitates parents to engage and develop caretaking skills and the parenting role. As parents feel validated and gain the confidence to advocate for their infant; they can become contributing partners in the care of their baby which aligns with family-centered care tenets (Cardin, 2020; Craig, Glick, Phillips, Hall, Smith & Browne, 2015; Davidson, Long, Hart, et al, 2017).

Chapter 2

Literature Review

The history of kangaroo care or kangaroo mother care as it applies to the practice in Bogota, Columbia dates back to 1978. A pediatrician Edgar Rey introduced the practice to the Instituto Materno Infantil out of desperation to keep small premature infants alive. The institute served the poorest among those that lived in the foothills of the surrounding mountains in shacks or makeshift homes (Corner, 2017). The institute had the largest neonatal intensive care unit in Colombia and delivered 30,000 babies a year. Overcrowding and infections were a constant problem. The death rate was so high that babies were abandoned and left by their mothers (Rey & Martinez, 1986). Rey (Corner, 2017) was a pediatrician and desperate to end the mortality rate in the neonatal intensive care unit. Rey (Corner, 2017) came across a paper on the physiology of the kangaroo. The paper described that at birth kangaroos are bald, immature and the size of a peanut. The babies find their way into their mother's pouch and the kangaroo mothers keep their babies warm and provide nourishment until they are about one-fourth their mother's weight when they emerge into the world (Rey & Martinez, 1986). The kangaroo's journey of development inspired Edgar Rey to implement kangaroo care in the neonatal intensive care unit. The infant's mothers were brought in and instructed to hold their infants' skin-to-skin on their bare chests for extended periods of time to provide the needed warmth and comfort for their survival (Rey & Martinez, 1986). Dr. Rey never imagined that his work would catch the attention of a pediatrician from France.

The following literature review will explore the development of kangaroo care, relevant research, and best practice in the neonatal intensive care unit. Additionally, the family-centered

care model, barriers and facilitators, implementation considerations, and the role of occupational therapy in kangaroo care practice will be reviewed.

History of Kangaroo Care

In 1986, a pediatrician from France, Nathalie Charpak moved to Bogota, Colombia and began to practice at the Instituto Materno Infantil with Rey and Martinez (1986). Charpak was amazed at the results of kangaroo mother care and understood that a study needed to be completed to document and show the world the results of the kangaroo mother care method (Corner, 2017). Charpak completed the first study in 1989 and in 1994 with funding from Switzerland, Charpak completed a larger randomized controlled trial that proved that the kangaroo mother care practice decreased the death rate, promoted breastfeeding, decreased length of stay in the hospital, decreased the infection rate and improved the bonds between the parent and baby (Corner, 2017). Heart rate and respiratory rates decreased, babies calmed easier, slept better and the mothers experienced less post-natal depression (Corner, 2017). Charpak (Corner, 2017) is quoted as saying, "It is about allowing the baby to thrive and giving it the best possible quality of life" (p.10). Ludington-Hoe (2011) pointed to the fact that kangaroo care started in 1970 with full-term infants and then in 1983 in Bogota, Columbia kangaroo care was initiated with preterm infants. Kangaroo care positively affects the bond of the mother and the infant in addition to the physiological and neurodevelopmental benefits (Ludington-Hoe, 2011; Neu & Robinson, 2010).

Best Practice Considerations of Kangaroo Care

Ludington-Hoe (2011) and the World Health Organization (2003) recommend and support kangaroo care as standard practice in all neonatal intensive care units. The benefits of kangaroo care include improved quality of sleep, autonomic function, thermal regulation,

increased weight gain, increased breastfeeding, increased milk production, parental bonding, decreased stress to mother and infant, decreased pain perception, and better neurodevelopmental outcomes (Ludington-Hoe, 2011; Cho, Kim, Kwon, Cho, Kim, Jun & Lee, 2016; United States Institute of Kangaroo Care, 2015). Kangaroo care promotes parenting practices and aligns with family-centered care (Neu & Robinson, 2010). The World Health Organization recognizes that there are barriers and enablers to the practice of kangaroo care and with education, management support, and stakeholder buy-in each unit can implement a strong and effective kangaroo care program (Chan, Labar, Wall & Atun, 2016). Parents want and should be offered support to provide opportunities to be involved in the care of their infant. Kangaroo care is a well-researched practice that helps promote parent engagement and aligns with the principles of family-centered care (Neu & Robinson, 2010; Shimizu & Mori, 2017).

Family-Centered Care

Families want to be a part of the decision-making for the care and treatment of their infant which requires support from the medical team. Family-centered care is a partnership to decision-making between the family and the health care team (Davidson, Long, Hart, Wickline, Kentish-Barnes, Coombs, Franck, Kon, Harvey, Swoboda & Levy, 2017). Family-centered care aligns with kangaroo care as the principles of family-centered care include information sharing, respect and honoring differences, collaboration and participation in the context of the family or community it is serving (Davidson, Long, Hart, et al, 2017; Kuo, Houtrow, Arango, Kuhlthau, Simmons & Neff, 2012). McGowan, Naranian & Johnson (2017) speak to family-centered care as an important and fundamental belief that must exist in all neonatal intensive care units; as of 2017 family-centered care guidelines for the neonatal intensive care were unit were established by the Society of Critical Care Medicine (Davidson, Long, Hart, et al, 2017). Embracing

families in the decision-making, care, and treatment of their baby is well described in the literature as family-centered developmental care (FCDC). Family-centered developmental care ensures that the family is a true partner with the health care team (Craig, Glick, Phillips, Hall, Smith & Browne, 2015). If the family is supported emotionally, socially and developmentally their ability to learn the information necessary to care for their infant will have greater success. Kangaroo care is a powerful practice that only parents can offer and is well supported in the literature (Davidson, Long, Hart, et al, 2017; Ludington-Hoe, 2011). Parents learn about their infants' needs and ways to comfort them that come about with concentrated time spent holding and being with their baby (Bailey, 2015). Parents can then dialogue and collaborate with the healthcare team about their baby's care which, increases parent confidence to engage, ask questions, and advocate (Vittner, McGrath, Robinson, et al, 2018).

Contemporary Research

Benefits of Kangaroo Care

Kangaroo care fosters maternal-infant attachment because the parent spends long periods of intimate time holding the infant. The practice of kangaroo care promotes bonding and decreases maternal stress (Cho, Kim, Kwon, et al, 2016). Bonding with their infant is crucial to promote caregiving skills (Vittner, McGrath, Robinson, Lawhon, Cusson, Eisenfeld, Walsh, Young & Cong, 2018). Establishing care practices aligns with family-centered care which benefits the infant and the parents (Neu & Robinson, 2010). Encouraging the parent-infant relationship proves beneficial in the short and long term for improved neurological and developmental outcomes (Flacking, Lehtonen, Thomson, Axelin, Ahlqvist, Moran, Ewald & Dykes, 2014). Achieving homeostasis between the mother and infant helps to decrease the anxiety and stress associated with having an infant in the neonatal intensive care unit (Gray,

Edwards, O'Callaghan, Cuskelly & Gibbons, 2013). Kangaroo care is a cost-effective, accessible practice to offer mothers to decrease the symptoms of depression without any negative side effects (Bigelow, Power, Mac-Lellan-Peters, Alex & McDonald, 2012). Kangaroo care stabilizes the physiological components of the infant including heart rate, respiratory rate, body temperature, increased weight gain, and promotes brain growth (Cho, Kim, Kwon, et al, 2016; Jones & Santamaria, 2018). Irritability and pain perception are also decreased in infants that receive kangaroo care regularly (Campbell-Yeo, Disher, Benoit & Johnston, 2015). The Breast-Feeding Health Initiative (BFHI) which was designed by the World Health Organization has kangaroo care as one of 10 steps to successful breastfeeding. Originally the BFHI addressed healthy infants but the BFHI of the World Health Organization has made adaptations to the premature and sick infant population to include unrestricted time for mothers to hold their premature infants as safely able to promote the mother's breast milk production and breastfeeding (Campbell-Yeo, Disher, Benoit & Johnston, 2015). Promoting an open dialogue between the parent and the healthcare team is important and can be achieved easier with the practice of kangaroo care. Parents want to ask questions but often do not know where to start and need a platform to work from (Beagley, 2011). Removing barriers to help facilitate kangaroo care opens up many opportunities.

Barriers to Practice

The literature reveals there are barriers to kangaroo care implementation and practice among parents and nurses despite the wealth of knowledge that kangaroo care is a form of developmental care with long-lasting benefits (Campbell-Yeo, Disher, Benoit & Johnston, 2015). In their systematic review, researchers uncovered four parent-identified themes: buy-in and education of kangaroo care practice, social support, time, and medical concerns (Betancourt,

Fink, Pereira & McConnell, 2019; Smith, Bergelson, Constantian, Valsangkar & Chan, 2017). The study conducted by Lewis, Andrews, Shenberger, Betancourt, Fink, Pereira and McConnell (2019) reinforced the same perceptions. Barriers experienced by families have a big influence and must be recognized.

Parental Barriers

Parents experienced a lack of support from their family members. Appropriate support therefore both psychological and physical must come from the health care team (Seldman, Unnikrishnan, Kenny, Myslinski, Cairns-Smith, Mulligan & Engmann (2015). Parents report the struggle with the occupational balance of caring for their infant in the hospital, work, and household demands. Parents expressed fear of hurting their baby if they were to hold them. Mothers who were dealing with their recovery issues post-delivery had difficulty holding their infant for any length of time due to discomfort from delivery (Smith, Bergelson, Constantian, et al, 2017). Common themes and concerns identified across studies were noise within the unit, lack of privacy, uneasy with being "undressed" while holding their infant, absence of an appropriate chair to sit in, and a lack of information about kangaroo care benefits for their baby (Blomqvist, Frolund, Rubertsson & Nyqvist, 2012; Penn 2015). Not only have barriers experienced by parents been reported in the literature; nursing barriers are critical factors.

Nursing and Neonatal Intensive Care Unit Barriers

Negative impressions or attitudes of staff due to poor work dynamics and resources can create barriers to kangaroo care. The barriers indicated by nursing included heavy workloads, staff shortages, lack of clear guidelines, and appropriate training (Seldman, Unnikrishnan, Kenny, et al, 2015). Several studies looked at the impact nursing played in kangaroo care practice within a unit. Knowledge base and skill confidence were key factors for kangaroo care

implementation as well as an expressed need for practice guidelines for nursing (Almutairi & Ludington-Hoe, 2016; Higman, Wallace, Law, Bartle & Blake, 2014; Deng, Zhang, Wang & Xu, 2018). The writer recognizes that the last referenced study was conducted in China with different practices and cultural influences from neonatal intensive care units in the United States and yet the finding was similar.

Nursing Attitudes Effect Barriers

In addition, the nurse's attitudes can adversely influence a parent to practice kangaroo care therefore nursing must provide the opportunity for each parent to make the decision based on their own beliefs for their infant (Deng, Zhang, Wang, et al, 2018). The Swedish study by Morelius and Anderson (2015) was conducted in a unit that focused on continuous skin-to-skin contact where a single parent or more often both parents continuously held the infant skin-to-skin. Some of the nurses did not feel that it was fair to make parents feel obligated to hold their infants continuously and that undo pressure was being placed on the parents to do so. Again, the parent must be provided the opportunity to make that decision without the influence of nursing attitudes.

Facilitators to Practice Kangaroo Care

Parents are overwhelmed and are not expecting to welcome their infant into the world in a neonatal intensive care unit. They are engulfed with many emotions and require ongoing support and education to help them deal with the premature birth of their baby. Parents want and need reassurance that how they are caring for their infant is correct when implementing kangaroo care (Blomqvist, Froland, Rubertsson, et al, 2012). Researchers identified numerous facilitators to promote kangaroo care in the neonatal intensive care unit (Blomqvist, Froland, Rubertsson, et al, 2012; Shimizu & Mori, 2017). After reviewing the literature three concepts for approaches

emerged to facilitate kangaroo care (Blomqvist, Froland, Rubertsson, et al, 2012; Shimizu & Mori, 2017). First, mothers need interactive education experiences with the nurse to learn their infant's needs and the information needs to be visually appealing and easily understood (health literacy). Second, parents need to be able to visit their infant when they can and not have limited access due to restricted visitation hours. Third, mothers need to feel that they can trust their nurse and trust that the information being taught is the truth (Shimizu & Mori, 2017). Additionally, leaders in the field support the development and implementation of written standards of care practices and policies to serve as a guide to nursing, leadership, and higher management (Higman, Wallace, Law et al, 2014; Ludington-Hoe, Morgan & Abouelfettoh, 2008).

The Unique Role of Occupational Therapy

Occupational therapists are facilitators and are equipped to provide interventions and education to medical staff and parents to promote engagement, interaction and development. Kangaroo care aligns with the practice of occupational therapy because we recognize and value the role of the parent and their natural desire to engage with their infant. Mothers are often ridden with guilt, anxiety, and crushed dreams of a perfect delivery. Parents enter the stressful and overwhelming environment of the neonatal intensive care unit unplanned and unprepared and they are not aware of what they can offer their small infant (Neu & Robinson, 2010). The parenting role is distorted and often there is a sense of helplessness. Kangaroo care is a treatment approach that highlights and embraces the importance of the parent in the daily care of the baby, promotes breastfeeding and breast milk production which is the best form of nutrition for growing babies (American Academy of Pediatrics – Policy Statement, 2012). The occupational therapist understands and supports the role of the parent but even more important is the need to help parents learn to engage and develop care taking skills for their infant starting in

the neonatal unit (Vittner, McGrath, Robinson, Lawhon, Cusson, Eisenfeld, Walsch, Young & Cong, 2018; Penn, 2015). Price and Miner (2009) state that "The occupational therapist provides opportunities for co-occupation that promotes the development of the family and supports parents by providing the knowledge that family life is still possible…" (p. 72). Occupational therapists play a key role in a neonatal intensive care unit promoting touch, handling, and interaction of parents through education on the tremendous benefits of their presence at the bedside and how their involvement promotes their infant's development. Our ability to validate parenting roles and integrate the needs of the infant and the parent has tremendous potential for improved developmental outcomes with lasting effects beyond discharge (The American Academy of Pediatrics – Policy Statement, 2012; Holloway, 1994). The occupational therapy profession embodies the principle that active engagement in meaningful occupations gives purpose (McColl, 1998). The following four models will guide program development and keep the focus centered on the needs through implementation of a kangaroo care program (Ludington-Hoe, 2011).

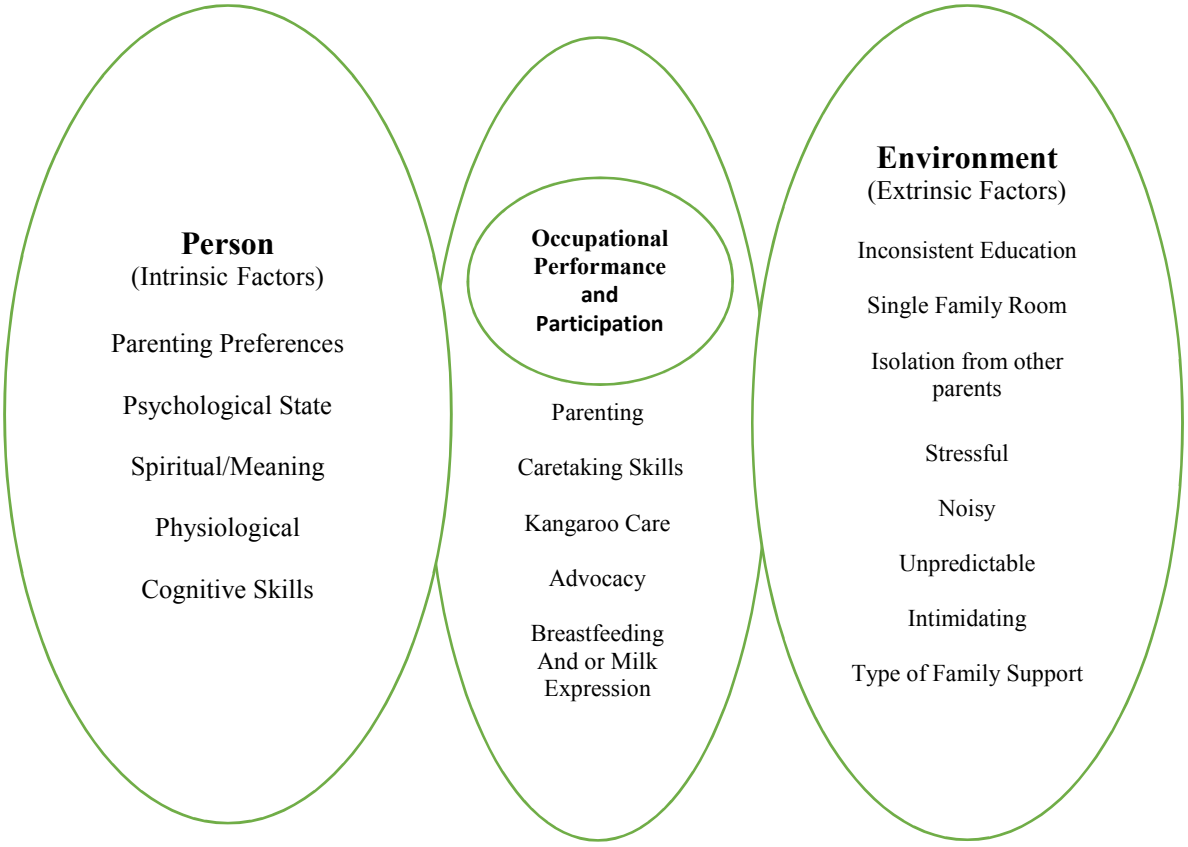
Theories

Person-Environment-Occupation Model

In the neonatal intensive care unit, the Person-Environment-Occupation (PEO) Model provides a framework to evaluate each parent's (Person) capacities and needs as it relates to their ability to respond (Occupation) to their preterm infant's needs within the environment (Environment) of the neonatal intensive care unit (Law, Cooper, Strong, Stewart, Ridgy & Lett, 1996). A parent's occupational performance is greatly affected by the neonatal intensive care unit environment and parents need and should be offered education and strategies to appropriately engage and interact in caretaking with their infant (Price & Miner, 2009). The

narrative portion of the PEO model promotes the building of a therapeutic relationship between parents and their infant and the healthcare professionals they interact with. Parents express feelings of guilt, anxiety, lost hope, and unfulfilled dreams at the early birth of their baby. Parents grieve for their loss of an ideal delivery and hopes for the future appear out of reach (Evans, Whittingham & Boyd, 2011). Attention to each family's needs gives healthcare providers valuable information in ways to approach and support each family. Occupational therapy understands how to assess the needs of each family and how to promote the parent role (Price & Miner, 2009). Supporting family participation is in the scope of occupational therapy practice as reflected in the PEO Model. Parent engagement affects an infant's course in their developmental journey (Penn, 2015). Parents must be encouraged and offered opportunities to develop parenting skills from the moment their infant is admitted to the neonatal intensive care unit (Cattaneo, Amani, Charpak, De Leon-Mendoza Moxon, Nimbalkar, Tamburlini, Villegas & Bergh, 2018). Parents can be positively or negatively affected by unit dynamics. The bedside nurse and the occupational therapist should collaborate with each family (Holloway, 1994). The parent-infant dyad has been shown to be important for the long-term relationship between the infant and parent (Evans, Whittingham & Boyd, 2011). Kangaroo care is an ideal practice that is supported by evidence and promotes parent engagement in an intimate and personal way with immediate and long-term benefits (Ludington-Hoe & Golant, 1993; Ludington-Hoe, 2011; Penn 2015). Please see Figure 1 below which, is a depiction of the process for a parent in the neonatal intensive care unit. Notice the poor overlap of the ovals which gives a visual description of the true dynamics. The picture in Appendix A shows a balanced dynamic model of the person, environment, and occupation components, which is the preferred depicted model for parents in the neonatal intensive care unit.

Figure 1


Person
(Intrinsic Factors)
Parenting Preferences
Psychological State
Spiritual/Meaning
Physiological
Cognitive Skills
Occupational Performance and Participation
Parenting
Caretaking Skills
Kangaroo Care
Advocacy
Breastfeeding And or Milk Expression
Environment
(Extrinsic Factors)
Inconsistent Education
Single Family Room
Isolation from other parents
Stressful
Noisy
Unpredictable
Intimidating
Type of Family Support

Synactive Theory of Development

The Synactive Theory of Development by Heidelise Als was developed specifically for premature infants (Als, 1982) which looks at each aspect of the infant's immediate environment and the effects on development. The research and work by Als (1982) past and present support occupational therapy intervention in the neonatal intensive care unit in the care and treatment of this fragile population. In the article by Celik, Elbasan, Gucuyener, Kayihan and Huri (2018) the researchers point to the issue of sensory overload and poor adaptation abilities of the small and fragile infant. Additionally, they state the sensory environments of the neonatal intensive care unit and the uterus are incredibly different (Celik, Elbasan, Gucuyener, et al, 2018). The extreme and inappropriate sensory experiences in the unit are pushed on a system that is not prepared and thus often causes maladaptive responses and ultimately changes the regular sensory-motor development pattern. Als and McAnulty (2011) support the power of parental presence at the bedside and the benefits of kangaroo care or skin-to-skin holding by the parents. Positive sensory input is necessary for improved outcomes and occupational therapy is positioned to support this approach and support and educate parents. An extension of the Synactive Theory of Development is the Universe of Developmental Care Model by Gibbins, Hoath, Coughlin, Gibbins and Frank (2008).

The Universe of Developmental Care Model

The Universe of Developmental Care Model focuses the caregiver on the relationship between the organism/body and the environment which, is termed the "shared care surface" (Coughlin, Gibbons & Hoath, 2009, p. 2240). The model places the infant at the center of care like the Synactive Theory of Development Model (Als, 1982). The Universe of Developmental Care Model speaks to a shared care surface where the infant/body and the environment meet and

are affected by five core areas. The model outlines the five core measures which include 1) protected sleep, 2) pain and stress assessment and management, 3) developmental activities of daily living (positioning, feeding, and skin care), 4) family-centered care, and 5) the healing environment. Kangaroo care addresses and incorporates all five core measures of The Universe of Developmental Care Model and kangaroo care is supported by evidence in all core areas (Ludington-Hoe, Morgan & Abouelfettoh, 2008; Neu & Robinson, 2010; Campbell-Yeo, Disher, Benoit & Johnston, 2015).

Kotter's Model

Kotter's 8 Steps Change Model will serve to guide a cultural change to implement the kangaroo care to skin-to-skin program in the neonatal intensive care unit. As stated previously, kangaroo care should be a standard practice offered to all babies who meet the established criteria. The neonatal intensive care unit has a written policy and procedure for kangaroo care, but it is not being used consistently by the nursing staff. The literature review has revealed the barriers and enablers among nursing and parents to implement a kangaroo care program. The 8 Steps to Kotter's Change Model (Kotter, 2015) will serve as a guide to get stakeholder buy-in, education, and implementation.

Kotter's 8 Steps Change Model (Kotter, 2015) includes:

1.Create a sense of urgency is defined as helping others understand a need for change

2. Build a guiding coalition of influential people that can guide the program

3. Form a strategic vision and initiatives with the following steps

4. Enlist a volunteer army

5. Enable action by removing barriers

6. Generate short-term wins

7. Sustain acceleration

8. Institute change

Implementation of Kangaroo Care in a Neonatal Intensive Care Unit

Implementing a program whether new or an upgrade to an existing program needs careful planning to ensure the program will have fidelity and sustainability. According to research, evidence-based practice takes an average of 17 years to be utilized in healthcare practice (Juckett, Robinson & Wengerd, 2019). Reducing the amount of time to implementation is critical to make the needed impacts in healthcare delivery. Program delivery needs to be timely, well planned, with the collaboration of all stakeholders to ensure success and sustainability. Juckett, Robinson and Wengerd (2019) recommend an implementation science research agenda to decrease the research-to-practice gap for occupational therapists to ensure their practice is backed by the latest evidence and that such an approach will enhance the standard of therapy offered by occupational therapy clinicians in all healthcare settings. The idea is to improve the effectiveness of our services to all populations that are served. There is great value and need to measuring outcomes of actual implementations to understand their effect in real-world clinical settings with real-world clients (Juckett, Robinson & Wengerd, 2019). Studies have discussed the following considerations for the success of a kangaroo care program in the neonatal intensive care unit including support from management and nursing, developing policies and procedures, nurse education, understanding family perceptions, and how to educate both nursing and families (Ludington-Hoe, 2011).

Garnering Support

Implementing a kangaroo care program in a neonatal intensive care unit requires nursing support first and foremost. If the nurse embraces the practice and believes in the benefits for the

infant, the nurse will advocate for the infant and the mother. Jones and Santamaria (2018) recommended that education be provided to nursing to garner support of kangaroo care practice in the unit. Many health professionals have a difficult time accepting that a mother's care is better than the traditional Western medicine approach (Corner, 2017). The medical team including the neonatologist, nurse manager, charge nurse, respiratory therapist, psychologist, lactation specialist as well as the occupational therapist, physical therapist, and speech therapist must all support the practice to ensure its implementation and support for parents to engage with their infants.

Policy and Implementation

Policy makers and researchers state that every neonatal intensive care unit should have written policies and procedures and management support to ensure that nursing is provided the necessary education and foundation to properly implement a kangaroo care program (Kukla & Ludington-Hoe, 2017; Ludington-Hoe, Morgan & Abouelfettoh, 2008; Moore, 2015). Lack of policies and managerial support contributes to an environment that does not consistently encourage the practice of kangaroo care. Leadership buy-in is one integral component for nurses to assist in a program's success and sustainability. Insufficient education and support to both nursing and parents were noted to be a common barrier in all of the explored studies (Kukla & Ludington-Hoe, 2017; Ludington-Hoe, Morgan & Abouelfettoh, 2008; Moore, 2015).

Education Considerations for Nursing

The World Health Organization endorses kangaroo care or skin-to-skin contact which is supported in a guidebook to practice (World Health Organization, 2003). The research supports kangaroo care as standard practice for all newborn infants especially premature infants and recognizes the need to educate nurses who will be implementing the practice. Researchers have

identified numerous considerations for the education of kangaroo care for nursing including changing perceptions, ensuring safe practice, and providing evidence-based knowledge through appropriate techniques to build confidence to practice (Kukla & Ludington-Hoe, 2017; McGowan, Naranian & Johnson, 2017). Guidelines are imperative for nursing and management to direct the timing of kangaroo care, address the environmental needs (supportive chair in a quiet area next to the baby's bed) with evidence-based training (McGowan, Naranian & Johnson, 2017). Nursing champions or team leaders provide a network of support through education and work well to spearhead a program. The nurse champions serve as a source of momentum and are a central resource (McGowan, Naranian & Johnson, 2017). Inadequate training among nursing in a single unit can create confusion which interferes with a shared understanding of kangaroo care and how to support parents (Chan, Bergelson, Smith, Skotnes & Wall, 2017).

Simulation Learning for Nursing

A neonatal nurse's knowledge base goes far beyond the required basics of an entry-level nurse. The key is understanding how to impart specialized knowledge that can be applied efficiently and safely. In a quasi-experimental study using a pre and post-test design, Letcher, Roth and Varenhorst (2017) showed that simulated learning greatly enhanced the nurse's ability to understand and apply the advanced knowledge clinically. Using small dolls in simulated teaching labs is an effective teaching technique for nursing to learn how to properly transfer a baby to the parent's chest using a standing transfer technique, which ultimately improves nurse confidence and carryover (Hendricks-Munoz & Mayers, 2014; Letcher, Roth & Varenhorst, 2017). The nurse's perceptions of the value of kangaroo care were directly correlated with increased opportunities to learn and therefore improved competency (Hendricks-Munoz & Mayers, 2014). For clarification, the standing transfer technique requires the parent to bend at

the waist over the bed and gently pick up the baby holding the head and bottom and place the baby on their chest. The nurse guides the parent and helps the parent to sit gently in a chair at the bedside.

Family Perceptions

Researchers identify the importance of using the family-centered care (FCC) tenets in kangaroo care; when parents are supported, heard, and provided information they are more likely to participate in kangaroo care. A family's perception of their experience in the neonatal intensive care unit is affected by their infant's size, how critical their infant is, and how informed and educated they feel about the condition of their infant (Blomqvist, Froland, Rubertsson, & Nyqvist, 2012). However, due to the variability of the infant's medical conditions, parent participation in kangaroo care experiences may require more psychosocial support. Parents are overwhelmed and are not expecting to welcome their infant into the world in a neonatal intensive care unit. Their emotions are elevated and require support and education to help them deal with the trauma of a premature birth. Parents need and want ongoing reassurance as they learn to care for their infant especially when they begin to kangaroo their baby (Blomqvist, Froland, Rubertsson, et al, 2012). A cross-sectional study conducted in Japan used three modified parent questionnaires to better understand the mother's perceptions of a family-centered care approach and their relationship with nursing among 31 neonatal intensive care units in Japan of mothers of infants < 32 weeks' gestation at birth (Shimizu & Mori, 2017). Three important findings were discussed. Mothers need interactive education experiences with the nurse to understand their infant's needs and the information needs to be visually appealing and at a level that is easily understood (health literacy). Second parents need to be able to visit their infant when they can and not have limited access due to restricted visitation hours. Third, the mothers need to feel that

they can trust the nurse and the information that is being taught (Shimizu & Mori, 2017). Digital delivery techniques and simulation-based education work well for a complete approach to the delivery of information for parents (Shimizu & Mori, 2017). Mother's perceptions were positive for the quality of nursing care, but some mothers did not perceive the education received to be sufficient to feel comfortable to understand their infant's needs. Zhang, Huang, Gao, Xiao-minga, Zhu, Rangasamy and Latour (2018) conducted a randomized controlled trial to evaluate the effectiveness of family-centered care (FCC) compared to standard care in a neonatal intensive care unit in Hunan, China. Both groups received the same educational sessions upon their infant's admission and in the third week, the FCC group was allowed to visit with their infant for four hours each day. Traditionally parents in China are not allowed to visit with their infant daily or for any length of time. The researchers found that parents in the FCC group experienced increased knowledge and application (Zhang, Huang, Gao, et al, 2018). Parents want and need to be involved at the bedside and encouraged to care for and understand their infants' needs; kangaroo care supports the FCC tenets of participation and information sharing.

Educating Parents

Educating parents in the neonatal intensive care unit comes with challenges that may include time constraints, parent availability, cultural differences, stress, health literacy, and learning styles (Gehl, Alter, Rider, Gunther & Russell, 2020). Parents need to be given educational opportunities to gain confidence to engage effectively with their infant and the healthcare team and help parents make appropriate health decisions for their infant (Beagley, 2011). Time constraints can be due to the limited amount of time a parent can visit or the time of day that a parent can visit which affects the availability of the parent to meet with members of the healthcare team. Many parents visit in the evening due to family or work demands which

limits their ability to interact with healthcare team members. Cultural differences must be honored and respected. The healthcare provider must keep in mind cultural differences that may impede learning or integration of the information in their daily lifestyle. Our own biases may affect our perceptions and must be kept in check (Beagley, 2011). Many parents report high levels of stress which can negatively impact learning and recall of information in any form (Gehl, Alter, Rider, et al, 2020). How we present information and learning styles must be a consideration.

Healthcare providers need to ask parents what their learning style is and modify their approach as needed. In addition to learning styles, there is the issue of health literacy which is the ability to understand the information or material presented whether verbal, demonstrated, and/or written. Many individuals can read and write for example in English but have difficulty understanding health information (Beagley, 2011). The healthcare provider needs to ask and take into consideration what type of learning style the family does best with. Is the family member a visual, auditory, or kinesthetic learner or a combination? Beagley (2011) recommends the use of multiple styles to ensure the integration of educational material. Ludwig (2019) advises the healthcare provider to clearly communicate and to not use too many words as parents may feel overwhelmed. Ludwig (2019) recommends observing the parent and note any signs that the information is just too much at once. Use videos or pictures to reinforce the information to be taught and always remember less is more. Keep words to a minimum and allow the parent to process information (Ludwig, 2019). A case report to evaluate the education process and determine the needed changes to improve the format by a therapy team in a neonatal intensive care unit proved successful (Dusing, Van Drew & Brown, 2012). Questionnaires were completed by parents and the parents expressed the need for guidance, education, and support to

understand how to assist their infant's development. (Dusing, Van Drew & Brown, 2012). The results of the case report revealed three primary strategies to engage parents and improve the quality of education; speak to parents early upon their admission to the neonatal intensive care unit, provide a variety of learning formats with numerous reviews and be consistent with information delivery. Written information helps to reinforce the material taught and provides a reference (Dusing, Van Drew & Brown, 2012).

Summary of the Literature Review

This chapter has reviewed the history and benefits of kangaroo care along with the challenges of implementation in the neonatal intensive care unit. Education for nursing and the family is a key component for a kangaroo care program and a successful program must utilize best practice strategies supported by implementation science strategies (Juckett, Robinson & Wengerd, 2019). Programs need to garner buy-in and support from all stakeholders including nursing, upper management, healthcare team members, and parents. Parents need support and education to engage in kangaroo care. Family-centered care tenets align with kangaroo care and the goals of the occupational therapist for promoting engagement and caretaking practices for each parent with their infant. Healthcare teams in neonatal intensive care units need to change and adapt to ensure a program's success. The adaptation process can be achieved with a roadmap or guide tool to keep focused and on track. Kotter's 8 Step Change Model offers a clear process to effectively bring about the needed changes and to help ensure a program's longevity and fidelity. The literature supports policies and procedures to provide guidelines for nursing and the healthcare team. Proper education and training of unit champion(s) or team leaders have been shown to work well to educate nursing staff which creates a supportive program network. Education must be offered in various formats including evidence-based

teaching, simulation training, reinforcement at the bedside, and a reference system with easy access. The evidence-based training will provide nursing a strong foundation of knowledge for implementation. Kangaroo care is a low-cost highly effective treatment that benefits both the infant and the parent simultaneously (Chan, Labar, Wall & Atun, 2016).

Chapter Three

Methodology

Kangaroo care has been well researched and shown to positively impact the small premature infants and neonates in a high stressed environment like a neonatal intensive care unit. The benefits not only affect the infant but also the parents. Kangaroo care is a cost-effective, non-invasive approach to promote better outcomes for infants that have documented benefits that last far beyond the hospital environment (Ludington-Hoe, 2013; Campbell-Yeo, Disher, Benoit & Johnston, 2015). Kangaroo care should be standard practice in all neonatal intensive care units; and is often not despite the overwhelming evidence (Ludington-Hoe, 2013). The capstone student informally surveyed nurses in the neonatal intensive care unit and discovered that many nurses had some knowledge about kangaroo care but did not feel knowledgeable enough to comfortably support kangaroo care with their patients and the parents. A review of the literature did support that a lack of a strong knowledge base among nurses did affect their comfort level to promote the practice of kangaroo care (Almutairi & Ludington-Hoe, 2016; Higman, Wallace, Law, Bartle & Blake, 2014; Deng, Zhang, Wang & Xu, 2018). The capstone student approached the family support specialist and the nurse educator to share the results of the informal survey and shared supporting literature and recommended the development of a formal education program for the nurses and parents to make kangaroo care standard practice and an option for parents and their infant's. The capstone student met with the nurse educator, family support specialist, lactation nurse, Breast Milk Committee and the neonatal intensive care unit clinical coordinator to discuss the need and to design a program to elevate the kangaroo care program through regularly scheduled meetings that began in August of 2020.

Needs Assessment

Informal questioning revealed that most nurses were not aware of the kangaroo care policy and procedures in the hospital portal. The kangaroo care policy and procedures provide specific guidelines for which infants qualify to practice kangaroo care and a brief description of the process for the nurse. Many nurses were not aware that there exists a Skin-to-Skin teaching module in Myles, an online hospital education portal. The nurses were unaware of the Skin-to-Skin video for parents on the hospital's Get-Well network that can be accessed on the televisions in the patient's rooms for the parents to view. There was a definite issue of dissemination and implementation of the information which needed to be addressed through education and behavioral change (Juckett, Robinson & Wengerd, 2019).

Project Preparation

The capstone student initially met with the family support specialist in the spring of 2020 to understand how the kangaroo care program was doing and if the family support specialist felt there were any needs to help the program grow. The family support specialist does speak to parents about the benefits of kangaroo care. The parents have expressed interest but often the nurses do not follow through and support them. The family support specialist described past incentives to motivate the nurses and parents including gifts or raffles for the most kangaroo care sessions in a week. The family support specialist organized a parent activity group as well as recognition of National Kangaroo Awareness Day (October 24th) and International Kangaroo Awareness Day (May 15th). The momentum that was created by these wonderful incentives dies down quickly and does not appear to sustain the practice of kangaroo care on a regular basis.

The capstone student spoke to Dr. Susan Ludington-Hoe, a nurse researcher at Case Western University in Cleveland, Ohio. Dr. Ludington-Hoe conducts research surrounding the

use of kangaroo care and its effect on infants. She was the founding member of the United States Institute for Kangaroo Care and has been the principal educator for the certification course for health care professionals. In a phone conversation, the capstone student asked if there were going to be any certification courses scheduled for 2020 or 2021. Dr. Ludington-Hoe indicated that there will not be any courses slated for 2020 or 2021 (personal conversation, July 2, 2020). Dr. Ludington-Hoe has contributed so much to the recognition and practice of kangaroo care here in the United States and internationally through her research, writings, and teachings. Dr. Ludington-Hoe attempted to arrange residency hours for the capstone student, but due to the Covid 19 pandemic restrictions the opportunity was not possible.

The capstone student met with the nurse educator twice in August of 2020 and discussed concerns that kangaroo care was not standard practice in the unit. The capstone student was careful to praise the work of the family support specialist and nurse educator in promoting kangaroo care. The capstone student cited the literature that clearly states that kangaroo care should be standard practice, but often there are barriers to practice due to a lack of proper education to nurses. The nurse educator initially did not believe that there was an issue but when the capstone student again cited the literature and summarized the results from informal questioning of the nurses the nurse educator conducted a meeting with the Breast Milk Committee to discuss the capstone student's concerns.

At the Breast Milk Committee meeting, the capstone student recognized the work of the family support specialist and nurse educator but cited the literature and the nurse comments as to possible reasons that kangaroo care was still not standard practice in the unit. The capstone student shared that the literature indicates that most kangaroo care programs flounder if the nurses are not given support from management and educated effectively. The Breast Milk

Committee understood the need but was not able to take on another project. The nurse educator assigned the Clinical Committee to be the team leaders for the kangaroo care project. The chair of the Clinical Committee, who also functions as the neonatal intensive care unit clinical coordinator expressed enthusiasm and support. The team leaders will provide a support system and a resource to their peers. The Clinical Committee was committed to make kangaroo care standard practice.

At the first Clinical Committee meeting, the nurses expressed their perceptions of kangaroo care and one of the nurses made a noteworthy comment. The comment that was made was that kangaroo care was offered to parents for palliative care and should not be used as standard practice. Another comment was that the nurses do not feel confident nor understand how to properly transfer a baby safely. It was evident that there was a gap in education and understanding proper transfer techniques. Meetings with the Clinical Committee occurred every two to three weeks for five months to discuss program development and implementation strategies. Deadlines were set to keep the committee on track and moving forward. The lactation consultant took a lead role in conducting some of the meetings when the nurse educator could not attend, and minutes were taken to keep everyone up to date and informed.

Education to nursing and the parents was key to implementing an evidence-based kangaroo care program. Education must be in various forms to be effective and stakeholder buy-in is a must to create a shift and behavioral change to embrace kangaroo care as standard practice (Kukla & Ludington-Hoe, 2017; McGowan, Naranian & Johnson, 2017). Kotter's 8 Steps Change Model provided a roadmap for the capstone student to effectively implement a program in this neonatal intensive care unit and would work for other neonatal units within another organization.

Program Design

Kotter's Model

Kotter's 8 Steps Change Model (Appelbaum, Habashy, Malo, & Shafiq, 2012; Kotter, 2015) provided a guide to overcome barriers, create a cultural change, secure stakeholder buy-in, team building, establish a vision and sustainability. Kangaroo care was considered standard practice and was offered to all parents whose infants met the established criteria. The hospital policy and procedures for kangaroo care were recognized and utilized. The steps were applied to the unit and a summary follows to describe the process as it was applied to the unit.

Create a sense of urgency has been defined as helping others understand the need for change. The capstone student created a sense of urgency with the nurse educator. After meeting with the nurse educator and explaining the perceptions of the nurses regarding kangaroo care and the supporting literature, the nurse educator arranged a meeting with the Breast Milk Committee. The members of the Breast Milk Committee include the nurse educator, nurse manager, lactation consultant, discharge nurse coordinator, family support specialist, and the chair of the Clinical Committee. At the meeting, the capstone student presented evidence-based literature on why kangaroo care should be standard practice and offered to all appropriate patients and their families within the neonatal intensive care unit. The benefits to the patient and parent were discussed including the importance of encouraging caretaking skills and parent engagement. When parents are engaged the discharge to home is less stressful.

Build a guiding coalition is a collection of influential people that can guide a program. The nurse educator stated that the Clinical Committee had not identified a project for the year. The chair for the Clinical Committee was at work the day of the meeting and joined in. The Clinical Committee chair was receptive to become a part of the kangaroo care program. The

Clinical Committee nurses would be the unit's team leaders. The team leaders are composed of nurses from the day and night shifts and served as resource persons for the nurses.

Form a strategic vision and initiative with the Clinical Committee. The capstone student met with the Clinical Committee to discuss the educational components for the program for staff and parents. The capstone student presented a voice-over PowerPoint about kangaroo care and a video on the exact steps to do a standing transfer to the Clinical Committee (team leaders). The teaching format utilized an evidence-based education approach to enhance learning styles. The team leaders reviewed the hospital policy and procedures for kangaroo care, completed the Skin-to-Skin module available in Myles, the hospital's education portal, and watched the kangaroo care video on the Get-Well Network. The Get-Well Network contains educational videos for parents to view in their rooms. During the simulation portion of the in-service lead by the capstone student, the team leaders practiced how to safely complete a standing transfer, learned what to watch for in the infant's vital signs, gained an understanding of how long parents should hold their infants and how to utilize other team members within the unit. The team leaders were teachers, mentors and supported their peers in practicing kangaroo care which was a start to slowly change the culture of the unit. The team leaders used a Team Leaders Checklist (Appendix F) provided by the capstone student to cover all the necessary teaching components to ensure consistency and fidelity across the unit. Follow-up meetings were scheduled every three weeks to ensure program fidelity and then once a month.

Enlist a volunteer army was the goal of the team leaders. They will be the driving force of change and will be supported by the nurse educator, nurse manager, lactation consultant, discharge nurse, family support specialist, nurse managers, and the capstone student.

Enable action by removing barriers was integral for the kangaroo care program's success. The literature delineated the barriers which included education, lack of clear guidelines, and lack of support. The above-delineated approach addressed the barriers. Support was sustained with monthly meetings of the Clinical Committee to make needed changes and adjustments as they arose as well as honor the successes. The managers and committee members were updated through minutes from the meetings or updates via a group text.

Generate short-term wins was important to keep the program viable. The family support specialist had held kangaroo care-a-thons in the past. Raffles worked well as motivators and elevated the spirit of everyone. The calendar log in the patient's rooms worked to motivate parents. Each time the parent practiced kangaroo care with their infant the parent marked their calendar. The calendar was a visual reminder and reinforcer for the parents. Another consideration was to post a list of the team leaders in the nurse's lounge for reference and to recognize the nurses that completed their peer training. The monthly nurse staff meetings were ideal to report the number of kangaroo care practices for the month and any special experiences.

Sustain acceleration or sustain the positive changes was integral for the program to continue. The capstone student conversed with the lactation consultant who embraces kangaroo care from a breastfeeding perspective and breast milk production. The lactation consultant was invested in growing the program. When she met with families, she mentioned how kangaroo care helps increase milk production. The family support specialist reinforced kangaroo care by reviewing the benefits and referred the parents to the kangaroo care poster hanging in the room. The poster was visible with the detailed benefits for the infant and the parents which encouraged dialogue among the parents, nurses, and staff. The number of kangaroo care practices was gathered for three months before the in-services and then after the in-services to compare the

numbers. The numbers should go up and the positive changes were celebrated among the team leaders, nursing, the family support specialist, lactation consultant, and management. Photos of the kangaroo care team leaders were posted in the nurse's lounge to highlight kangaroo care and increase program awareness. Successes helped to motivate and sustain the program.

Institute change must make sure that all components for the change worked. The Clinical Committee meetings allowed for a review of the process and any needed changes that needed to be made were discussed and addressed. The capstone student along with the Clinical Committee ensured that all components to the change to support a kangaroo care program were reviewed and modified as needed. The team leaders did make a difference and were rewarded for their efforts by the nurse managers. Parent satisfaction and increases in the number of practices did help to propel the program and keep the momentum moving forward for sustainability. The key was effective educational approaches, which did have an impact and trickle-down effect to gradually change behaviors and the culture.

Implementation Science

Implementation science studies different aspects of implementation to ascertain which implementation approaches are most effective. There are three broad steps in evidence-based implementation which include: a process model, understand each step of the process model, and align the theories, other process models, and frameworks to each component of your chosen process model that align with the function of each component (The Center for Implementation: Inspiring Change 2.0, 2020). It was key to understand what the best way was to disseminate information for best approaches to implementation as the literature indicated a 17-year gap or only 14% of research was being used in health care practice. In the case of the kangaroo care program, the answer was to understand what methods would work to convey and teach kangaroo

care to the nurses and the parents of the infants in the neonatal unit (Juckett, Robonson & Wengerd, 2019). Nilsen (2015) recommended the use of theories, models, and frameworks to have the most impact in conveying best-practice and knowledge. The design of this kangaroo care project used theories, models, and frameworks as a guide and roadmap. Information was disseminated to nursing by the following: in-services, a simulation lab, and a kangaroo care video which was made available to view on their own time using a QR code. The simulation lab has been shown in the literature to make a big impact on comfort level and the quick use of the knowledge at the bedside (Letcher, Roth & Varenhorst, 2017). If we look at the components that are involved in behavioral change in the COM-B Model the writer was able to envision how each component affected the other to change behavior (West & Michie, 2020; Michie, Atkins & West, 2014).

COM-B Model

The C stands for capability, the O stands for opportunity, the M represents motivation, and the B is behavior. Capability, opportunity, and motivation were interdependent in that each one affects the other positively or negatively which was reflected in the behavioral outcome. The COM-B Model of behavior stated that an individual will engage in one particular behavior at a given moment when the individual has the capability and opportunity to participate and was motivated to do so. When the COM-B Model was applied to the kangaroo care program it resembled something like this. The capability was improved among nurses with increased knowledge which increased the opportunity to practice kangaroo care with their patients due to increased confidence. One successful experience reinforced their capability which increased their motivation to promote kangaroo care. All three components of the model were interdependent and affected behavior, which was important to consider in the development of the

program (West & Michie, 2020; Michie, Atkins & West, 2014). For the kangaroo care program, the nurse with the most kangaroo care sessions during a week's time was given a weekend off ("hop- off") for the month as approved by the unit manager. The hop-off incentive will be given once every quarter to serve as a recognition and support to the kangaroo care program. Updates to the program were posted in the nurses' lounge by the Clinical Committee which included pictures and monthly accolades for all staff to see.

Procedure of the Project

Program Description and Process

The program description and process were how the program was organized and who the program served. The following description was the education process that was provided to the nurses. Seven team leaders were recruited from the Clinical Committee and attended an in-service presented by the capstone student. The in-service included a voice-over PowerPoint and a simulation lab to practice a standing transfer. The in-service was completed with the team leaders and the respiratory therapists. The respiratory therapists needed to understand the standing transfer to ensure the safety of intubated patients and those on supplemental oxygen. The capstone student provided an in-service via voice-over PowerPoint for the rest of the neonatal nursing staff, on both day and night shifts. The capstone student presented the voice-over PowerPoint at various times of the day over a week's duration to catch as many of the bedside nursing staff as possible. To launch the program in an organized manner all components for education were ready at the same time. Team leaders educated and supported their peers as opportunities presented themselves. Each team leader was assigned a list of peers to review and go over proper preparation and transfer techniques. Team leaders checked on their assigned peers over a two-week period after the initial in-servicing to see how they were doing and answer

any questions. Team leaders met as the Clinical Committee along with the nurse educator, lactation consultant, family support specialist, and the capstone student and reviewed the process and discussed any needed changes.

Educational Materials

The in-service was provided to the team leaders, respiratory therapy and the nursing staff by the capstone student (Letcher, Roth & Varenhorst, 2017). The team leaders were a resource to the staff and provided support to their peers. To launch the program in an organized fashion the learning materials for the nursing staff, respiratory therapy, and parents rolled out at the same time the in-services and team leader checkoffs begin. The SOAR checklist located in the SOAR resource binder in the middle pod of the unit was available to all of nursing. A SOAR (Solving, Opportunity, Attitude, Responsibility) document (Appendix B) is a one-page document on how to do a procedure. The Kangaroo Care SOAR document served as a resource for nursing and staff in case there were questions, and a team leader was not available. The materials used for parents included the poster, the calendar and the do not disturb sign which were all reviewed by the family support specialist and the clinical committee. The family support specialist ensured that the material was clear, family-friendly, and met health literacy standards. The educational materials were designed to create opportunities for parents to engage with their infant which aligned with family-centered care (Craig, Glick, Phillips, Hall, Smith & Browne, 2015; Davidson, Long, Hart, Wickline, Kentish-Barnes, Coombs, Franck, Kon, Harvey, Swoboda & Levy 2017). The kangaroo care poster (Appendix C) was posted in easy view in each room for the parents. The poster had an English side and a Spanish side which listed the benefits to both the infant and the parent. The poster encouraged parents to ask questions and promoted a dialogue between the parents and the team. A calendar (Appendix D) was given by the family

support specialist for parents to be able to mark when they practiced kangaroo care which reinforced their efforts and was a visual reminder. Kangaroo care do not disturb signs (Appendix E) were available for nurses to post outside their patient's room to ensure undisturbed time with the infant. Each team leader referred to a Team Leaders Checklist (Appendix F) to ensure consistency and fidelity to the program. All of the educational materials created a comprehensive and consistent approach to the dissemination of educational information.

Outcome Measurements

Quantitative Method -Pre and Post Education Survey

An anonymous online survey was sent to the work emails of the neonatal nurses via Survey Monkey. The survey included thirteen questions to examine the nurse's knowledge of kangaroo care history and practice before the education in-services began and was to be administered after the in-service to assess the impact of the education. The survey questions included questions about where and why kangaroo care began, the benefits, what type of patients would benefit, and what was the best way to transfer an infant safely. Please see Appendix G for the survey.

Quantitative Method – Kangaroo Care Inservice Course Evaluation

An in-service course evaluation was given after the voice-over PowerPoint education to assess if the environment was conducive to learning, did the capstone student appear knowledgeable, was the information relevant to the nurses' practice and would the information be implemented in the nurse's practice. Please see Appendix I. The quantitative objective information and the informal comments were used to tweak the in-service to meet the needs of the nurses.

Quantitative Method - Nursing Documentation of Kangaroo Care in the Chart

The nurses were instructed to document skin-to-skin in the electronic medical record when a parent performs kangaroo care with their infant. The goal and hope were that the number of kangaroo care practices increased due to the education. The capstone student was able to recruit assistance from Quality & Safety within the hospital to pull up the monthly numbers which were translated into percentages of infants that practiced kangaroo care among the census at the time for the last three months of 2020 and the first three months of 2021. The goal was to see an increase in the number of kangaroo care practices in the unit.

Analysis

An outcome evaluation measures a program's results. Did the program education increase kangaroo care practice in the neonatal intensive care unit? Did the program produce the needed change in nursing confidence to support parents to practice kangaroo care and if not then why? The capstone student wanted to document if the overall number of kangaroo care sessions increased from month to month comparing three months before the education and three months after the education. In the case of the kangaroo care program, consideration might be related to the amount or form of education provided to nursing and support provided to the parents (Patton, 2012). The data was extrapolated from the charts with the help of L. Alfonso from Quality & Safety who was able to access the percentage of kangaroo care sessions completed per month for the unit. In addition, the impact of education for nursing was evaluated using the kangaroo care implementation survey sent to the nurses via email using the basic survey monkey platform. Please see Appendix J. The implementation survey provided objective feedback on the impact of the in-service to increase the confidence of nurses to promote

kangaroo care, to increase the practice, and for nurses to confidently dialogue with parents on the background and benefits. The capstone student received guidance from the faculty advisor.

The findings from the surveys and feedback were utilized to modify the program for sustainability and impact. The surveys and feedback provided a wonderful opportunity to examine the stakeholder influence and input and how each team member brought about the needed support and change to grow the program to meet the needs of the population of patients and parents served. Kangaroo care has proven to be a powerful therapeutic tool with a strong foundation in evidence that is not expensive and has tremendous benefits to the infant and the parent (Ludington-Hoe, 2013). The efforts to evaluate and grow the program were appreciated. The evaluation questions offered the opportunity to examine the program's impact on increasing the practice of kangaroo care and decreasing the anxiety surrounding the practice among nursing, respiratory therapy, physicians, parents, and other team members. A strong unified approach to the care and treatment of small premature infants and sick neonates has tremendous benefits to both staff and patients (Cho, Kim, Kwon, Cho, Kim, Jun & Lee, 2016). The neonatal intensive care unit has and will continue to be a very specialized area of practice that warrants every effort to bring the best in program development.

Chapter Four

Results

The following chapter will discuss the results of the kangaroo care program implemented in the neonatal intensive care unit. The realities and challenges that were faced will be delineated. Preparation for the kangaroo care program was carefully researched, collaborated and a dissemination process was developed by the capstone student with the support of the Clinical Committee and nursing leaders for a quality improvement program enhancement. Care was taken to ensure best practice to educate nursing and staff for a sustainable program. Despite all the planning and preparation, there were modifications and barriers encountered including time constraints on team leaders, staffing schedules, and the ability of team leaders to formally check off their peers for observed kangaroo care sessions. Also, the hesitation of respiratory therapy to assist in the transfer of intubated infants was brought out during informal feedback from nursing after the voice-over PowerPoint presentations. The in-service process to educate the team leaders and the bedside nurses by the capstone student was well received and the feedback valuable. Specifics of the education process, barriers, and feedback will be discussed.

Review of Program Procedures

Education Process

In-service to Team Leaders - The capstone student educated seven team leaders who were from the Clinical Committee on two days in February 2021 accommodating their demanding schedules. The team leaders functioned as a resource pool and a driving force to promote and support kangaroo care. Educating the team leaders was not difficult as the numbers were small and there was initial vested interest from the start. A total of two in-services were held which included a voice-over PowerPoint and a simulation lab. The PowerPoint was

presented with the voice-over as prepared by the capstone student to adhered to a time frame and ensured that the same information was consistently presented. Comments and informal feedback occurred after each session. Minor adjustments were made to the voice-over PowerPoint by the capstone student based on comments from the team leaders. The comments were utilized to tweak the voice-over PowerPoint and the capstone student expressed appreciation for their comments, feedback, and support. The team leaders were given a Team Leaders Checklist to use with their peers to make sure that they covered the important points of the background, benefits, and standing transfer techniques with their peers.

The simulation lab proved to be constructive in teaching a standing transfer. The nurses practiced a standing transfer with an intubated baby doll as well as practiced being the extra nurse to assist the primary nurse in a standing transfer. The nurses simulated the standing transfer and role played which promoted a dialogue that was engaging and thought-provoking. The nurses exchanged past experiences with each other and shared ways that proved helpful when dealing with patients and parents. The simulation lab was an avenue to physically practice a standing transfer and to problem solve issues that may arise. During the simulation lab, the nurses indicated that respiratory therapy did not feel comfortable assisting with transfers of intubated infants and often refused to assist despite the hospital's written policy that requires respiratory therapy to assist in the transfer of all intubated infants for kangaroo care. The capstone student then approached the nurse educator to reach out to the manager of the respiratory therapy department to set up an in-service to educate the respiratory therapists.

In-service to Bedside Nursing - Education to the bedside nurses including the day and night shift did pose a challenge due to schedules, time constraints, and patient caseloads. Between day and night shift a total of six in-services were conducted at times recommended by

the nurse educator and nurse managers. A flyer was posted several days in advance in the nurses' lounge, and the bathrooms in the unit to inform the nurses and encourage attendance. An announcement was made in the nursing huddle at the beginning of the nurses' shift to remind the nurses of the in-services. The in-services were offered from 3 pm to 4 pm for days and 10:30 pm to 11:00 pm for night shift a couple of days of the week hoping to catch as many nurses as possible. The in-service was offered twice in the hour. The initial plan to use the hospital-made video to show a standing transfer was not feasible due to time during the in-service session but a QR code was available for the nurses to then watch the video on their own time. The in-services were held in a centrally located conference room located within the unit. The PowerPoint was presented with voice-over audio as prepared by the capstone student. Questions were answered at the end of the presentation and time was allotted for feedback and comments. The nurses appeared to appreciate the care taken to keep the in-service concise. Snacks were provided by the capstone student to create a welcoming and relaxed atmosphere.

In-service Attendance

Participation and attendance to the in-service were affected by the efforts of the capstone student and the nurse managers to inform, round up, and recruit nurses to attend. The initial plan was to announce the in-services on leaflets hung up in the nurse's lounge and staff bathrooms. An announcement was made at the team huddles at the start of their shifts. The first-day shift in-service was attended by the music therapist, child life specialist, and nurse practitioner. The capstone student was puzzled by the low attendance. Possible reasons for low attendance were due to the caseload and what was going on with the patients and their particular needs at that time. The capstone student did speak to the lactation consultant and the lactation consultant told the capstone student to walk around the unit to encourage the nurses to attend. The first evening

in-service was attended by eight nurses, the night charge nurse, and the night nurse manager. The night nurse manager announced the in-service at the huddle at the beginning of the night shift and went around the unit about a half-hour before the scheduled time to remind the nurses. The second day-shift in-service had a total of 14 nurses. The capstone student conducted two in-services within the hour. The night-shift in-services had a total of 18 nurses including both night nurse managers and were also offered the same way of two in-services within the hour. The capstone student found that walking the pods of the unit and passing out a copy of the flyer that was posted in the nurse's lounge and the bathrooms proved to increase attendance. Keeping the presentation to 20 minutes allowed the capstone student to show the in-service twice an hour.

Program Roll Out

Initially, the family support specialist and the nurse educator wanted to roll out the program a bit earlier, but the capstone student wanted to wait until the kangaroo care information posters and calendars arrived so that all the components that had been developed for the program would be implemented at the same time which would have a greater impact for all involved. The family support specialist organized a kangaroo care-a-thon week to motivate staff and parents. A large kangaroo cut-out was put up in the parent's lounge encircled with facts on the benefits of kangaroo care including increased weight gain, increased breast milk production, and increased brain growth to name a few. The laminated kangaroo care posters were put up in each room and kangaroo care calendars were made available for each family to log their sessions. The nurses reminded parents to watch the kangaroo care video on the hospital's Get-Well Network before parents held their infants. The SOAR document was a useful reference for nurses if they needed to look up the process to safely perform/carry out kangaroo care. The raffle for the nurses served to motivate them to encourage their patients and families to practice kangaroo care. For every

kangaroo care session, the nurse put their name in the raffle jar for a drawing to win a weekend off for the month – "Hop the Weekend Off". The drawing would take place at the end of the kangaroo care-a-thon and the plan moving forward was to have a drawing once a quarter. During the huddle, at the beginning of the week, the nurses were reminded to support kangaroo care and to point to the benefits on the kangaroo care posters. A raffle for the parents was also organized by the family support specialist. The drawing would occur at the end of the kangaroo care-a-thon week for a $50 gift certificate to an area restaurant.

Theory Considerations Related to the Program

Kotter's Model

Kotter's 8 Step Change Model (Appelbaum, Habashy, Malo & Shafiq, 2012; Kotter, 2015) was an ideal model to guide the process to develop and implement the kangaroo care program. The writer will highlight several of the steps as they stood out during the process including create a sense of urgency, sustain acceleration, institute change, and build a guiding coalition. If we look **at create a sense of urgency**, the capstone student identified a need and supported the need with evidence from the literature. The capstone student was able to dialogue with the nurse educator, family support specialist, and staff to understand that there was a need to elevate the kangaroo care program to meet best practice to serve the patients and families of the unit. The need to get families involved from the beginning aligns with family-centered care and engagement which is an important component for occupational therapy and best practice in the neonatal intensive care unit. The capstone student approached the program from the foundations in occupational therapy of parent engagement and caretaking skills to the team, but each member of the team played a key role. The sense of urgency was well received and embraced as noted by the dedication in time and effort to elevate the program by all involved.

Sustain acceleration or sustain the positive change can only be achieved with stakeholder buy-in and investment. The family support specialist and the lactation consultant both embraced and supported kangaroo care daily in their interactions with families. The lactation consultant utilized the benefits of kangaroo care to promote breast milk production. When speaking to families the lactation consultant mentioned kangaroo care and reviewed the benefits. The family support specialist talked about kangaroo care to encourage the family's engagement with their infant. Kangaroo care is an ideal scenario for parents to get involved in the care of their infant and the benefits to the infant and the parent emphasized. Understanding the impact and importance that kangaroo care provides gives a foundation to sustain the program. Buy-in and support by stakeholders is critical. The nurses, nurse managers, and nurse leaders are all integral to the kangaroo care program's continued practice and their buy-in from the beginning has been valuable. The capstone student believes that the kangaroo care program is being viewed as a quality improvement project for the unit by nursing administration.

The component **of institute change** was evident throughout the program's development and roll-out. The nurse educator realized after the capstone student pointed out that nursing was not practicing and supporting kangaroo care due to education needs that a new approach needed to be embraced to increase kangaroo care practice. During meetings with the Clinical Committee changes were made as needed to initial plans to provide a comprehensive program to meet the needs of the patients and their parents. Following the in-services, the capstone student was given informal feedback which was utilized to tweak the voice-over PowerPoint. Nursing wanted to know was kangaroo care only exclusive to premature infants and the answer is "no", so that point was added to the voice-over PowerPoint. Nursing indicated that certain respiratory therapists would not assist with intubated patients despite a hospital policy and procedure. The

issue was brought to the attention of the nurse educator by the capstone student. The nurse educator and capstone student are in communication with the head of the respiratory therapy department to arrange in-services to educate and review the hospital policy and provide the same in-service taught by the capstone student to nursing. If a program can change as the needs present themselves but stay consistent sustainability can be achieved. The importance of valuing input from everyone involved in a program cannot be emphasized enough. Changes do not necessarily need to be made each time but an open and welcoming atmosphere to dialogue must be available to all involved (Appelbaum, Habashy, Malo & Shafiq, 2012; Kotter, 2015). Therefore, it was important to have follow-up meetings initially every two to three weeks and then monthly moving forward.

Build a guiding coalition is a collection of influential people that can guide a program as was described in chapter three. The capstone student has had a long-standing relationship with nursing and nurse management in the unit as a clinician but not as a program manager. The capstone student did come to realize that maintaining control of a program was not an easy task. Navigating roles as a program manager does take diplomacy and requires setting boundaries. The capstone student believes that the program might have been submitted as a quality improvement project for the nurse manager or nurse educator of the unit and so there was an alternative invested interest in the program and possible deadlines. Where the loss of control affected a component of the program was with the initial survey questionnaire that was sent out to the nurses in the unit via Survey Monkey. The questionnaire had 13 questions and 4 of them were open-ended questions that were difficult to score and did not fit into a t-test design. The survey was sent out by the nurse educator before the capstone student was able to review the questionnaire with the faculty advisor. Therefore, the survey could not be used as originally

intended (a paired t-test or a two-sample t-test) but instead was used to provide valuable information about the baseline knowledge among the nurses which assisted in the development of the educational content of the in-service.

Implementation Science – COM-B Model

There is an understanding that small successes lead to increased success and a willingness to try again. Among all of the salient components of the COM-B Model that stand out with this project are knowledge, social/professional role and identity, goals, and reinforcement. Knowledge was addressed by offering in-services to improve the level of understanding about kangaroo care among nursing staff thus increasing confidence in their ability to safely support their patients and families to practice kangaroo care. Knowledge supports and strengthens one's capabilities which was the primary goal of the in-service education provided to the nurses and was supported in the literature (Kukla & Ludington-Hoe, 2017; Penn, 2015). The capstone student had social capital in the neonatal unit due to the 30 plus years of practice, prior educational projects, and the professional roles and relationships established. The nurses respected and embraced the capstone student as a valued member of the team (professional role) which was appreciated but did pose a difficult balance between peer engagement and program leader. The capstone student did not realize it at the moment but during the development and implementation phase, the capstone student struggled to get full ownership of the program as the nurse leaders viewed the capstone student, not as a team leader but a peer developing a program. The nurse leaders had their own agenda or goals at times and did not realize that the capstone student was in a leadership role with program-specific *goals* and was trying to lead the direction of the program. The capstone student must learn to set boundaries and not hesitate to take the lead role in the program. The capstone student

understands that the nurse leaders did not intentionally take the lead as it is not easy to leave preconceived ideas and transition to new roles. The process shed light through the first-hand experience which will be taken into account for future projects. The reinforcement component of motivation in the model points to two areas of the program. There is reinforcement when success occurs among the nurse's experiences with kangaroo care and the components put into place to sustain the program and keep the nurses motivated. The components include the kangaroo care calendar that parents can use to track their kangaroo care sessions, the posters in the rooms in the rooms, and the "Hop the Weekend Off" offered once a quarter for nurses. All of these components were implemented to keep the program sustainable and available to the infants and parents that are cared for in the unit.

Quantitative Survey Results

Initial Survey Questions

The initial survey that was sent out via Survey Monkey was slated to be used pre- and post-in-service to assess pre-in-service knowledge and to ascertain if the in-service increased confidence to practice kangaroo care and increased the practice of kangaroo care. There was a miscommunication between the capstone student and the nurse educator. Therefore, upon discussion with the faculty advisor, the following revisions were made. The initial survey was used to understand what the educational needs were for the in-service. The survey was sent out to 102 neonatal nurses and 31 surveys were returned. The majority of the True/False and Yes/No questions were answered correctly but two questions stood out to the capstone student as significant to include in the in-service content. The first question addressed the recommended length of time to hold an infant in kangaroo care and the other question asked what the recommended technique was to safely transfer an infant to their parent's chest for kangaroo care.

In-service Evaluation

The Kangaroo Care Course Evaluation consisted of 5-questions that were asked right after all of the in-service presentations. Please see Appendix I. The results of the survey were all 5s, which was the highest satisfaction rating. The survey asked about the environment, speaker knowledge, professional presentation, and was the knowledge applicable and relevant to their practice. The capstone student was pleased to receive a very positive response to the in-service.

Implementation Survey

The implementation survey was sent out mid-March to all of the nurses that attended the in-service via Survey Monkey. Please see Appendix J. The purpose of the implementation survey was to assess if the education provided increased their understanding of kangaroo care and the benefits. Did the education provided give the nurses the confidence they needed to assist families to safely carry out kangaroo care using a standing transfer and facilitate the nurse's ability to educate families about the benefits of kangaroo care? The implementation survey revealed percentage scores of 71 to 76% for strongly agree for improved confidence, a robust understanding of the value of kangaroo care, increased confidence, and the ability to speak to the benefits with their patients' families. The percentages are favorable to indicate that the capstone student's education design for kangaroo care positively impacted nursing practice in the unit.

Implementation Survey Results

Question	Total Responses	Strongly Agree	Agree	Disagree	Strongly Disagree
After the voice-over PowerPoint presentation, I am confident that I can safely assist a family in a standing transfer.	21	71.34%	28.57%	0.00%	0.00%
I have a robust understanding of the developmental value of kangaroo care for our population served in the unit.	21	71.43%	28.57%	0.00%	0.00%
After the voice-over PowerPoint presentation, I feel more confident to practice kangaroo care with any of my patients and their family.	21	76.19%	23.81%	0.00%	0.00%
Following the voice-over PowerPoint presentation, I am confident I can explain kangaroo care (purpose and benefits) using parent friendly language.	21	71.43%	28.57%	0.00%	0.00%

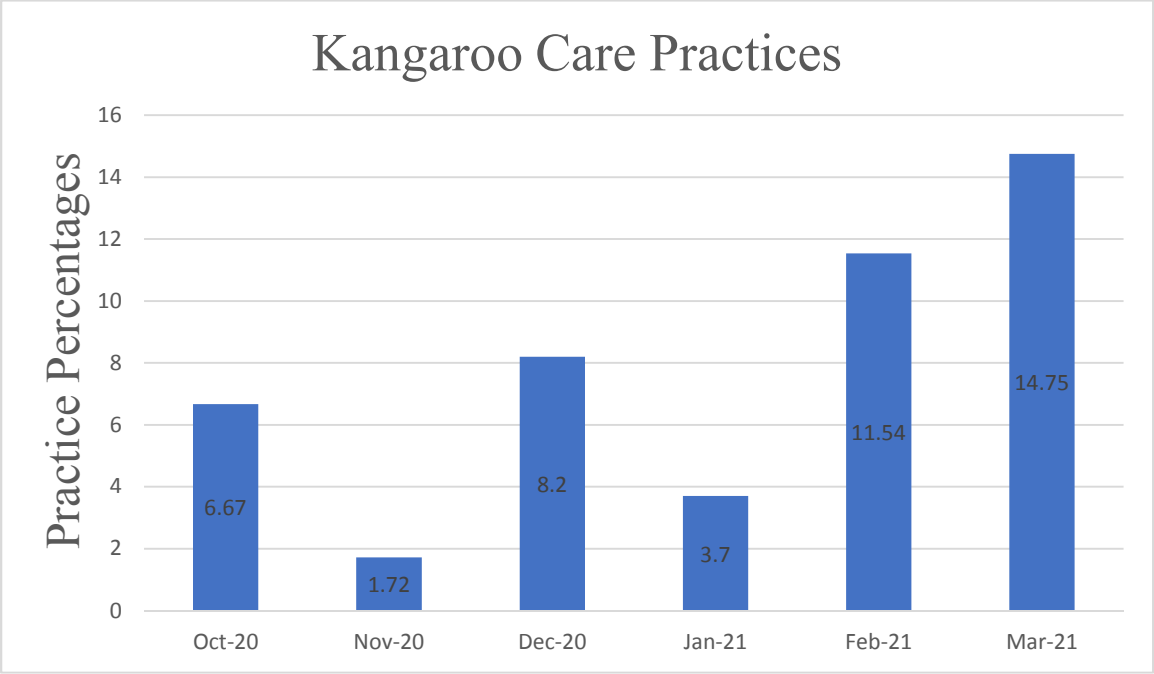
Documented Kangaroo Care Session from the Chart

The nurse's chart and document when a parent does a kangaroo session with their infant. The charting was an ideal way to assess if the percentage of kangaroo care sessions increased due to the education provided to nursing. Data was extrapolated from the patient's charts anonymously by the Quality & Safety department from October 2020 to March 2021. The percentages were gathered for each month. The data would allow for the capstone student to see if the percentages increased, stayed the same, or went down. The following chart shows the percentage of kangaroo care practices per month within the unit as documented by nursing in the patient's chart. The data was collected without identifying individual patients by name. Table 1 below shows the trend in kangaroo care practices from October 2020 to March 2021. The education to the nurses was offered in the early part of February. The biggest change in

kangaroo care practices is noted in February to March of 2021 which was after the kangaroo care education to the team leaders and bedside nursing. The education does appear to have increased the number of kangaroo care practices within the neonatal unit. The goal for the program was for a 50% increase in kangaroo care practices but possibly the 50% increase was unrealistic for the acuity of diagnoses that the unit services. The other possibility may be that the nurses are not consistently documenting skin-to-skin practices in the chart but when informally questioned the nurses indicated that documenting procedures was very important. Regardless, the increase in practices is notable and an indication that the education provided to the nurses did impact the number of kangaroo care practices.

Table 1

The Percentage of Kangaroo Care Practices Per Month



Identified Barriers

Two categories of barriers became apparent during the roll-out of the program: educational resources and role constraints. The lack of awareness of educational resources includes the kangaroo care video on the hospital television portal for families (Get-Well Network) and the Skin-to-Skin module on the hospital portal for nursing education. Role constraints were affected by the caseload, poor cooperation of respiratory therapy clinicians, and the team leader check-off list that was not feasible to use. Many of the nurses commented during the in-service that they were not aware of a kangaroo care video for parents on the hospital television portal. The capstone student suggested that the nurses have the parents watch the 2-minute video before a kangaroo care session which would be easy to do and would help to educate the parents. The Skin-to-Skin module in the hospital education portal was also not known to the nurses. The module takes about an hour to complete and the staff member can earn a 1.0 education credit. The module serves as an additional resource and reinforces the importance of kangaroo care. When considering role and job concerns; time constraints affected two aspects of the program for nurses. When the capstone student came to present the in-service, some of the nurses were not able to attend due to time constraints related to caring for their patients and administering treatments on time or issues came up at the last minute which then did not allow them to leave the bedside to attend the 20-minute in-service. Some caseloads were too acute to allow the nurse to leave the bedside. Even advanced planning cannot supersede patient care. There was one respiratory therapist from the day shift and one from the night shift that did attend. Their attendance was appreciated by nursing and prompted a conversation about expectations and apprehensions surrounding the transfer of intubated infants. The issue of respiratory therapy refusing to help transfer a stable intubated infant was discussed by several

nurses and prompted the capstone student to discuss with the nurse educator. The capstone student was put in touch with the respiratory therapy department educator and arrangements will be made to educate respiratory therapy. The team leader's check-off list which was designed to ensure that each team leader covered key points of kangaroo care benefits and how to safely conduct a standing transfer was a good idea on paper, but schedules and time factors hindered its original use. At a Clinical Committee meeting, the team leaders indicated that scheduling and time needed to go through the checklist was not realistic at the bedside. While the intentions were well-meaning by the capstone student and the nurse's intentions were supportive the ability to go through a checklist with assigned peers was not feasible.

Facilitators

The capstone student did have facilitators to help in the support, design, and implementation of the kangaroo care program. The program was supported by the capstone student's long-standing relationship with nurse leadership, staff, and the Clinical Committee. The bedside nurses have respect for the capstone student's clinical expertise as an occupational therapist. A relationship built on mutual respect carries a lot of weight in the success of implementing a program. The capstone student has social capital and is a valued member of the unit. The timing was perfect to involve the Clinical Committee and they were motivated to participate in a project that would allow them to become involved in a quality improvement project and become team leaders to elevate a program proven to positively impact infants and their parents. The nurse manager, nurse educator, and lactation consultant also saw the program as a quality improvement project that the hospital highly regards for bench marking. The nurse leaders realized that a kangaroo care quality improvement project would enhance the stature of the neonatal intensive care unit and was best practice for a level IV neonatal unit.

Conclusion

The capstone student has reflected on the process involved in the development and implementation of the kangaroo care program with appreciation and an increased understanding of how reality is through "doing" (Doble & Santha, 2008). Going through the process gave the capstone student a realistic experience of program design and implementation. What is on paper is not what always works in real life. The capstone student was fortunate to be able to collaborate with the nurse educator, lactation consultant, nurse leaders, and the Clinical Committee on what became a quality improvement project with components in place to help sustain the program and maintain program fidelity. The barriers included time constraints, scheduling, and resistance of respiratory therapist. Recognizing and addressing the barriers will only strengthen the program and allow for continued collaboration to resolve or accept those barriers but continue to support the goal of the program. The goal to increase the opportunity for parents to practice kangaroo care to promote the best outcomes for infants and their families was and continues to be primary. Providing the appropriate type of evidence-based education was also a goal and an integral component that needed to be addressed correctly. The voice-over PowerPoint, simulation lab, available resources including the hospital policy and procedure, the SOAR document, the videos, the hospital learning module, the team leaders and the checklist additional supports that were appreciated by nursing as noted by the feedback. The impact of the education was objectively noted by the implementation survey. The in-service evaluation gave immediate feedback to the capstone student about how the information was presented, received, and applicable to the nurses' practice. The implementation survey provided information about staff's knowledge of kangaroo care and the ability to implement kangaroo care in the neonatal intensive care unit. The results of the survey indicate that nursing did feel that the PowerPoint

in-service was effective in providing a strong understanding of the background and benefits of kangaroo care to be able to educate and support parents in their quest to engage, interact and learn to care and understand their infant's needs.

Chapter 5

Discussion

Kangaroo care is a therapy that has a tremendous impact on small premature infants and neonates in a world where medical care does not involve the parent. The caretaking skills of the parents are distorted and often there is a sense of helplessness. Kangaroo care is a treatment approach that highlights and embraces the importance of the parent in the caretaking of their baby. Kangaroo care is a catalyst of positive change creating a sense of normalcy and calm for the parent to support their involvement and improve their dynamics with the healthcare team. The goal for the kangaroo care program was to provide an evidence-based educational program to nursing to: increase their comfort to implement kangaroo care with their patient and parents, educate parents on kangaroo care, and ensure nursing consistently supports kangaroo care as standard practice in the unit. The following chapter will review gaps the initial survey identified, summarize the importance of proper educational design for nursing, highlight the programs strengths and the components for sustainability, discuss program limitations, the implications to occupational therapy practice, the connection to family-centered care, recommendations for education and practice (using implementation science) and a dissemination plan.

Initial Survey Results

The initial survey revealed the need for comprehensive kangaroo care education and pictorial representations of the transfer techniques to ensure safe kangaroo care at the bedside by nursing. Based on these findings, the voice-over PowerPoint presents a comprehensive education to nursing on the background, benefits, and proper techniques to implement at the bedside. A running thread in the literature indicated that nursing requires clear guidelines, education, and appropriate training that leads to nursing implementation (Almutairi &

Ludington-Hoe, 2016; Seldman, Unnikrishnan, Kenny, et al, 2015; Higman, Wallace, Law, Bartle & Blake, 2014). The "why" and "how" were integral to the success of education to the nurses. The voice-over PowerPoint was thorough and to the point on the history, the benefits, and the safest practice method to transfer a small fragile infant onto the parent's chest. One nurse commented that now that she understood the benefits of kangaroo care, how it began and how to transfer an infant safely she was motivated to support kangaroo care and would definitely incorporate kangaroo care into her practice (J. Smith, personal communication, February 11, 2021).

Program Design

The program's design was a culmination of information from the literature review, the initial survey, and the informal feedback provided by the nurses to the capstone student after each in-service. The information was utilized to shape the approach to educating the nurses and the parents.

Program Strengths for Sustainability

The kangaroo care program was designed to ensure sustainability and fidelity which includes educational resources for nursing, parents, and staff. The PowerPoint was designed with a voice-over so it can be shown at any time and will eventually be located in the hospital portal for easy access. The voice-over feature serves two main purposes to ensure the same information is consistently taught and in a reasonable time frame of 20 minutes. The other educational resources include: the kangaroo care information poster which is located in each room for parents and staff, the SOAR document is a nurse reference to proper procedures, the Team Leaders Checklist, and the calendar for parents to track their sessions with their infant. The hospital has a video for parents on the Get-Well network and there is a video on the hospital

YouTube site to show how to do a standing transfer which was produced by the team leaders. All of these resources are in place and available. The team leaders are set in place and will serve as a resource to their peers but also model best practice which serves to acculturate the other nurses to embrace the practice and support their efforts while building their confidence. Written policies and procedures and management support along with the resources mentioned above lay the groundwork for a strong and sustainable program. These critical components are well documented in the literature and intentionally implemented in the kangaroo care program for the unit (Kukla & Ludington-Hoe, 2017; Ludington-Hoe, 2013; Moore, 2015). Kangaroo care is family-centered as it embraces the parent and promotes their early involvement with their infant. The organization looks to enhance family-centered care and the program is a quality improvement project which management embraces. The establishment of kangaroo care practices that aligns with family-centered care benefits the infant and the parent (Neu & Robinson, 2010). Ludington-Hoe (2011) and the World Health Organization (2003) recommend and support kangaroo care as standard practice and now that management embraces the program and has recognized the value which will help to keep kangaroo care a regular offering in the unit. Management, the team leaders, the family support specialist, lactation consultant, and nurse educator are a guiding coalition of influential people who have embraced the program as discussed in Kotter's Change Model which should ensure sustainability (Kotter, 2015).

Program Limitations

There were circumstances that interfered with the nurse's ability to attend the in-services provided by the capstone student which include time constraints and patient caseload. Despite planning a time that should have allowed for nurses to attend the nature of the intensive care unit is unpredictable from day to day. The inability of the team leaders to meet with their peers to go

over the checklist at the bedside using the Team Leaders Checklist (Appendix F) was also hampered by time constraints and caseload. The nurse's inability to attend the in-service can be easily solved by having the voice-over PowerPoint accessible on the hospital portal. The suggestion was made to the nurse educator by the capstone student to upload the voice-over PowerPoint onto the hospital portal. The nurse educator would like to institute a requirement that all nurses that work in the neonatal unit watch the voice-over PowerPoint as part of their orientation or yearly education requirements. Just as the nurses must renew their CPR certification so should the video be viewed at least once to ensure that all of the nurses have the educational foundation to understand how to support their patients and families through kangaroo care. The team leaders can take an active role in reaching out to all new orientees to the unit to let the orientee know that there are resources available on the hospital portal and that they can seek support from the team leaders and their peers. The goal is for nursing to understand that kangaroo care is standard practice (World Health Organization, 2003).

Respiratory therapy plays a key role in the care and treatment of many of the infants that are admitted and cared for in the unit. Several of the nurses indicated that there are a few respiratory therapists that will not help in the transfer of an intubated patient for kangaroo care. The nurse educator for the neonatal intensive care unit has reached out to the respiratory therapy educator to arrange for the capstone student to give an in-service to the respiratory therapy department. All members of the team play a role in the success of the kangaroo care program and attention to this issue must be addressed early in the roll-out of the program to ensure its success. If we apply the COM-B Model to the situation of the resistance of respiratory therapy to support kangaroo care the behavior (B) of the respiratory therapists are a result of motivation (M) and possibly capability. Education to increase the knowledge base, understand a safe

technique to transfer the intubated infant should help to change their behavior (B) to motivate them to participate when they realize the benefits to the infant and the parent (West & Michie, 2020; Michie, Atkins & West, 2014).

The hospital's Patient and Family Advisory Council (PFAC) has not been functioning during this time of Covid – 19, in person or virtually. The family support specialist indicated that the PFAC at the hospital does not get involved in program development that involves parents or give advice from a parent's perspective. The capstone student asked if the PFAC would be available to give any input to the kangaroo care program and the family support specialist indicated no. Other hospitals in the area that have an active PFAC and utilize the council for advice and guidance and even have specific parents who have lived the neonatal intensive care unit (NICU) experience that review materials slated for neonatal intensive care unit parents. The PFAC offers suggestions for clarity of family-friendly knowledge dissemination. The capstone student would have welcomed input from a PFAC concerning the kangaroo care poster and kangaroo calendar; however, the capstone student was fortunate to have the family support specialist who experienced a stay in the neonatal intensive care unit with her son and she has been helpful and resourceful.

Implications for Occupational Therapy Practice

As occupational therapists, we recognize the role of the mother as well as the father. Their ability to engage with their infant has purpose and significance for the occupational parenting role. Mothers are ridden with guilt, anxiety, and crushed dreams of a perfect delivery and the journey of parenthood. As parents enter the stressful and overwhelming environment of the neonatal intensive care unit, they are unsure of what they can offer their baby (Neu & Robinson, 2010). The occupations of the mother and the father are distorted and often there is a

sense of helplessness. Price and Miner (2009) state that "The occupational therapist provides opportunities for co-occupation that promotes the development of the family and supports parents by providing the knowledge that family life is still possible…" (p. 72). Occupational therapists play a key role in a neonatal intensive care unit promoting touch, handling and interaction by parents through education on the development of their baby and the tremendous benefits of a mother's presence at the bedside. Our ability to validate the value of parenting occupations and integrate the needs of the infant and the parent has tremendous potential for improved infant-parent bonding and developmental outcomes with lasting effects beyond discharge. Kangaroo care is a perfect modality to support the parent in their journey to understand and learn about their baby and how to parent in an atypical, stressful medical environment.

Kangaroo Care Program Through the PEO Lens

Theories and models guide our practice and support evidence-based implementation. In the neonatal intensive care unit, the Person-Environment-Occupation (PEO) Model (Appendix A) provides a framework to evaluate each parent's capacities (Person) and needs as it relates to their ability to respond to their infant's needs (Scaffa & Reitz, 2014). A parent's occupational performance, (Parenting Occupation) is greatly affected by the neonatal intensive care unit (Environment) and caretakers need education and strategies to appropriately engage with their infants as the literature supports parental involvement (Price & Miner, 2009; Vergara & Bigsby, 2004). Parents express feelings of guilt, anxiety, lost hope, and dreams at the early birth of their baby. Parents grieve for their lost dreams of an ideal delivery and hopes for the future (Evans, Whittingham & Boyd, 2011). Occupational therapists understand the need to listen and promote the parenting role (Price & Miner, 2009). Occupational therapists value the impact a parent can

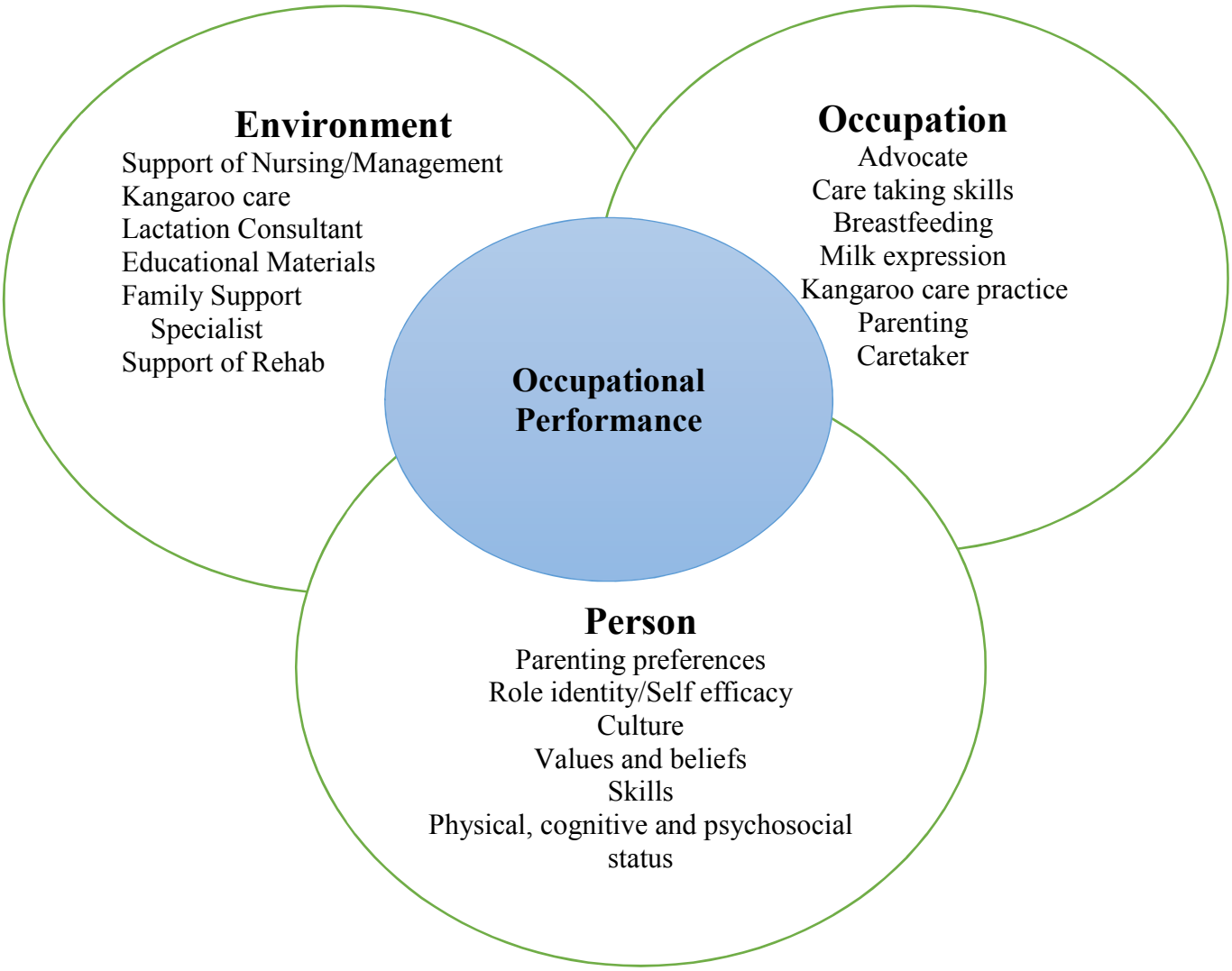
have on the overall development of their infant when they are involved in the care of their baby and therapists understand the importance of validating parents' fears and desires to be there for their infant. Parents must therefore be given the support, education, and guidance to ensure their success in developing their capacity to care for their infant (Larson, 1999). Supporting family participation greatly affects an infant's course in their journey to becoming a baby and parents must be encouraged and supported to have parenting experiences.

Kangaroo care is an ideal practice that is supported by evidence and promotes parent engagement in an intimate way (The United States Institute for Kangaroo Care, 2015). Larson (1999) an occupational therapist and researcher speaks to maternal work which includes not just mothers but fathers as well. Larson (1999) brings up a valid point to consider and that is that society expects all "mothers" to automatically understand what to do to care for their infant or family, but we must keep in mind that the neonatal intensive care unit is not a normal environment. The environment or context greatly affects the parent's perceptions of what to do. As occupational therapists, we have the skills, background, and theories to help each family learn to function and engage in an environment that is not ideal and kangaroo care is a natural place to start (Larson, 1999; Price & Miner, 2009).

The capstone students kangaroo care program enhanced parents' self-efficacy and confidence, impacted the nursing education and culture (environment), increased nursing confidence to support their families to practice kangaroo care, thereby enhancing the occupational performance of the mothers and fathers to care for the infant. Figure 2 (below) is a visual depiction of the impact that this kangaroo care program had on the NICU through the PEO model lens. Going back to the components of the PEO Model the positive changes in the components of the model are seen in the overlap of the three large circles (Person-Environment-

Occupation) which then created the opportunity and development of the parent's occupational performance. Kangaroo care served as a catalyst to engage parents to interact with their infant in a close and intimate way encouraging the parent to learn and understand their infant's needs. Kangaroo care promoted communication between the parent and nursing and the other team members. Kangaroo care also increased self-efficacy and advocacy of the parent as they worked to develop their parenting role based on their preferences, values, and beliefs in their ability to navigate a stressful and taxing environment.

Figure 2



Kangaroo Care Promotes Family-Centered Care

Kangaroo Care is a treatment approach that highlights and embraces the importance of the parent in the daily care of their baby. Kangaroo Care promotes engagement and even supports the mother's attempts to express milk and/or feed the baby at the breast. The occupational therapist has the education and knowledge to support the role of the mother (and father) in the neonatal intensive care unit and understands that it is paramount to encourage the parent's engagement with their infant (Institute for Patient – and Family-Centered Care, 2017; O'Brien, Bracht, Macdonell, McBride, Robson, O'Leary, Christie, Galarza, Dicky, Levin & Lee, 2013; Vittner, McGrath, Robinson, Lawhon, Cusson, Eisenfeld, Walsh, Young & Cong, 2018). All of the four core concepts align with kangaroo care. Kangaroo care promotes the infant/parent dyad and increases opportunities for communication and participation of the parent with the health care team (Neu & Robinson, 2010).

Implementation Science and the COM-B Model

Letcher, Roth and Varenhorst (2017) showed that simulated learning considerably enhances the nurse's ability to comprehend and implement advanced knowledge at the bedside. Similar results occurred among the team leaders who engaged in the simulation lab after the voice-over PowerPoint presentation by the capstone student. Even the bedside nurses did report feeling better prepared to assist their families in kangaroo care with their infants based on informal feedback. The use of theories, models, and frameworks proved to be a helpful guide and roadmap to design the education program for the nurses effectively (Nilsen, 2015). The capstone student appreciated the informal nursing comments made after the voice-over PowerPoint education sessions. The comments were utilized to help tweak the PowerPoint. Changing behavior requires opportunity and capability to motivate an organization or group of

individuals to embrace a treatment approach. Providing the information in a way that ensures learning is important and reinforced to the capstone student to look to the evidence when implementing and designing a program (West & Michie, 2020; Michie, Atkins & West, 2014).

Dissemination Plan

The success of the kangaroo care program will be shared in many contexts. The first on the list of places to share would be within the hospital organization to continue to educate and garner support. The Neonatal Divisional Meeting is held the first Wednesday of the month and includes the neonatologists, nurse practitioners, the unit director, social work, neonatal nursing director, and other leaders within the organization. The meeting will be a wonderful opportunity to educate the individuals in upper management to understand this quality improvement project and the impact it can have on the outcomes of the patients and the families.

The Rehabilitation Department should understand kangaroo care, the unique role of occupational therapy in fostering parenting occupations and be well versed in the benefits and understand how to safely transfer an infant to their parent's chest. The opportunity to garner support from colleagues is so valuable and will promote unity among the staff especially clinicians that work in the neonatal intensive care unit.

The Southeast Florida Association of Neonatal Nurses (SEFANN) meets every other month alternating at area hospitals within southeastern Florida. SEFANN started in January of 1994 with the purpose to educate neonatal nurses and engage in community service. SEFANN allows for networking among neonatal nurses from Dade, Broward, and the Southeast Florida area. Due to Covid 19, there have not been any meetings since March of 2020, but the website does mention a possible one-day virtual conference sometime in 2021. The capstone student

spoke to a board member and has offered to present at a conference in the near future when meetings resume either virtually or face to face.

The Florida Occupational Therapy Association reaches a broad spectrum of therapists across the state of Florida. The capstone student will submit a program proposal to present at the November 2021 Conference.

Conclusion

This kangaroo care program's approach to nursing implementation at the bedside required the use of evidence-based education methods supported in the literature (Kukla & Ludington-Hoe, 2017; Penn, 2015). Appropriate education techniques proved to increase nursing confidence to support and implement kangaroo care at the bedside. The nurse's informal comments to the capstone student and survey results indicated the information was well received and positively impacted their practice especially the simulation lab given to the team leaders (Letcher, Roth & Varenhorst, 2017). The collaboration with nursing and nursing leaders to elevate and implement the program in the neonatal intensive care unit was key for buy-in, support, and sustainability (Kotter, 2015). The program is a team effort, driven by nursing but must be supported by all team members that work in the unit. Occupational therapists' value and understand the importance of the parenting role and the need to create opportunities for engagement for a parent who may be at a loss of how to care for and engage with their small fragile preemie or sick neonate. Occupational therapists work jointly with parents during sessions to model (co-occupation) appropriate handling techniques and are well suited to assist nursing to promote kangaroo care (Price & Miner, 2009). Parents require understanding and support to engage with their infant in an environment that is intimidating and overwhelming. Kangaroo care promotes parent involvement, caretaking skills and eases parental stress. Holding

an infant on the chest is a natural fit for a parent and the evidence of kangaroo care's benefits are well documented in the literature (Cho, Kim, Kwon, Cho, Kim, Jun & Lee, 2016; Ludington-Hoe, 2011; Neu & Robinson, 2010). Kangaroo care allows a parent to engage naturally and fosters the development of their relationship with their infant which in turn reinforces and builds their confidence. When a parent is told that no one else can practice kangaroo care and have such an impact the parent's role and worth in the life of their infant is highlighted (Larson, 1999). Parents need our support to engage with their nurse and the healthcare team and kangaroo care creates opportunities for dialogue. The kangaroo care posters that are in the rooms clearly state the benefits for the infant and the parent and encourage parents to inquire and ask questions. Our role as occupational therapists in the neonatal intensive care unit is unique as we understand the importance of engagement, life roles, and how the environment can support or hinder a parent's occupation (Law, Cooper, Strong, Stewart, Ridgy & Lett, 1996). The investment to implement a kangaroo care program proved positive. Occupational therapists are well suited to educate and lead nursing to utilize kangaroo care because the role of the parent is developmentally impacting. Kangaroo care aligns with patient and family-centered care. Parents must be involved in the care and decisions of their infant and kangaroo care promotes their efforts. It is the capstone student's hope that all parents have the opportunity to begin their parenting role supported by a team including nurses who are educated in kangaroo care practice. Occupational therapy is well suited to support kangaroo care because the practice aligns with co-occupation, developing the parenting role, engagement, and caretaking skills. The kangaroo care program can be replicated in any other neonatal intensive care unit with stakeholder buy-in. The program can be easily adapted to well-baby clinics, pediatrician offices, and community centers.

Dissemination of this project will provide opportunities to facilitate the role of occupational therapy in kangaroo care promotion in the neonatal intensive care unit.

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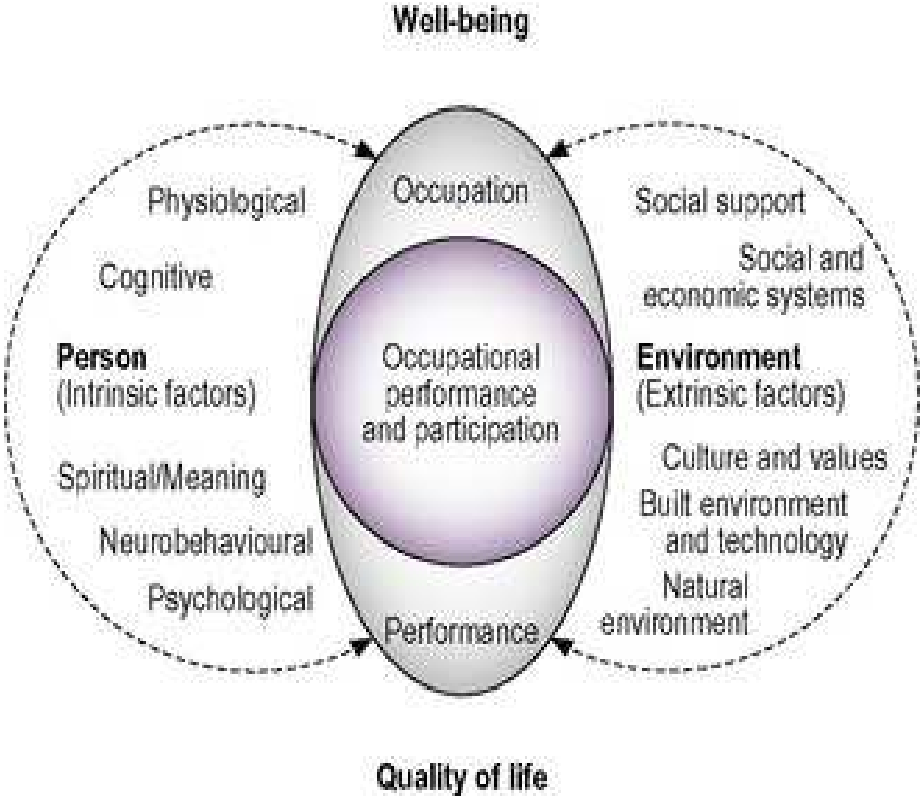
Appendix A

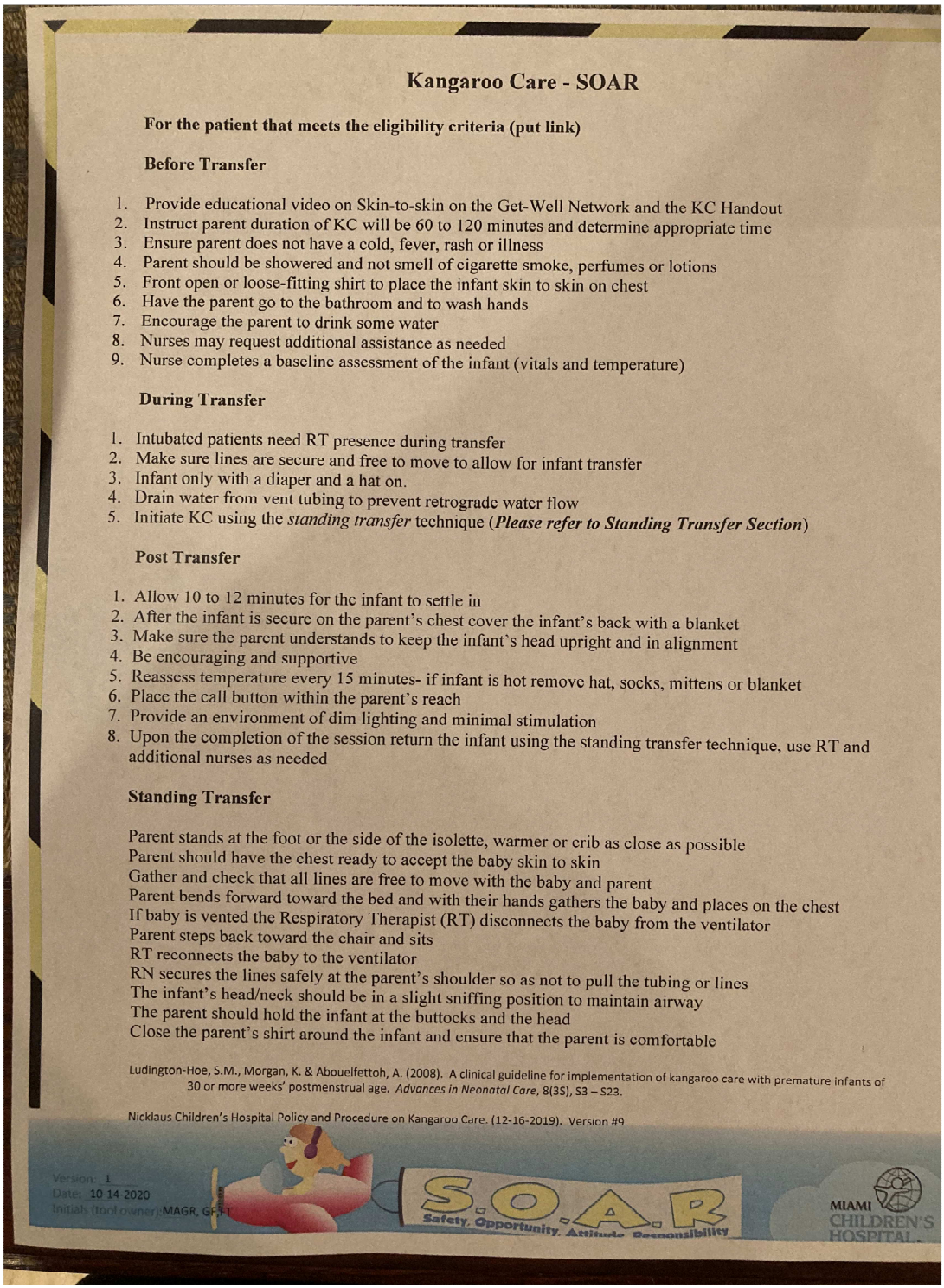
The Person-Environment-Occupation Model



https://musculoskeletalkey.com/the-person-enironment-occupation

Appendix B

Kangaroo Care SOAR Document



Kangaroo Care - SOAR

For the patient that meets the eligibility criteria (put link)

Before Transfer

1. Provide educational video on Skin-to-skin on the Get-Well Network and the KC Handout
2. Instruct parent duration of KC will be 60 to 120 minutes and determine appropriate time
3. Ensure parent does not have a cold, fever, rash or illness
4. Parent should be showered and not smell of cigarette smoke, perfumes or lotions
5. Front open or loose-fitting shirt to place the infant skin to skin on chest
6. Have the parent go to the bathroom and to wash hands
7. Encourage the parent to drink some water
8. Nurses may request additional assistance as needed
9. Nurse completes a baseline assessment of the infant (vitals and temperature)

During Transfer

1. Intubated patients need RT presence during transfer
2. Make sure lines are secure and free to move to allow for infant transfer
3. Infant only with a diaper and a hat on.
4. Drain water from vent tubing to prevent retrograde water flow
5. Initiate KC using the *standing transfer* technique (***Please refer to Standing Transfer Section***)

Post Transfer

1. Allow 10 to 12 minutes for the infant to settle in
2. After the infant is secure on the parent's chest cover the infant's back with a blanket
3. Make sure the parent understands to keep the infant's head upright and in alignment
4. Be encouraging and supportive
5. Reassess temperature every 15 minutes- if infant is hot remove hat, socks, mittens or blanket
6. Place the call button within the parent's reach
7. Provide an environment of dim lighting and minimal stimulation
8. Upon the completion of the session return the infant using the standing transfer technique, use RT and additional nurses as needed

Standing Transfer

Parent stands at the foot or the side of the isolette, warmer or crib as close as possible
Parent should have the chest ready to accept the baby skin to skin
Gather and check that all lines are free to move with the baby and parent
Parent bends forward toward the bed and with their hands gathers the baby and places on the chest
If baby is vented the Respiratory Therapist (RT) disconnects the baby from the ventilator
Parent steps back toward the chair and sits
RT reconnects the baby to the ventilator
RN secures the lines safely at the parent's shoulder so as not to pull the tubing or lines
The infant's head/neck should be in a slight sniffing position to maintain airway
The parent should hold the infant at the buttocks and the head
Close the parent's shirt around the infant and ensure that the parent is comfortable

Ludington-Hoe, S.M., Morgan, K. & Abouelfettoh, A. (2008). A clinical guideline for implementation of kangaroo care with premature infants of 30 or more weeks' postmenstrual age. *Advances in Neonatal Care*, 8(3S), S3 – S23.

Nicklaus Children's Hospital Policy and Procedure on Kangaroo Care. (12-16-2019). Version #9.

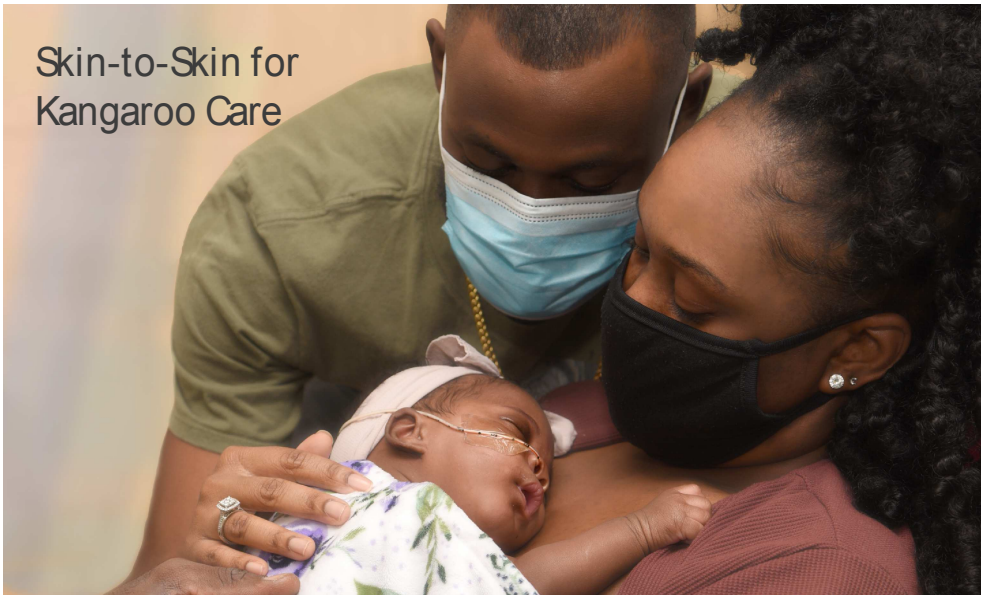
Version: 1
Date: 10-14-2020
Initials (tool owner): MAGR, GFHT

S.O.A.R
Safety. Opportunity. Attitude. Responsibility

MIAMI CHILDREN'S HOSPITAL

Appendix C

Kangaroo Care Information Poster



A special way to hold and be close to your baby.

Kangaroo Care can help your baby:

- Gain weight
- Stay warm
- Improve sleep
- Help brain growth
- Decrease stress
- Keep the heart rate and breathing regular
- Improve oxygen saturation
- Help the baby learn to console
- Decrease crying and irritability

How can Kangaroo Care help you?

- Reduces stress and anxiety
- Helps you produce more breast milk
- Increases breast feeding success
- Helps you bond with your baby
- Helps you understand your baby's needs
- Promotes caretaking skills
- Builde confidnc e to care for your baby

Ask your healthcare team how you can get started with Kangaroo Care!

Ludington-Hoe, Susan M (2011, September/October). Thirty years of kangaroo care: science and practice. *Neonatal Network*, 30(5), 357–362. Doi: 10.1891/0730-0832.30.5.357

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Nicklaus Children's Hospital

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11808NANRDP12020

Appendix D

Kangaroo Care Calendar

Appendix E

Kangaroo Care Do Not Disturb Sign

Kangaroo Care in Progress

Please Do Not Disturb

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Appendix F

Team Leaders Checklist for Kangaroo Care

Kangaroo Care Policy and Procedure located in the portal – no MD order needed to KC

Skin-to-Skin Module in Myles for additional review

Education Video for Parents on the Get-Well Network

Make sure parent does not have a rash, fever or cold

Parent should be showered and without perfumes, lotions, powders and cigarette smoke

Remind the parent of the benefits as listed on the kangaroo care poster in the room

Have the parent go to the bathroom, wash their hands and drink water if needed

The parent should plan to hold their infant for at least an hour and best up to two hours

The parent should have a shirt that opens to the front (mom should remove bra)

Intubated patients and those on supplemental oxygen must have a respiratory therapist for all transfers and an additional nurse

Check the infant's vitals and prepare for kangaroo care (infant should only have a diaper on)

Review a standing transfer with the parent before doing the standing transfer

Normal for an infant to take 10 to 12 minutes to settle on their parent's chest

Cover the infant with a folded blanket on their back

Ensure the parent is comfortable

Place the call button within the parent's reach

Check on the infant initially in 15 minutes and then monitor every 30 minutes

Remind the parent to be in the moment with their infant and not on the cell phone

The room should be dim and free of excess noise

Post Kangaroo Care in Progress sign outside the room on the glass sliding door

Appendix G

Survey Questions for Skin-to-Skin to Kangaroo Care

1. Kangaroo Mother Care originated in what country?

    a. Columbia
    b. Brazil
    c. Guatemala

2. List three benefits of Kangaroo Care for the baby.

    a.
    b.
    c.

3. Kangaroo Care helps to promote caretaking skills of mother.

    a. True
    b. False

4. The best way to transfer a baby for the parent to hold is

    a. Hand off method
    b. Swaddle to u-swaddle method
    c. Standing transfer method

5. We have a United States Kangaroo Care Institute in the state of Ohio.

    a. True
    b. False

6. Can you list three benefits of Kangaroo Care for the mother

    a.

    b.

    c.

7. Kangaroo Care was initiated to save the lives of small premature babies in an impoverished country

    a. True
    b. False

8. Can Kangaroo Care be completed with a small premature infant on the ventilator?
    a. Yes
    b. No
9. What is the recommended amount of time an infant should experience Kangaroo Care?
10. It is not an issue if a parent is wearing lotion, perfumes, colognes or lingering cigarette smoke on their body when they plan to Kangaroo Care.
    a. True
    b. False
11. What three things should the nurse tell a parent to do before they sit and Kangaroo Care with their infant?
    a.
    b.
    c.
12. What is the appropriate amount of time to Kangaroo Care for a parent and their infant?
    a. 30 minutes
    b. 2 hours
    c. 1 hour
13. When is it appropriate to initiate Kangaroo Care?
    a. Infants that weigh over 1000 grams or over
    b. Infants who are tolerant of gentle handling
    c. Infants who are intubated and generally are not requiring an increase in oxygen support
    d. Infants that are on NCPAP
    e. All of the above

Answers

1. a. Columbia

2. increased weight gain, improved sleep, improved heart rate and respiratory rate, decreased stress, improved self-regulatory skills, decreased crying and irritability, improved brain growth

3. a. True

4. c. Standing transfer method

5. a. True

6. decreased stress, decreased anxiety, increased milk production, development of caretaking skills, improved understanding of their infant's needs, bonding, increased change a mother will breast feed, builds confidence

7. a. True

8. a. Yes

9. 2 hours

10. False

11. a. Wash your hands

    b. Go to the bathroom

    c. Eat a small snack

12. 2 hours

13. All of the above

Appendix H

Training Calendar for Kangaroo Care in the Neonatal Intensive Care Unit

Meeting with Clinical Committee to establish dates for training	December 9, 2020
Arrange for the use of the conference room for in-service to Team Leaders	December 9, 2020
Arrange for the use of the conference room to in-service the bedside nurses and respiratory therapy for day shift	December 9, 2020
Speak to Eric the night manager for date and times to in-service the night shift bedside nurses and respiratory therapy	December 7, 2020
Speak to the lactation specialist to ensure that there are enough Kangaroo Care Do Not Disturb Signs	December 7, 2020
Ensure that Annie Gesio can have the kangaroo care posters and calendars ready for the program roll-out in January, 2021	December 9, 2020
Insert the Kangaroo Care SOAR document in the SOAR resource booklet for nurses	December 16, 2020
PowerPoint and simulation training in-service to Team Leaders	January 14 & February 4, 2021
PowerPoint in-service to bedside nurses and respiratory therapists	Week of January 14 and February 8, 2021
Follow-up meeting with Team Leaders and Clinical Committee to assess peer teaching and make needed changes	Week of January 15, 2021
Send out post-survey to nurses via Survey Monkey	Week of February 22, 2021
Meeting with Clinical Committee and Team Leaders to assess impact of teaching to nursing from Team Leader feedback and results from Survey Monkey	Week of February 15, 2021

Appendix I

Kangaroo Care Inservice
COURSE EVALUATION

An OT Approach to Implement a Kangaroo Care Program					
Date of Course: 2021	**Number of Hours: .5**				
PLEASE RATE THE FOLLOWING:					
	Low				**High**
Environment was conducive to learning.	**1**	**2**	**3**	**4**	**5**
Speaker was knowledgeable regarding the topic discussed.	**1**	**2**	**3**	**4**	**5**
Information was disseminated in a professional manner.	**1**	**2**	**3**	**4**	**5**
Knowledge gained can be implemented in my practice.	**1**	**2**	**3**	**4**	**5**
Knowledge gained was relevant to my practice.	**1**	**2**	**3**	**4**	**5**

Appendix J

Kangaroo Care Inservice
Implementation Survey

An OT Approach to Implement a Kangaroo Care Program	
Date of Course: 2021	**Number of Hours: .5**
PLEASE RATE THE FOLLOWING:	
After the PowerPoint presentation, I am confident that I can safely assist a family in a standing transfer. **1. Strongly agree** **2. Agree** **3. Disagree** **4. Strongly disagree**	
I have a robust understanding of the developmental value of kangaroo care for our population served in the unit. **1. Strongly agree** **2. Agree** **3. Disagree** **4. Strongly disagree**	
After the PowerPoint presentation, I feel more confident to practice kangaroo care with any of my patients and their family. **1. Strongly agree** **2. Agree** **3. Disagree** **4. Strongly disagree**	
Following the PowerPoint presentation, I am confident I can explain kangaroo care (purpose and benefits) using parent friendly language. **1. Strongly agree** **2. Agree** **3. Disagree** **4. Strongly disagree**	