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Impact of Educational Intervention on Nurses' Breastfeeding Self-Efficacy

Sarah Washburn

Submitted as partial fulfillment for the Doctor of Nursing Practice Degree

Regis University

May 5, 2016

IMPACT OF EDUCATIONAL INTERVENTION ON NURSES' BREASTFEEDING SELF-EFFICACY ii

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Executive Summary

Nurses “play a vital role in preparing, educating, encouraging, and supporting women to breastfeed and are instrumental in facilitating initiation and continuation of breastfeeding” (AWHONN, 2015, p. 146). However, most nurses are not adequately prepared in their education to assist mothers with breastfeeding (USBC, 2010; USHHS, 2011). For this reason, an evidence-based practice (EBP) project in which an educational intervention (breastfeeding class) was completed. A pre-test/post-test format assessed the effect of a one hour breastfeeding class on nurses' self-efficacy with breastfeeding. The purpose of the project was to increase breastfeeding self-efficacy and knowledge in nurses at VVMC and improve breastfeeding rates for the agency. The study's objective was to improve patient outcomes by increasing nurses' breastfeeding self-efficacy and knowledge. The project plan included: identifying the problem, performing a literature review, creating a formalized breastfeeding program, modifying an instrument for self-efficacy evaluation, giving the breastfeeding class, collecting and analyzing the data, and reporting the findings. Descriptive and inferential statistics were performed. Nurses' average age was 40.58 years, and average years in nursing practice was 14.53 years. The mean score pre-test (76.0731) and post-test (90.3255) showed an improvement in nurses' self-efficacy after the breastfeeding class with statistical significance ($t = -14.251$, $p < .001$, CI: -293.428 - -219.676). Breastfeeding rates increased from a low of 63.88% before education to a high of 87.5% after education. The breastfeeding class improved the nurses' breastfeeding self-efficacy scores and improved breastfeeding rates at VVMC.

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IMPACT OF EDUCATIONAL INTERVENTION ON NURSES' BREASTFEEDING SELF-EFFICACY 1

Impact of Educational Intervention on Nurses' Breastfeeding Self-Efficacy

Human infants have been breastfed since the beginning of time. It was not until the late 19th century that safe, feasible alternatives were available (Stevens, Patrick, & Pickler, 2009). Nowadays, exclusive breastfeeding is recommended for the first six months of a child's life (American Academy of Pediatrics [AAP], 2012; American Congress of Obstetricians and Gynecologists [ACOG], 2007; Association of Women's Health, Obstetric, and Neonatal Nurses [AWHONN], 2015; Centers for Disease Control and Prevention [CDC], 2014; World Health Organization [WHO], 2014). However, in the United States, only 18.8% of infants are exclusively breastfed at six months (CDC, 2014). Many reasons have been cited for low breastfeeding rates in the United States: Breastfeeding support in hospitals is inadequate; hospital policies and procedures interfere with breastfeeding; and too few hospitals participate in the World Health Organization's program to support breastfeeding best practices, known as Baby-Friendly Hospital Initiative (CDC, 2014). Other known factors are lack of adequate nursing education with regards to breastfeeding and non-supportive attitudes in nurses who care for breastfeeding families (Bernaix, 2000; Hellings & Howe, 2004; Spear, 2004; U.S. Department of Health and Human Services [USHHS], 2011; US Breastfeeding Committee [USBC], 2010). In addition, several researchers have identified a correlation between maternal self-efficacy, or confidence, and breastfeeding duration. Maternal breastfeeding self-efficacy has been shown to be a predictor of breastfeeding duration. When compared to women with high confidence, women with low confidence prematurely discontinued breastfeeding (Blyth, et al., 2002; Buxton, et al, 1991; McQueen, Dennis, Stemler, & Norman, 2011; O'Campo, Faden, Gielen, & Wang, 1992). Self-efficacy, or confidence, is a person's belief in their own capabilities to produce a specific outcome or behavior (Bandura, 1994). Self-efficacy has been studied in new mothers,

but, research into nurses' self-efficacy with breastfeeding support has not been assessed.

Therefore, the problem addressed by this project focused on the nurse's lack of confidence and education in assisting breastfeeding mothers. The purpose of this paper is to describe the capstone project beginning with identifying the problem, data analysis, and results including each step in between.

Problem Identification

Breastfeeding and human milk should be the normative standard of nutrition for infants according to many organizations concerned with maternal and child health (AAP, 2012; AWHONN, 2015; WHO, 1981). In its systematic review and meta-analysis, the Agency for Healthcare Research and Quality found breastfeeding has numerous maternal and neonatal health benefits (Ip, et al., 2007). For the child, the health outcomes included decreased rates of: otitis media, respiratory tract infection, gastrointestinal infection, necrotizing enterocolitis, Sudden Infant Death Syndrome (SIDS), asthma, atopic dermatitis, eczema, celiac disease, obesity, diabetes, childhood leukemia and lymphoma, and neurodevelopment outcomes. In the mother, decreased rates of postpartum depression, type II diabetes, rheumatoid arthritis, cardiovascular disease, osteoporosis, breast and ovarian cancers, and greater weight loss have been attributed to breastfeeding (Ip, et al., 2007). Hence, breastfeeding should be viewed as a public health issue, not as a lifestyle choice (AAP, 2012). Several health care organizations recommended exclusive breastfeeding (defined as only breast milk and no other foods, juices, water, cow's milk, or sugar water) for the first six months of the child's life followed by continued breastfeeding for at least one year (AAP, 2012; ACOG, 2007; AWHONN, 2015; CDC, 2014; & WHO, 2014).

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Despite the evidence that breastfeeding is the ideal for infant nutrition, the CDC (2014) continues to note low rates of breastfeeding in the United States in their annual *Breastfeeding Report Card*. Last year, the U.S. rate of exclusive breastfeeding at six months was 18.8%; the rate of any breastfeeding at six months was 49.4% (CDC, 2014). These rates were well below the Healthy People 2020 targets of 25.5% for exclusive breastfeeding at six months and 60.6% of any breastfeeding at six months (USHHS, 2010). Moreover, Bartick and Reinhold (2010) noted if the U.S. increased their rates of *any* breastfeeding to 90% at six months, the nation could save \$13 billion in health care costs. The U.S. government, through *The Surgeon General's Call to Action to Support Breastfeeding* (2011), has called for a comprehensive, national approach to increase breastfeeding rates to improve health outcomes. Because nearly all births occur in the hospital, one tactic used to increase breastfeeding rates is by increasing the number of hospitals with the Baby-Friendly Hospital designation (USHHS, 2011). The Baby-Friendly Hospital Initiative is a global program created by WHO and United Nations Children's Fund (UNICEF) to identify hospitals that have implemented practices known to improve breastfeeding outcomes (WHO & UNICEF, 2009). Finally, Joint Commission, an organization which accredits hospitals in the United States, requires hospitals to increase breastfeeding rates of their patients through a mandatory performance measure. Hospitals who fail to improve their exclusive breastfeeding rates will face decreased insurance reimbursements (Joint Commission, 2015).

The reasons noted for low rates of breastfeeding in the U.S. were multifactorial. However, the purpose of the project was to focus on the lack of breastfeeding knowledge and self-efficacy in nurses who care for the breastfeeding dyad. Nurses and other health care workers "play a vital role in preparing, educating, encouraging, and supporting women to breastfeed and are instrumental in facilitating initiation and continuation of breastfeeding"

(AWHONN, 2015, p. 146). However, research has shown most health care professionals were not adequately prepared in their education to assist mothers with breastfeeding (USHHS, 2011; USBC, 2010). Researchers found breastfeeding information in medical textbooks to be incomplete and inaccurate (Phillipp, Merewood, Gerendas, & Bauchner, 2004). Further, researchers suggested that nurses may lack knowledge, have non-supportive behaviors and attitudes, and offer inconsistent advice regarding breastfeeding (Bernaix, 2000; Hellings & Howe, 2004; Spear, 2004). Much of the literature is focused on the lack of nurses' breastfeeding knowledge, interventions to increase nurses' breastfeeding knowledge, or mothers' self-efficacy in breastfeeding. Self-efficacy is a term used to describe an individual's belief that their behavior can be performed successfully (Dennis, 2003). No research has examined self-efficacy of the nurses who assist breastfeeding mothers. Therefore, the project studied self-efficacy in nurses who provide breastfeeding support to new mothers by teaching breastfeeding concepts and management. The purpose of the project was to increase nurses' breastfeeding self-efficacy by providing an educational intervention (breastfeeding class).

Purpose of study and PICO Question

The design was an evidence-based practice (EBP) project in which a breastfeeding class for nurses was completed. A pre-test/post-test evaluation assessed the effect of the educational intervention on nurses' self-efficacy with breastfeeding. The project was internal to Vail Valley Medical Center (VVMC) and informed the agency of issues regarding health care quality, cost, and patient satisfaction. The results of this project were not meant to generate new knowledge or be generalizable across settings but rather seek to address a specific population, at a specific time, in a specific agency. Capstone projects translate and apply the science of nursing to the greater health care field.

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The project utilized the acronym “PICO” rather than stating a formal research hypothesis.

The acronym stands for:

Population (P): Nurses on the Women’s and Children’s Unit at VVMC

Intervention (I): Formal breastfeeding education program for nurses

Current Practice (C): No formal breastfeeding education program for nurses

Outcome (O): Improved self-efficacy in nurses assisting breastfeeding mothers

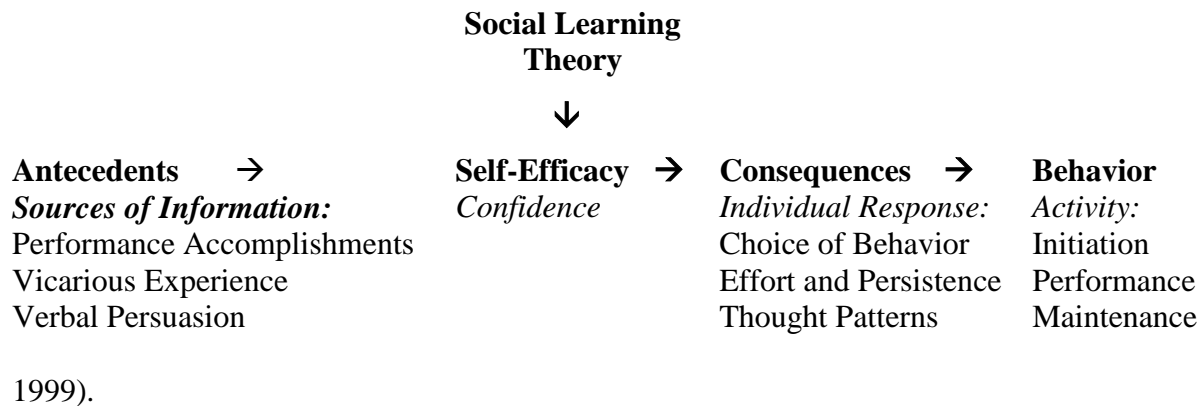
PICO is usually framed as a question (Melnik & Fineout-Overholt, 2011, p. 31). The question this study sought to address was: Does having a formal breastfeeding education program for nurses on the Women's and Children's Unit at Vail Valley Medical Center increase their self-efficacy regarding patient breastfeeding education (both knowledge and skills) as compared to having no formal breastfeeding education program?

Foundational Theories

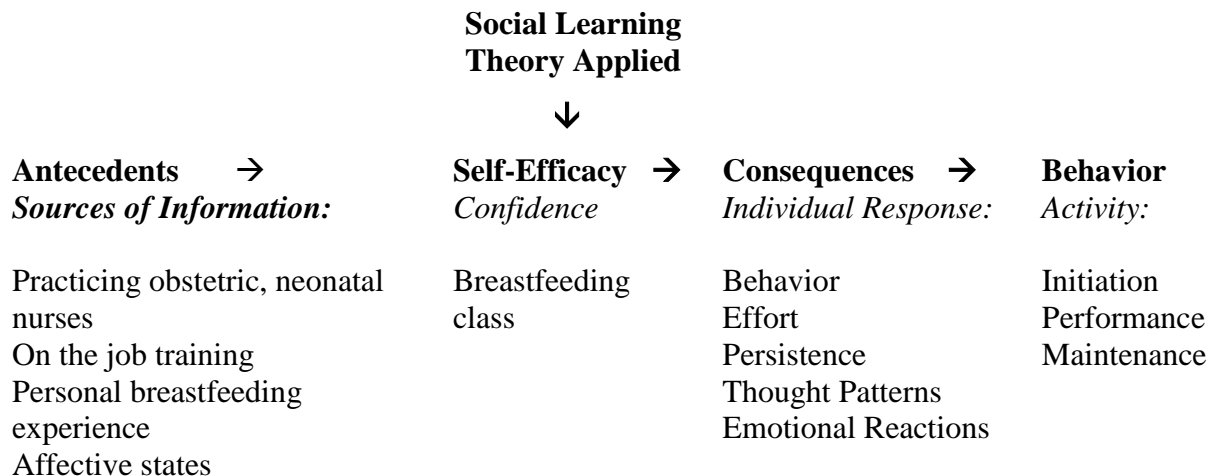
Theory offers structure and organization to a project, and gives “a systematic means of collecting data to describe, explain, and predict nursing practice” (McEwen & Wills, 2014, p. 46). The project incorporated two theories for its theoretical framework, Bandura’s Self-Efficacy Theory and Benner’s From Novice to Expert.

First, the psychologist Albert Bandura (1977) derived self-efficacy from his Social Learning Theory. Self-efficacy is “people’s beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self-efficacy beliefs determine how people feel, think, motivate themselves and behave” (Bandura, 1994, p. 71). Additionally, Dennis (1999) applied Bandura’s self-efficacy theory to breastfeeding mothers, created an instrument to measure their self-efficacy, and concluded that mothers’ self-efficacy expectations influences their ability to initiate and continue breastfeeding

(See Figure 1: Self-Efficacy Framework. Dennis, 1999, p. 197). The self-efficacy theory related to this project because nurses' perceived capability or confidence can affect their ability to provide breastfeeding support. And, the project intended to improve nurses' breastfeeding self-efficacy (through education) which would change their behaviors and increase breastfeeding rates in the hospital (See Figure 2: Social Learning Theory Applied, adapted from Dennis,

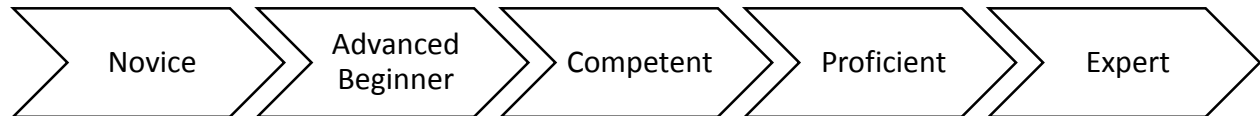


(Figure 1: Self-efficacy framework. Dennis, 1999, p. 197)



(Figure 2: Social Learning Theory Applied, adapted from Dennis, 1999)

Second, Patricia Benner created a model for nursing based on Dreyfus' model of skill acquisition which outlined five stages: novice, advanced beginner, competent, proficient, and expert (1984). Nurses grow in their practice from novice to expert through knowledge, experience, and skill achievement as they practice (See Figure 3: Benner's From Knowledge to Expert, 1984). As aforementioned, most nurses who help with breastfeeding have little to no breastfeeding education in nursing school or in the practice setting. Evidence-based breastfeeding education should move most nurses into being at least competent nurses with regards to breastfeeding support. The competent nurse has "a feeling of mastery and the ability to cope with the many contingencies of clinical nursing" (Maynard, 1996, p. 13). Further, Morton, Hall, and Pessl (2013) called for all health care providers who help with breastfeeding to become experts.



(Figure 3: Benner's From Knowledge to Expert, 1984)

Systematic Review of the Literature

A search of the databases (Cochrane Library, EBSCO Host, Ovid Medline, and CINAHL) was conducted using the keywords: *Breastfeeding*, *Self-Efficacy*, *Nurses*, *Nursing Education*, *Hospital practices* and their combinations. Other search strategies included reviewing reference lists and hand searching breastfeeding and perinatal health journals. Articles considered for inclusion: current (years 2000-2015), in English, and research conducted in Westernized countries. Exclusion criteria for the literature review were articles containing mothers' breastfeeding knowledge or maternal practices, prenatal education, physician

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education, and articles that were prior to 2000, non-English, or from a non-Westernized country. While 185 articles were reviewed, 28 met the inclusion criteria. The *Seven Tiered Levels of Evidence* by Melnyk & Fineout-Overholt's (2005, as cited in Houser & Oman, 2011) was used to compare the strength of the articles. The review yielded articles in each of the seven levels of evidence (See Table 1: Literature Review Table and Appendix A: Systematic Review of Literature).

Articles Reviewed	185
Articles Included	28
Search Engines	Cochrane Library, EBSCO Host, Ovid Medline, and CINAHL
Search Terms	Breastfeeding, Self-Efficacy, Nurses, Nursing Education, Hospital practices and their combinations
Inclusion Criteria	Current (years 2000-2015), English language, and Westernized countries
Exclusion Criteria	Years prior to 2000, non-English language, non-Westernized countries
Levels of Evidence	Level I (1); Level II (4); Level III (5); Level IV (1); Level V (4); Level VI (11); Level VII (2)

(Table 1: Literature Review Table)

The literature review resulted in four major themes: (1) Breastfeeding is best; (2) Nurse education, knowledge, skills, and behaviors; (3) Self-efficacy in breastfeeding mothers; and, (4) Breastfeeding educational interventions for nurses. First, breastfeeding and breastmilk has been identified as the optimal nutrition for infants (Kramer & Kakuma, 2012). The Agency for Healthcare Research and Quality stated that breastfeeding has demonstrated positive, short- and long-term health effects for both mother and child (Ip, et al., 2007). Infants should be breastfed exclusively for six months, with continued breastfeeding after introducing complementary foods for at least a year (AAP, 2012; AWHONN, 2015; ACOG, 2007; CDC, 2014; WHO, 2014).

Next, breastfeeding education is deficient or altogether absent in nursing schools (Spatz, 2014 & Spear, 2006). Several researchers found that registered nurses (including advanced practice nurses) received most of their breastfeeding education through personal experience and lacked knowledge regarding breastfeeding management (Creedy, Cantrill, & Cooke, 2008; Hellings & Howe, 2004; Weddig, Baker, & Auld, 2011). Lastly, research showed nurses and midwives had harmful attitudes and non-supportive behaviors toward breastfeeding (Ebersold, Murphy, Paterno, Sauvager, & Wright, 2007; Ekstrom, Matthiesen, Widstrom, & Nissen, 2005; McInnes & Chambers, 2008).

Third, Bandura's Self-Efficacy Theory has been applied extensively in the literature to breastfeeding mothers (Blyth, et al., 2002; Dennis, 1999; Dennis, 2003; Kingston, Dennis, & Sword, 2007; McQueen, Dennis, Stemler, & Norman, 2011). In addition, self-efficacy has been applied to nursing students (Robb, 2012). However, the literature review failed to uncover any studies done on practicing registered nurses' self-efficacy with regards to breastfeeding support.

Finally, breastfeeding educational interventions were found in the literature and were used as the basis of the breastfeeding class offered for practicing nurses. Educational strategies were found to improve nurses' breastfeeding knowledge, attitude, and behavior (Bernaix, Beaman, Schmidt, Harris, & Miller, 2010; Blixt, Martensson, & Ekstrom, 2014; Davis, Stichler, & Poeltler, 2012; Ekstrom, Widstrom, & Nissen, 2005; Lewin & O'Connor, 2012; Mellin, Poplawski, Gole, & Mass, 2011; O'Connor, Brown, & Lewin, 2011; Ward & Byrne, 2011; Watkins, & Dodgson, 2010; Williams, Young, Kearney, & Keogh, 2013). Most importantly, nurse education was also shown to improve initiation and/or duration of breastfeeding for mothers (Ekstrom, Kylberg, & Nissen, 2012; Li, et al., 2014; Renfrow, McCormick, Wade, Quinn, & Dowswell, 2012; Vittoz, Labarere, Castell, Durand, & Pons, 2004).

Project Scope and Significance

Typically, the Doctor of Nursing Practice (DNP) capstone project's scope is relevant to a practice issue and links to the competencies of the DNP curriculum (Kirkpatrick & Weaver, 2013). The scope of this project consisted of a small, convenient sample of practicing registered nurses on one unit who cared for breastfeeding mothers and newborns. A formal education intervention was developed by the author based on the *Core Competencies* set forth by the United States Breastfeeding Committee (2010). The project measured nurses' breastfeeding self-efficacy with a pre-test/post-test survey and the data was evaluated using appropriate statistical analysis techniques. The project intended to effectively impact the practice issue of breastfeeding confidence in nurses to improve patient outcomes. The significance of the project was to: increase nurses' breastfeeding self-efficacy, improve patient outcomes, improve hospital's breastfeeding rates to meet Joint Commission Perinatal Core Measures, consider the feasibility of implementing Baby-Friendly at VVMC, and to increase breastfeeding rates in the community.

Market and Risk Analysis

A market and risk analysis was done by completing a SWOT analysis. In addition, the driving and restraining forces were investigated; the need for the project was recognized; the resources required to complete the project were examined; ways to sustain the intervention were found; and the project team and stakeholders were identified. First, the SWOT (Strengths, Weaknesses, Opportunities, and Threats) tool was utilized due to its ease of use to identify external and internal forces and to understand the issues that could arise in a project (Chermack & Kasshanna, 2007). The SWOT analysis that was completed is shown in Table 2.

Strengths	International Board Certified Lactation Consultant (IBCLC) education & certification; Supportive hospital administration; Potential cost savings for health care
Weaknesses	Time for training RNs; Possibly inconvenient times for education sessions; Potential lack of buy-in from staff nurses regarding research
Opportunities	Improved patient outcomes; Meet mandatory Joint Commission Perinatal Care Outcomes (PC-05); Potential increased reimbursement for hospitals with improved breastfeeding rates; Legislation and policies that are favorable to breastfeeding
Threats	Formula advertising and marketing; Cultural beliefs; Internet-based learning modules; Convenience of formula feeding at night; Nurses' attitudes; Nurses' reaction to breastfeeding class

(Table 2: SWOT Analysis)

Next, the driving and restraining forces were considered. The driving forces for the project were: the evidence supported improved breastfeeding rates improved health outcomes, savings in health care costs, and increased insurance reimbursement for hospitals who meet mandatory performance measures. The forces that may have restrained the project were cultural beliefs about breastfeeding and health professional's attitudes about breastfeeding. The latter may be mitigated at VVMC with the educational intervention of a breastfeeding class.

A literature review examined the need for the project. The capstone project was needed to improve maternal and neonatal health outcomes, meet regulatory requirements at VVMC (Joint Commission measures), and increase breastfeeding rates in community to meet the Healthy People 2020 targets.

Next, the resources required to complete the project were considered. In order to provide an educational intervention, a classroom area, a DVD player, a TV, and a computer were required. In addition, time for the author as well as the nurses was needed. And, the hospital paid the salary of the nurses who attended the one hour educational session. Ways to sustain the intervention after project completion were to design a similar breastfeeding course and record it or create a computer learning module for orientation of new hires.

Identification of Stakeholders and Project Team

Stakeholders are those people who may be affected by a project, or those individuals who have a strong interest in it (University of Kansas, 2014). The stakeholders for the study were the practicing nurses on the unit, breastfeeding mothers and children at VVMC, the hospital's administration and Board of Directors, and the community. The project team included the author, the author's capstone chair, the clinical mentor, the clinical coordinator of the Women's and Children's Unit, and other International Board Certified Lactation Consultants (IBCLC) on the unit.

Cost-Benefit Analysis

One must weigh the expected costs against the expected benefits of a study to determine the feasibility ("Cost-Benefit Analysis", 2015). The associated costs of this project involved the nurses' salaries and cost to implement the study for the one hour breastfeeding class. According to the Bureau of Labor Statistics (2014), the median hourly wage for a registered nurse in Colorado is \$32.83. The hospital paid 20 nurses their hourly wage, using the median listed above, which would equate to \$656.60. Overtime pay was not necessary as the class session was only 1 hour long. In addition, the one hour class was designed to teach as many nurses as

possible during their regularly scheduled shifts so some cost might be lessened. The costs to realize the project were minimal since the agency already had a classroom area with computer, DVD player, and TV.

The benefits of the study were numerous. There were advantages for the hospital, staff, patients, and community. The breastfeeding education was expected to improve health outcomes for mothers and children and improve rates of breastfeeding for the hospital. The anticipated increase in hospital breastfeeding rates would also improve insurance reimbursements, which allows the organization to receive more reimbursement for patients' hospitalizations.

Project Objectives

A project must have a clear vision and mission statement. A vision statement represents core values and is the preferred future one imagines; a mission statement explains the purpose publicly (Foreman, 1998). The project's mission statement was to promote the health of women and newborns by providing evidence-based breastfeeding education and advance the nursing profession through teaching, research, and clinical practice. The vision statement for the study was to improve population health by increasing breastfeeding rates through: educating health care professionals, advocating for policies and laws that promote and support breastfeeding, and obtaining Baby-Friendly Hospital Initiative (BHFI) designation for VVMC.

The SMART framework was used to develop the project's goals, where SMART stands for Specific, Measurable, Attainable, Realistic, and Timeframe. The project objectives were:

1. Increase breastfeeding self-efficacy in nurses as measured by the project instrument.
2. Increase exclusive breastfeeding rates on discharge determined by the electronic medical record system for the Joint Commission Perinatal Core Measure (PC-05).

3. Determine if breastfeeding education intervention is a cost-effective process for VVMC to obtain Baby-Friendly Hospital designation.

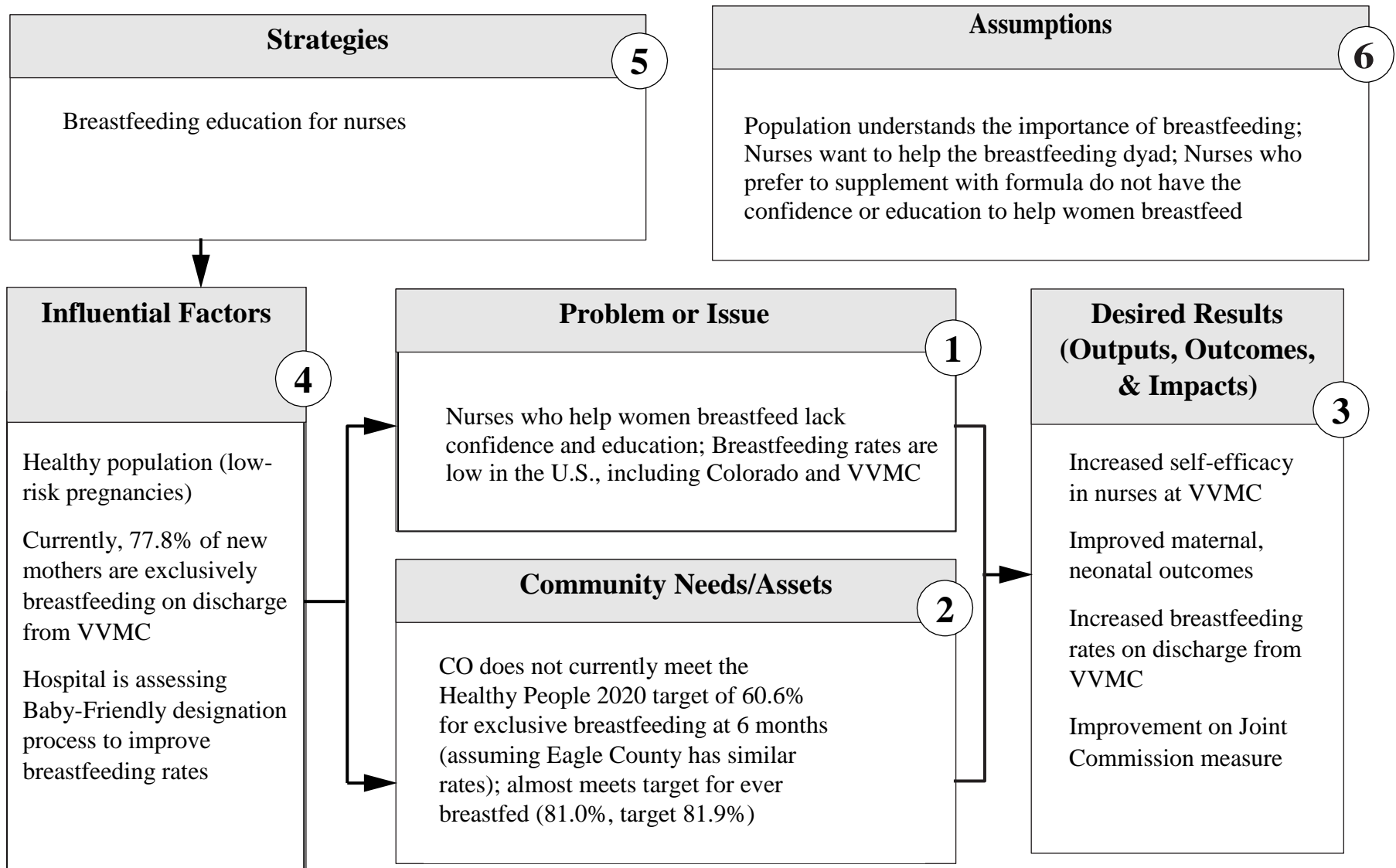
Logic Model

A logic model is a methodical and visual way to present one's thoughts and understanding of the relationships in a project and was utilized for the study (W. K. Kellogg Foundation, 2004). Also, a table for program planning was used for the capstone project to visualize how the project would be organized and what outcomes would be expected (See Table 3: Logic Model and Figure 4: Program Planning Template).

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RESOURCES	ACTIVITIES	OUTPUTS	SHORT & LONG-TERM OUTCOMES	IMPACT
<i>In order to accomplish the project, the following were needed:</i>	<i>In order to address the problem, the following activities were accomplished:</i>	<i>Once accomplished, these activities produced the following evidence of service delivery:</i>	<i>If accomplished, these activities will lead to the following changes in 1-3 then 4-6 years</i>	<i>If accomplished these activities will lead to the following changes in 7-10 years:</i>
<p>Access to population (VVMC Women's and Children's nursing staff)</p> <p>Support from hospital administration for time/training of WCC nursing staff</p> <p>Literature review regarding self-efficacy, breastfeeding knowledge and skills</p> <p>Expert (consultation) in breastfeeding education, IBCLC</p> <p><u>Constraints:</u> Time Training costs Sample size</p>	<p>Create formalized education program</p> <p>Modify instrument for nurses' self-efficacy</p> <p>Obtain IRB approval from Regis University</p> <p>Utilize expert to review self-efficacy questionnaire for content</p> <p>Create budget</p>	<p>Multiple offerings of formalized education program</p> <p>Participation in pre- and post-surveys regarding self-efficacy</p> <p>Evaluation of surveys and statistical analysis</p> <p>Publish article and/or poster presentation in state and national AWHONN conferences</p>	<p>Increased self-efficacy in nursing staff on the L&D unit</p> <p>Improved exclusive breastfeeding rates on discharge at VVMC</p> <p>Meet Joint Commission Measure (PC-05); increased hospital insurance reimbursement</p> <p>Increased patient satisfaction due to delivery of similar messages from staff</p> <p>Improved patient outcomes</p>	<p>Increased breastfeeding rates in Eagle County, CO</p> <p>Meet Healthy People 2020 Target</p> <p>Decreased healthcare costs/formula costs in Eagle County</p> <p>Increased nursing profession knowledge regarding nurses self-efficacy and breastfeeding dyads</p> <p>Hospital obtains Baby-Friendly designation</p>

(Table 3: Logic Model. Adapted from W. K. Kellogg Foundation, 2004, p. 54)



(Figure 4: Program Planning Template. Adapted from W. K. Kellogg Foundation, 2004, p. 57).

Methodology

The project followed the PICO format (Population, Intervention, Comparison, Outcome). The study compared the same nurses on a particular unit before and after a one hour breastfeeding class using a modified version of the *Breastfeeding Self Efficacy Scale* instrument (Dennis, 2003). The following discusses the methodology that was utilized for the study.

First, design for the study was a pre-test/post-test quantitative survey method. The population was a convenience sample of registered nurses on the Women's and Children's Unit at VVMC. The potential sample was 24 registered staff nurses and six neonatal nurse practitioners (NNPs) for a total of 30 nurses. The sample included only the nurses and NNPs on the particular unit who cared for patients who were breastfeeding mothers or newborns, and excluded all other nurses in the hospital, physicians, and other IBCLCs. Participation in the study was voluntary. However, the breastfeeding education session was part of a longer, mandatory session for staff nurses and the breastfeeding class comprised the last hour of the education. The participants were recruited through flyers posted on the unit as well as emails sent through the hospital email system, specifically using the distribution list for the Women's and Children's Unit to only recruit eligible participants. The opportunity to participate was offered to 30 nurses, 20 nurses chose to participate.

The protection of human subjects is vital for any study and were addressed before the project was conducted. CITI training was completed by author (See Appendix B). The project included minimal risk to the participants. However, risks may have included potential participant anxiety and potential lack of participant interest in attending the educational sessions. The intended benefits for participation were: improved nurses' self-efficacy; improved knowledge, skills, & attitudes for nurses who assist with breastfeeding; increased breastfeeding

rates; improved patient (mother and child) outcomes. Participation in the study was voluntary and nurses' responses were kept confidential and reported as aggregate data. Participants could withdraw at any time. Instrument data was anonymous and no data could be linked to any participant. The author addressed protection of human subjects by obtaining Institutional Review Board (IRB) permission from Regis University (See Appendix C). VVMC did not require the author to obtain agency IRB approval, but approval to undertake the project was granted by Sheila Sherman, Chief Nursing Officer, at the hospital (See Appendix D). The study was considered "exempt" during the IRB approval process at Regis University. To be considered for exempt status

research will be conducted in established or commonly accepted educational settings, involving normal educational practices, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods. Personal identifiers will not be collected linking individuals to the collected data" (Regis University, 2011, p. 3).

Next, the intervention (breastfeeding class) was provided by the author. The evidence-based educational interventions were one hour long, and provided on six days over the course of a month at various times to allow maximum flexibility for participants to attend. Six educational sessions on breastfeeding were offered over the duration of the project. It included a video designed for health care providers and a PowerPoint presentation given by the author. Handouts of the presentation were given to the participants. The video "Latch 1, 2, 3: Troubleshooting Breastfeeding in the Early Weeks" was 17 minutes in length. Permission to use the video in the study was obtained by the creators of the video (See Appendix E). The curriculum for the

presentation was based on the *Core Competencies in Breastfeeding Care and Services for all Health Professionals* (USBC, 2010).

The instrument to measure self-efficacy, or the nurses' self-confidence with breastfeeding education was modified from the *Breastfeeding Self-Efficacy Scale* (Dennis, 2003). The original instrument was a survey designed for new mothers. The modified survey was designed for registered nurses who helped the breastfeeding couplet (See Appendix F). The creator of the *Breastfeeding Self Efficacy Scale* (BSES) granted permission to modify it for this study (See Appendix G). The survey instrument was given by paper survey prior to education, and then again after the educational intervention to determine if nurses' self-efficacy improved. The BSES has been psychometrically tested and supported. According to Dennis and Faux (1999), reliability was evaluated by Cronbach's alpha coefficient ($\alpha = 0.96$), a corrected item-total correlation coefficient (all were positive and 73% were in the .30-.70 range). Further, construct validity and predictive validity was determined by the BSES for use in self-efficacy in breastfeeding mothers. The tool also included demographic questions: age of participant, years in practice, and preference rank of learning style (face to face, online, textbook, or shadowing).

Data Collection and Process

The capstone project was a quantitative study as it used data in numerical form (Polit, 2010). The instrument asked participants to rate how certain they can do a breastfeeding related task from 0 "I cannot do at all" to 100 "Highly certain I can do". No coding was necessary because no names were collected on the instrument and individual results could not be traced back to participants. The study's level of data is considered ratio because the instrument contained assigned numbers that indicate both the ordering and the distance between score

values, and it had a natural, meaningful zero (Polit, 2010). Many tests can be run in the Statistical Package for the Social Sciences (SPSS) because of the ratio level of data. These tests included a paired samples t-test, ANOVA, and Spearman correlations. The instrument was also analyzed for its internal consistency reliability using Cronbach's alpha in SPSS. Cronbach's alpha was found to be $\alpha = 0.675$. Although not as high as the instrument created by Dennis and Faux (1999), the instrument did show that 67.5% of the variability would represent true individual differences on the tool (Polit, 2010). Further, the effect size is the difference between two means divided by the standard deviation of the two conditions, also known as Cohen's *d* (Thalheimer & Cook, 2002). Cohen's *d* was calculated to be -2.62. Or, the pre-test was 2.62 points lower for every one point on the post-test.

Results

Descriptive Statistics

The average age of the nurses who completed the survey was 40.58 years and the average years in practice was 14.53 years. The mean individual pre-test score was 76.0731, while the mean individual post-test score was 90.3255.

Inferential Statistics

The paired samples t-test was used to test for differences in self-efficacy scores among nurses before and after the breastfeeding class educational intervention. The t-test revealed that the mean pre-test aggregate score ($M=1369.31$) was statistically different than the mean post-test aggregate score ($M=1625.86$) [$t(28) = -14.251$, $CI: -293.428 - -219.676$, $p < .001$].

The one way ANOVA test was used to tests differences in learning preferences (face to face, online, textbook, or shadowing) based on age. The only statistically significant result was

face to face ($p = 0.047$). The one way ANOVA test analyzed differences in learning preferences based on years in practice; no statistically significant results were found. Finally, the demographic information (years in age or years in practice) did not affect pre-test or post-test scores.

The Spearman's correlations between pre-test score and post-test score was strongly positive, $r = 0.724$, $p < .001$ (See Table 4: Spearman's Correlations among Variables). As the pre-test score increases, the post-test score increases. In addition, years in practice was moderately positively correlated ($r = 0.501$) with shadowing as a learning method.

Spearman's Correlations among Variables								
	PreScore	PostScore	Age	Yrs in Practice	Face to Face	Online	Textbook	Shadowing
PreScore	--	.724**	.053	.391	.067	-.200	-.170	.276
PostScore		--	-	.079	-	.017	.044	.111
			.298		.087			
Age			--	.829**	.311	-.247	-.382	.183
Yrs in Practice				--	.189	-.417	-.348	.501*
Face to Face					--	-.487	-.877**	.241
Online						--	.306	-.509*
Textbook							--	-.469
Shadowing								--
** $p < .001$, * $p < .05$								

(Table 4: Spearman's Correlations among Variables)

Analysis

The breastfeeding class was effective at improving self-efficacy for this group of nurses as the t-test revealed that the mean pre-test aggregate score ($M=1369.31$) was considerably lower than the mean post-test aggregate score ($M=1625.86$) and was statistically significant [$t(28) = -14.251$, $CI: -293.428 - -219.676$, $p < .001$]. Nurses with improved knowledge, skill, and

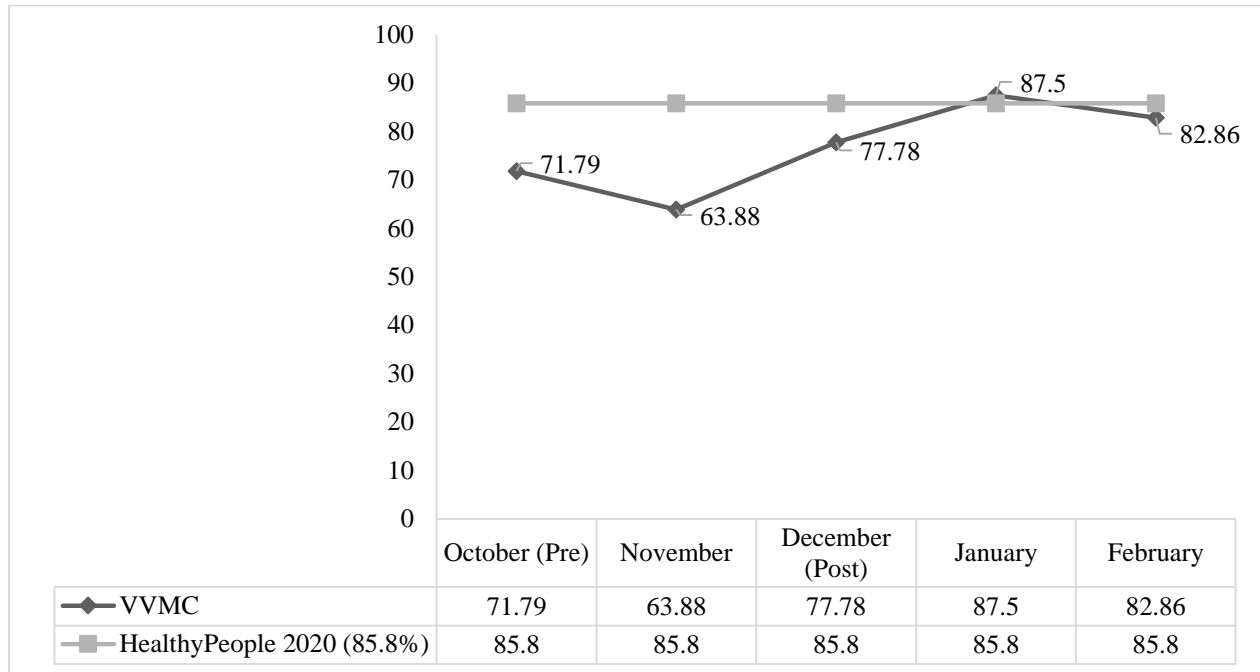
attitudes may impact the percentages of mothers who are exclusively breastfeeding at six months which will impact the health outcomes of mothers and infants.

The results supported a positive response to the research question: Does having a formal breastfeeding education program for nurses on the Women's and Children's Unit at Vail Valley Medical Center increase their self-efficacy regarding patient breastfeeding education (both knowledge and skills) as compared to having no formal breastfeeding education program? The results indicated that the nurses gained knowledge and self-efficacy after the breastfeeding class and the intervention was effective. The project objectives were also met. The project objectives were:

1. Increase breastfeeding self-efficacy in nurses as measured by project instrument.
2. Increase exclusive breastfeeding rates on discharge determined by the electronic medical record system for the Joint Commission Perinatal Core Measure (PC-05).
3. Determine if breastfeeding education intervention is a cost-effective process for hospital in order obtain Baby-Friendly Hospital designation.

First, as previously discussed, the nurses' breastfeeding self-efficacy was improved in the project. Next, the exclusive breastfeeding rates on discharge at VVMC were improved. October (prior to the breastfeeding classes) was 71.8%, November (during the breastfeeding classes) was 63.9%. However, in December, the rate rose to 77.8%, January to 87.5%, and February to 82.86% (See Table 5: Breastfeeding Rates on Discharge from VVMC). Thus, VVMC was able to meet Joint Commission Perinatal Core Measure (PC-05).

IMPACT OF EDUCATIONAL INTERVENTION ON NURSES' BREASTFEEDING SELF-EFFICACY 23



(Table 5: Breastfeeding Rates on Discharge from VVMC)

Thirdly, the author believes the project demonstrates that nurse education is a cost-effective process for VVMC. Baby-Friendly Hospital designation requires 20 hours of education for each nurse. Estimates done by the author for VVMC to obtain Baby-Friendly status are \$40,000 - \$50,000 total. It is a high cost, but the designation process typically occurs over three to five years (Baby-Friendly USA, 2012). Other research has shown the positive impact on breastfeeding outcomes when nurses are adequately trained and hospitals are Baby Friendly compliant (Cattaneo & Buzzetti, 2001; Li, et al., 2014; Martens, 2000; Taddei, Westphal, Venancio, Bogus, & Souza, 2000). The hospital can recover some of these costs with increased reimbursement for exclusive breastfeeding during patient visits.

Moreover, the average age of the nurses who completed the survey was 40.58 years, which is younger than the national average of 44.6 years (Health Resources and Services Administration [HRSA], 2013). The average years in practice was 14.53 years for the

participants while the national average is 18 years (HRSA, 2008). Therefore, participants in the study were younger and had less years of experience than the average nurse in the U.S.

Differences in learning preferences (face to face, online, textbook, or shadowing based on age in this group was observed, but only for the face to face method ($p = .047$). Differences in learning preferences based on years in practice yielded no statistically significant results.

Finally, the Spearman correlation between pre-test score and post-test score was strongly positive ($r = 0.724$, $p < .001$) for the participants. Or, as the pre-test score increased, the post-test score also increased. In addition, years in practice was moderately positively correlated ($r = 0.501$) with shadowing as a learning method. As one increased the years of practice, the preference to learn while shadowing also increased.

Recommendations and Limitations

Nurses can improve their breastfeeding knowledge and self-efficacy with a one hour breastfeeding class. The results benefited VVMC by improving exclusive breastfeeding rates at the organization, which in turn promotes the health of the mother and newborn, community, and improves insurance reimbursement. The breastfeeding class should be replicated in other hospitals which do not have formalized education in place for improving nurses' breastfeeding knowledge and self-efficacy. However, the sample size was small and research should be implemented in a larger sample to be generalizable to the nursing population who cares for breastfeeding mothers and newborns. In addition, the Cronbach's alpha for the instrument was found to be $\alpha = 0.675$, and could be further modified to improve the reliability. Future research includes giving the test again at 3 and 6 month intervals to ensure that the information and self-

efficacy has been retained and to continue to monitor the percentage rates of mother's exclusive breastfeeding at VVMC for 6 months.

Implications to Nursing Practice

Exclusive breastfeeding is recommended for the first six months of a child's life (AAP, 2012; ACOG, 2007; AWHONN, 2015; CDC, 2014; WHO, 2014). Only 18.8% of infants are exclusively breastfed for six months in the U.S. (CDC, 2014). Reasons for low breastfeeding rates include: breastfeeding support by health care staff in hospitals is inadequate and hospitals have policies and procedures which interfere with breastfeeding (CDC, 2014). Frequently, the only breastfeeding education mothers receive is from the nursing staff that care for her and her child after delivery. A formalized education intervention should be replicated in other hospitals that do not have such education to improve nurses' breastfeeding knowledge and self-efficacy. The project shows how even one hour of education can have a significant impact on nurses' self-efficacy and can boost percentage of mother's breastfeeding at one month rates. By improving nurses' knowledge and self-efficacy, the hope is to improve breastfeeding rates and health benefits.

Conclusion

Exclusive breastfeeding is recommended for the first six months of a child's life (AAP, 2012; ACOG, 2007; AWHONN, 2015; CDC, 2014; WHO, 2014). Unfortunately, in the United States, only 18.8% of infants are exclusively breastfed at six months (CDC, 2014). Breastfeeding support in hospitals is inadequate, hospital policies and procedures interfere with breastfeeding, and too few hospitals participate in the Baby-Friendly Hospital Initiative (CDC, 2014). Other known factors are lack of adequate nursing education with regards to breastfeeding

and non-supportive attitudes in nurses who care for breastfeeding families (Bernaix, 2000; Hellings & Howe, 2004; Spear, 2004; USHHS, 2011; USBC, 2010). Self-efficacy has been studied in new mothers, but, research into nurses' self-efficacy with breastfeeding support has not been assessed. The project studied self-efficacy in nurses who provide breastfeeding support to new mothers by teaching breastfeeding concepts and management. The purpose of the project was to increase nurses' breastfeeding self-efficacy by providing a breastfeeding class and to improve health outcomes in mothers and newborns. The data analysis showed an increase in nurses' breastfeeding self-efficacy with statistical significance ($t = -14.251$, $p < .001$, CI: -293.428 - -219.676) and an increase in breastfeeding rates at VVMC.

References:

- American Academy of Pediatrics. (2012). Policy statement: Breastfeeding and the use of human milk. *Pediatrics*, 129(3), e827-e841.
- American Congress of Obstetricians and Gynecologists. (2007). Breastfeeding: Maternal and infant aspects. ACOG Committee Opinion Number 361. Retrieved from <http://www.acog.org/Resources-And-Publications/Committee-Opinions/Committee-on-Health-Care-for-Underserved-Women/Breastfeeding-Maternal-and-Infant-Aspects>
- Association of Women's Health, Obstetric, and Neonatal Nurses. (2015). AWHONN policy statement: Breastfeeding. *Journal of Obstetric, Gynecologic, and Neonatal Nurses*, 44(1), 145-150. DOI: 10.1111/1552-6909.125030.
- Baby-Friendly USA. (2012). The guidelines and evaluation criteria. Retrieved from <https://www.babyfriendlyusa.org/get-started>
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review* 84, 191-215.
- Bandura, A. (1994). In V. S. Ramachaudran (Ed.), *Encyclopedia of human behavior* (Vol. 4, pp. 71-81). New York: Academic Press. (Reprinted in H. Friedman [Ed.], *Encyclopedia of mental health*. San Diego: Academic Press, 1998).
- Bartick, M. & Reinhold, A. (2010). The burden of suboptimal breastfeeding in the United States: A pediatric cost analysis. *Pediatrics*, 125(5), e1048-e1056. DOI: 10.1542/peds.2009-1616.
- Benner, P. (1984). From novice to expert. *American Journal of Nursing*, 82(3), 402-407.

- Bernaix, L. W. (2000). Nurses' attitudes, subjective norms, and behavioral intentions toward support of breastfeeding mothers. *Journal of Human Lactation*, 16(3), 201-209.
- Bernaix, L. W., Beaman, M. L., Schmidt, C. A., Harris, J. K., Miller, L. M. (2010). Success of an educational intervention on maternal/newborn nurses' breastfeeding knowledge and attitudes. *Journal of Obstetric, Gynecologic, and Neonatal Nurses*, 39(6), 658-666.
- Blyth, R., Creedy, D. K., Dennis, C-L., Moyle, W., Pratt, J., De Vries, S. M. (2002). Effect of maternal confidence on breastfeeding duration: An application of breastfeeding self-efficacy theory. *Birth*, 29(4), 278-284.
- Blixt, I., Martensson, L. B., & Ekstrom, A. C. (2014). Process-oriented training in breastfeeding for health professionals decreases women's experiences of breastfeeding challenges. *International Breastfeeding Journal*, 9(15), n.p.
- Bureau of Labor Statistics. (2014). *May 2014 State Occupational Employment and Wage Estimates Colorado*. Retrieved from http://www.bls.gov/oes/current/oes_co.htm#29-0000
- Buxton, K., Gielen, A., Faden, R. Brown, H., Paige, D., & Chwalow, J. (1991). Women intending to breastfeed: Predictors of early infant feeding experiences. *American Journal of Preventative Medicine*, 7(2), 101-106.
- Cattaneo, A. & Buzzetti, R. (2001). Effect of rates of breastfeeding of training for the Baby Friendly Hospital Initiative. *British Medical Journal*, 323, 1358-1362.
- Centers for Disease Control and Prevention. (2014). *Breastfeeding report card, 2014*. Retrieved from <http://www.cdc.gov/breastfeeding/data/reportcard.htm>

- Chermack, T. J. & Kasshanna, B. K. (2007). The use and misuse of SWOT analysis and implications for HRD professionals. *Human Resource Development International*, 10(4), 383-399. Doi: 10.1080/13678860701718760.
- Creedy, D. K., Cantrill, R. M., & Cooke, M. (2008). Assessing midwives' breastfeeding knowledge: Properties of the Newborn Feeding Ability questionnaire and Breastfeeding Initiation Practices scale. *International Breastfeeding Journal*, 3(7), n.p. Doi:10.1186/1746-4358-3-7.
- Cost-Benefit Analysis. (2015). Small Business Encyclopedia. Retrieved from <http://www.entrepreneur.com/encyclopedia/cost-benefit-analysis>
- Davis, S. K., Stichler, J. F., & Poeltler, D. M. (2012). Increasing exclusive breastfeeding rates in the well-baby population: An evidence-based change project. *Nursing for Women's Health*, 16(6), 461-470. Doi: 10.1111/j.1751-486X.2012.01774.x.
- Dennis, C-L. (1999). Theoretical underpinnings of breastfeeding confidence: A self-efficacy framework. *Journal of Human Lactation*, 15(3), 195-201.
- Dennis, C-L. (2003). The breastfeeding self-efficacy scale: Psychometric assessment of the short form. *Journal of Obstetric, Gynecologic, and Neonatal Nurses*, 32(6), 734-744.
- Dennis, C-L. & Faux, S. (1999). Development and psychometric testing of the breastfeeding self-efficacy scale. *Research in Nursing & Health*, 22(5), 399-409.
- Ebersold, S. L., Murphy, S. D., Paterno, M. T., Sauvager, M. D., & Wright, E. M. (2007). Nurses and breastfeeding: Are you being supportive? *Nursing for Women's Health*, 11(5), 482-487. Doi:10.1111/j.1751-486X.2007.00216.x.

- Ekstrom, A., Kylberg, E., & Nissen, E. (2012). A process-oriented breastfeeding training program for healthcare professionals to promote breastfeeding: An intervention study. *Breastfeeding Medicine*, 7(2), 85-92.
- Ekstrom, A., Matthiesen, A-S., Widstrom, A-M., and Nissen, E. (2005). Breastfeeding attitudes among counselling health professionals, development of an instrument to describe breastfeeding attitudes. *Scandinavian Journal of Public Health*, 33(5), 353-359.
- Ekstrom, A., Widstrom, A-M., & Nissen, E. (2005). Process-oriented training in breastfeeding alters attitudes to breastfeeding in health professionals. *Scandinavian Journal of Public Health*, 33(6), 424–431. Doi: 10.1080/14034940510005923.
- Foreman, K. (1998). Vision and Mission. In D. Middlewood & J. Lumby (Eds.), *Strategic Management in Schools and Colleges* (p. 18). Retrieved from <http://books.google.com/>
- Health Resources and Services Administration. (2013). The U.S. Nursing Workforce: Trends in Supply and Education. Rockville, MD: Author.
- Health Resources and Services Administration. (2008). National Sample Survey of Registered Nurses, 1984-2008. Rockville, MD: Author.
- Hellings, P. & Howe, C. (2004). Breastfeeding knowledge and practice of pediatric nurse practitioners. *Journal of Pediatric Health Care*, 18(1), 8-14. DOI:10.1016/S0891-5245(03)00108-1.
- Houser, J. & Oman, K. S. (2011). *Evidence-Based Practice: An Implementation Guide for Healthcare Organizations*. Sudbury, MA: Jones & Bartlett.

Ip, S., Chung, M., Raman, G., Chew, P., Magula, N., DeVine, D., & Lau, J. (2007).

Breastfeeding and maternal and infant health outcomes in developed countries: Evidence report/technology assessment no. 153. Rockville, MD: Agency for Healthcare Research and Quality.

Joint Commission. (2015). *Specifications Manual for Joint Commission National Quality*

Measures (v2015A1). Retrieved from

<https://manual.jointcommission.org/releases/TJC2015A1/PerinatalCare.html>

Kingston, D., Dennis, C-L., & Sword, W. (2007). Exploring breast-feeding self-efficacy.

Journal of Perinatal and Neonatal Nursing, 21(3), 207-215.

Kirkpatrick, J. M. & Weaver, T. (2013). The Doctor of Nurse Practice capstone project:

Consensus or confusion? *Journal of Nursing Education*, 52(8), 435-441. Doi:

10.3928/01484834-20130722-01.

Kramer, M. S. & Kakuma, R. (2012). Optimal duration of exclusive breastfeeding. *Cochrane*

Database of Systematic Reviews, 8. Doi: 10.1002/14651858.CD003517.pub2.

Lewin, L. O. & O' Connor, M. E. (2012). "BreastfeedingBasics": Web-Based Education that

Meets Current Knowledge Competencies. *Journal of human lactation*, 28(3). 407-413.

DOI: 10.1177/0890334411435990

Li, C-M., Li, R., Ashley, C. G., Smiley, J. M., Cohen, J. H., & Dee, D. L. (2014). Associations

of hospital staff training and policies with early breastfeeding practices. *Journal of Human*

Lactation, 30(1) 88 –96. Doi: 10.1177/0890334413484551.

- Martens, P. J. (2000). Does breastfeeding education affect nursing staff beliefs, exclusive breastfeeding rates, and Baby-Friendly Hospital Initiative compliance? The experience of a small, rural Canadian hospital. *Journal of Human Lactation*, 16(4), 309-318.
- Maynard, C. R. (1996). Relationship of critical thinking ability to professional nursing competence. *Journal of Nursing Education*, 35(1), 12-18.
- McEwen, M. & Wills, E. M. (2014). *Theoretical Basis for Nursing* (4th ed.). Philadelphia, PA: Lippincott, Williams, & Wilkins.
- McInnes, R. J. & Chambers, J. A. (2008). Supporting breastfeeding mothers: Qualitative synthesis. *Journal of Advanced Nursing*, 62(4), 407-427. Doi: 10.1111/j.1365-2648.2008.04618.x.
- McQueen, K. A., Dennis, C., Stemler, R., & Norman, C. D. (2011). A pilot randomized controlled trial of a breastfeeding self-efficacy intervention with primiparous mothers. *Journal of Obstetric, Gynecologic, and Neonatal Nurses*, 40(1), 35-46. Doi: 10.1111/j.1552-6909.2010.01210.x
- Mellin, P. S., Poplawski, D. T., Gole, A., & Mass, S. B. (2011). Impact of a formal breastfeeding program. *Maternal Child Nursing*, 36(2), 82-88.
- Melnyk, B. M., & Fineout-Overholt, E. (2011). *Evidence-Based Practice in Nursing & Healthcare: A Guide to Best Practice*. Philadelphia, PA: Lippincott, Williams, & Wilkins.
- Morton, J., Hall, J. Y., & Pessl, M. (2013). Five steps to improve bedside breastfeeding care. *Nursing for Women's Health*, 17(6), 479-487. Doi: 10.1111/1751-486X.12076.

- O'Campo, P., Faden, R., Gielen, A., & Wang, M. (1992). Prenatal factors associated with breastfeeding duration: Recommendations for prenatal interventions. *Birth, 19*(4), 195-201. DOI: 10.1111/j.1523-536X.1992.tb00402.x
- O'Connor, M. E., Brown, E. W., & Lewin, L.O. (2011). An internet-based education program improves breastfeeding knowledge of maternal-child healthcare providers. *Breastfeeding Medicine, 6*(6). 421-427.
- Phillipp, B. L., Merewood, A., Gerendas, E. J., & Bauchner, H. (2004). Breastfeeding information in pediatric textbooks needs improvement. *Journal of Human Lactation, 20*(2), 206-210.
- Polit, D. F. (2010). *Statistics and Data Analysis for Nursing Research* (2nd ed.). Upper Saddle River, NJ: Pearson Education.
- Regis University. (2011). *Application for exempt approval of research involving human subjects*. Retrieved from <http://regis.edu/Academics/Academic-Grants/Proposals/Regis-Information/IRB.aspx>
- Renfrow, M. J., McCormick, F. M., Wade, A., Quinn, B., & Dowswell, T. (2012). Support for healthy breastfeeding mothers with healthy term babies. *Cochrane Database of Systematic Reviews, 5*. Doi: 10.1002/14651858.CD001141.pub4.
- Robb, M. (2012). Self-efficacy with application to nursing education: A concept analysis. *Nursing Forum, 47*(3), 166-172.

- Spatz, D. L. (2014). Core competencies in human milk and breastfeeding: Policy and practice implications for nurses. *Nursing Outlook*, 62(4), 297-298. Doi: 10.1016/j.outlook.2014.04.004.
- Spear, H. (2004). Nurses' attitudes, knowledge, and beliefs related to the promotion of breastfeeding among women who bear children during adolescence. *Journal of Pediatric Nursing*, 19(3), 176-183. doi:10.1016/j.pedn.2004.01.006.
- Spear, H. (2006). Baccalaureate nursing students' breastfeeding knowledge: A descriptive survey. *Nurse Education Today*, 26(4), 332-337.
- Stevens, E. E., Patrick, T. E., & Pickler, R. (2009). A history of infant feeding. *The Journal of Perinatal Education*, 18(2), 32-39.
- Taddei, J. A., Westphal, M. F., Venancio, S., Bogus, C., & Souza, S. (2000). Breastfeeding trainings for health professionals and resultant changes in breastfeeding duration. *São Paulo Medical Journal*, 118(6), 185-191.
- Thalheimer, W. & Cook, S. (2002). How to calculate effect sizes from published research articles: A simplified methodology. Retrieved from http://www.bwgriffin.com/gsu/courses/edur9131/content/Effect_Sizes_pdf5.pdf
- University of Kansas. (2014). Community Toolbox. Retrieved from <http://ctb.ku.edu/en/table-of-contents/participation/encouraging-involvement/identify-stakeholders/main>
- U. S. Breastfeeding Committee. (2010). *Core Competencies in Breastfeeding Care and Services for all Health Professionals*. Washington, D. C.: Author.

- U.S. Department of Health and Human Services. (2010). *Healthy People 2020*. Retrieved from <http://www.healthypeople.gov/2020/topics-objectives/topic/maternal-infant-and-child-health/objectives>
- U.S. Department of Health and Human Services. (2011). *The Surgeon General's Call to Action to Support Breastfeeding*. Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General.
- Vittoz, J-P., Labarere, J., Castell, M., Durand, M., & Pons, J-C. (2004). Effect of a training program for maternity ward professionals on duration of breastfeeding. *Birth*, 31(4), 302-307.
- Ward, K. N. & Byrne, J. P. (2011). A critical review of the impact of continuing breastfeeding education provided to nurses and midwives. *Journal of Human Lactation*, 27(4), 381 –393. Doi: 10.1177/0890334411411052.
- Weddig, J., Baker, S. S. & Auld, G. (2011). Perspectives of hospital-based nurses on breastfeeding initiation best practices. *Journal of Obstetric, Gynecologic, and Neonatal Nurses*, 40(2), 166-178. Doi: 10.1111/j.1552-6909.2011.01232.
- Williams, A., Young, J., Kearney, L., & Keogh, S. (2013). Improving knowledge of breastfeeding management: A practice development intervention for paediatric nurses. *Neonatal, Paediatric, and Child Health Nursing*, 16(2), 8-14.
- W. K. Kellogg Foundation. (2004). Logic Model Development Guide. Retrieved from <https://www.wkkf.org/resource-directory/resource/2006/02/wk-kellogg-foundation-logic-model-development-guide>

World Health Organization. (1981). *International Code of Marketing of Breastmilk Substitutes*.

Geneva, Switzerland: Author.

World Health Organization. (2014). *Nutrition: Exclusive Breastfeeding*. Retrieved from

http://www.who.int/nutrition/topics/exclusive_breastfeeding/en/

World Health Organization & United Nation's Children's Fund. (2009). *Baby-Friendly*

Hospital Initiative—Section 3: Breastfeeding Promotion and Support in a Baby-Friendly

Hospital. Geneva, Switzerland: Author.

Appendix A: Systematic Review of Literature

Author(s)	Year	Title/Journal	Themes/Implications/Comments	Level of Evidence
Kramer, M. S. & Kakuma, R.	2012	Optimal duration of exclusive breastfeeding. <i>International Journal of Evidence-Based Healthcare</i> , 11, 140-141.	Systematic review assessing the effects of breastfeeding on child health.	I
Spear, H. J.	2006	Baccalaureate nursing students' breastfeeding knowledge: A descriptive survey. <i>Nurse Education Today</i> , 25, 332-227.	Findings showed the need for more breastfeeding education in nursing school.	V
Bernaix, L. W., Beaman, M. L., Schmidt, C. A., Harris, J. K., & Miller, L. M.	2010	Success of an educational intervention on maternal/newborn nurses' breastfeeding knowledge and attitudes. <i>Journal of Obstetric, Gynecologic, and Neonatal Nursing</i> , 39(6), 658-666.	Educational strategy was effective at improving breastfeeding knowledge, attitudes, and beliefs of maternal/newborn nurses.	III
Williams, A., Young, J., Kearney, L., & Keogh, S.	2013	Improving knowledge of breastfeeding management: a practice development intervention for paediatric nurses. <i>Neonatal, Paediatric, and Child Health Nursing</i> , 16(2), 8-14.	Pediatric nurses lack knowledge, gain most of it through personal experience. Also, pediatric nurses were able to improve breastfeeding knowledge after intervention.	VI
Vittoz, J. P., Labarere, J., Castell, M., Durand, M., & Pons, J. C.	2004	Effect of a training program for maternity ward professionals on duration of breastfeeding. <i>Birth</i> , 31(4).	Increased duration of breastfeeding (in weeks) in new mothers with training program for nurses.	II
Weddig, J., Baker, S. S., & Auld, G.	2011	Perspectives of hospital-based nurses on breastfeeding initiation best practices. <i>Journal of Obstetric, Gynecologic, and Neonatal Nursing</i> , 40, 166-178	Assessed perceptions of nurses (at 8 Colorado hospitals) with regards to breastfeeding best practices.	VI

Ward, K. N. & Byrne, J. P.	2011	A critical review of the impact of continuing breastfeeding education provided to nurses and midwives. <i>Journal of Human Lactation</i> , 27(4).	Systematic review of literature to examine effects of education on breastfeeding in nurses and midwives. Continuing education improves their knowledge, skills, and attitudes.	V
Lewin, L. O., & O'Connor, M. E.	2012	"BreastfeedingBasics": Web-Based Education that Meets Current Knowledge Competencies. <i>Journal of human lactation</i> , 28 (3).	Use of a free internet-based educational program improved breastfeeding knowledge.	VI
O'Connor, M. E., Brown, E. W., & Lewin, L. O.	2011	An internet-based education program improves breastfeeding knowledge of maternal-child healthcare providers. <i>Breastfeeding Medicine</i> , 6(6), 421-427.	Use of a free internet-based educational program improved breastfeeding knowledge.	VI
Ekstrom, A., Kylberg, E., & Nissen, E.	2012	A process-oriented breastfeeding training program for healthcare professionals to promote breastfeeding: An intervention study. <i>Breastfeeding Medicine</i> , 7(2), 85-92.	Process-oriented training program for midwives and postnatal nurses increased duration of exclusive breastfeeding.	II
Hellings, P. & Howe, C.	2000	Assessment of breastfeeding knowledge of nurse practitioners and nurse-midwives. <i>Journal of Midwifery & Women's Health</i> , 45(3), 264-270.	Assessed breastfeeding knowledge, attitudes, and experiences of nurse midwives and nurse practitioners.	VI
Ekstrom, A., Matthiesen, A., Widstrom, A., & Nissen, E.	2005	Breastfeeding attitudes among counselling health professionals Development of an instrument to describe breastfeeding attitudes. <i>Scandinavian Journal of Public Health</i> , 33, 353-359.	Developed an instrument to assess nurses' and midwives' attitudes toward breastfeeding	VI
Watkins, A. L. & Dodgson, J. E.	2010	Breastfeeding educational interventions for health professionals: a synthesis of intervention studies. <i>Journal for Specialists in Pediatric Nursing</i> , 15(3), 223-232.	Review of literature which concluded that breastfeeding education can be effective in increasing knowledge and confidence in nurses.	V

Martens, P. J.	2000	Does breastfeeding education affect nursing staff beliefs, exclusive breastfeeding rates, and Baby-Friendly Hospital Initiative compliance? The experience of a small, rural Canadian hospital. <i>Journal of Human Lactation</i> , 16(4), 309-318.	The education intervention increased BFHI compliance, breastfeeding beliefs, and EB rates, but no change in breastfeeding attitudes.	III
Mellin, P. S., Poplawski, D. T., & Gole, A.	2011	Impact of a formal breastfeeding education program. <i>Maternal Child Nursing</i> , 36(2), 82-88.	Educational program improved levels of breastfeeding knowledge.	III
Davis, S. K., Stichler, J. F., & Poeltler, D. M.	2012	Increasing exclusive breastfeeding rates in the well-baby population: An evidence-based change project. <i>Nursing for Women's Health</i> , 16(6), 461-470.	EBP used educational strategy to improve maternity nurses' breastfeeding knowledge and attitudes.	VI
Robb, M.	2012	Self-efficacy with application to nursing education: A concept analysis. <i>Nursing Forum</i> , 47(3), 166-172.	Concept analysis of self-efficacy and relationship to nursing education.	VI
Dennis, C-L., & Faux, S.	1999	Development and psychometric testing of the breastfeeding self-efficacy scale. <i>Research in Nursing & Health</i> , 22, 399-409.	Developed and tested an instrument to measure confidence in breastfeeding mothers.	VI
Kingston, D., Dennis, C-L., & Sword, W.	2007	Exploring breast-feeding self-efficacy. <i>Journal of Perinatal and Neonatal Nursing</i> , 21(3), 207-215.	Breastfeeding Self-Efficacy Scale is a valid instrument in breastfeeding mothers.	VI
Spatz, D. L.	2014	Core competencies in human milk and breastfeeding: Policy and practice implications for nurses. <i>Nursing Outlook</i> , 62(4), 297-298.	Multiple organizations have called for improved breastfeeding education for all health care professionals.	VII
Ekstrom, A., Widstrom, A-M., & Nissen, E.	2005	Process-oriented training in breastfeeding alters attitudes to breastfeeding in health professionals. <i>Scandinavian Journal of Public Health</i> , 33(6), 424-431	Process-oriented breastfeeding training improved nurses' attitudes.	III

Blixt, I., Martensson, L. B., & Ekstrom, A. C	2014	Process-oriented training in breastfeeding for health professionals decreases women's experiences of breastfeeding challenges. <i>International Breastfeeding Journal</i> , 9(15), n.p.	Process-oriented breastfeeding training for hospital staff improved women's satisfaction with breastfeeding counseling and decreased women who experienced insufficient milk supply.	III
Creedy, D. K., Cantrill, R. M., & Cooke, M.	2008	Assessing midwives' breastfeeding knowledge: Properties of the Newborn Feeding Ability questionnaire and Breastfeeding Initiation Practices scale. <i>International Breastfeeding Journal</i> , 3(7), n.p.	Evaluated two instruments which identify lack of breastfeeding knowledge and practice deficits for reliability and validity.	VI
Ebersold, S. L., Murphy, S. D., Paterno, M. T., Sauvager, M. D., & Wright, E. M.	2007	Nurses and breastfeeding: Are you being supportive? <i>Nursing for Women's Health</i> , 11(5), 482-487	Case study to present harmful nursing attitudes and behaviors with regards to breastfeeding.	VII
McInnes, R. J. & Chambers, J. A.	2008	Supporting breastfeeding mothers: Qualitative synthesis. <i>Journal of Advanced Nursing</i> , 62(4), 407-427.	Systematic review regarding mothers' and health care professionals' perceptions of breastfeeding support.	V
Renfrow, M. J., McCormick, F. M., Wade, A., Quinn, B., & Dowswell, T.	2012	Support for healthy breastfeeding mothers with healthy term babies. <i>Cochrane Database of Systematic Reviews</i> , 5.	Breastfeeding support should be offered to all mothers. And, breastfeeding support improved duration of breastfeeding.	II
Li, C-M., Li, R., Ashley, C. G., Smiley, J. M., Cohen, J. H., & Dee, D. L.	2014	Associations of hospital staff training and policies with early breastfeeding practices. <i>Journal of Human Lactation</i> , 30(1) 88 –96	Breastfeeding rates were higher in hospitals that offered breastfeeding education for new employees and had classes within the last year, among other things.	IV

McQueen, K. A., Dennis, C., Stemler, R., & Norman, C. D.	2011	A pilot randomized controlled trial of a breastfeeding self-efficacy intervention with primiparous mothers. <i>Journal of Obstetric, Gynecologic, and Neonatal Nurses</i> , 40(1), 35-46	Nursing intervention applied to improve mothers' breastfeeding self-efficacy.	II
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IMPACT OF EDUCATIONAL INTERVENTION ON NURSES' BREASTFEEDING SELF-EFFICACY 42

Appendix B: CITI Training

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COURSEWORK REQUIREMENTS REPORT*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Sarah Washburn (ID: 4660866)
- **Email:** washb144@regis.edu
- **Institution Affiliation:** Regis University (ID: 745)
- **Institution Unit:** Nursing

- **Curriculum Group:** Human Research
- **Course Learner Group:** Social Behavioral Research Investigators and Key Personnel
- **Stage:** Stage 1 - Basic Course

- **Report ID:** 15212587
- **Completion Date:** 02/04/2015
- **Expiration Date:** 02/03/2018
- **Minimum Passing:** 80
- **Reported Score*:** 93

REQUIRED AND ELECTIVE MODULES ONLY

Belmont Report and CITI Course Introduction
History and Ethical Principles - SBE
The Federal Regulations - SBE
Assessing Risk - SBE
Informed Consent - SBE
Privacy and Confidentiality - SBE
Regis University

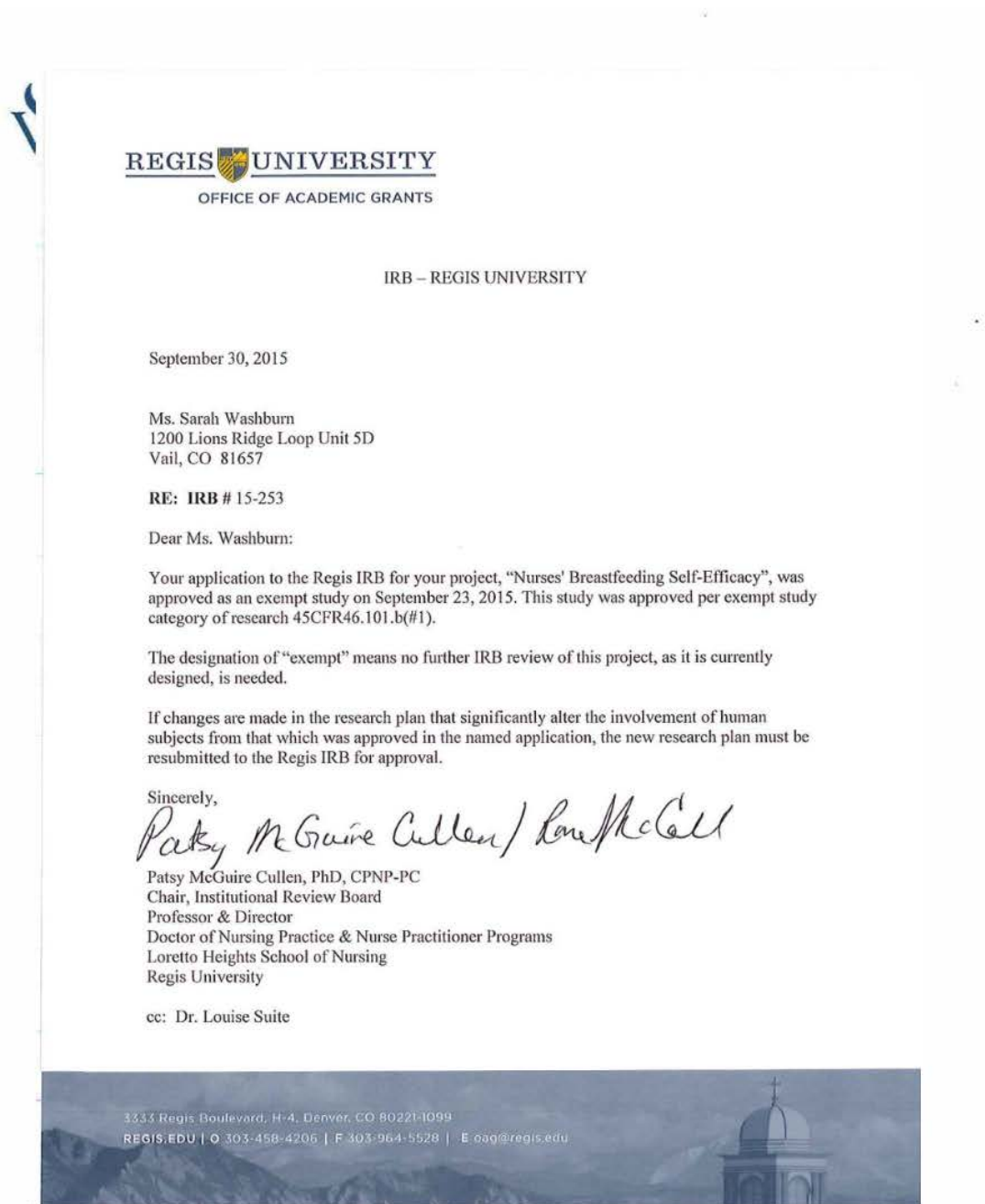
DATE COMPLETED

02/04/15
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02/04/15

Collaborative Institutional
Training Initiative
at the University of Miami

IMPACT OF EDUCATIONAL INTERVENTION ON NURSES' BREASTFEEDING SELF-EFFICACY 43

Appendix C: IRB Approval from Regis University



Appendix D: Agency Letter of Support from VVMC

IMPACT OF EDUCATIONAL INTERVENTION ON NURSES' BREASTFEEDING SELF-EFFICACY 44

Appendix E: Permission to use video

RE: DVD use in research project

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RE: DVD use in research project

Info - Healthy Children Project [info@centerforbreastfeeding.org]

Sent: Tuesday, May 12, 2015 9:05 AM

To: Washburn, Sarah R

Hi Sarah -

You are welcome to use the video in your research project. Please send us a copy of the results when you are finished!

Thank you,

Mary

Healthy Children Project, Inc.
The Center for Breastfeeding
327 Quaker Meeting House Road
East Sandwich, MA 02537
www.healthychildren.cc
phone 508 888 8044
fax 508 888 8050

From: Washburn, Sarah R [washb144@regis.edu]

Sent: Saturday, May 09, 2015 5:26 PM

To: Info - Healthy Children Project

Subject: DVD use in research project

Hi,

I am in Regis University (Colorado) Doctor of Nurse Practice student, as well as an IBCLC. I am about to embark on research into nurses' self-efficacy with regards to assisting mothers breastfeed; the research design is pre-/post-test. I am looking for permission to use the DVD Latch 1, 2, 3: Troubleshooting Breastfeeding in the First Few Weeks to accompany an education plan for nurses in my study. The plan also includes a brief in-service taught by myself and I think the video would fit nicely. There would be about 30 nurses who would watch the video.

Thanks for your time,

Sarah Washburn, MS, RNC-OB, IBCLC
405-615-5061

Age: _____ years old

IMPACT OF EDUCATIONAL INTERVENTION ON NURSES' BREASTFEEDING SELF-EFFICACY 47

Appendix G: Permission to modify *Breastfeeding Self-Efficacy Scale*

RE: Permission to Modify BSES for Nurses

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RE: Permission to Modify BSES for Nurses

Cindy-Lee Dennis [cindylee.dennis@utoronto.ca]

Sent: Thursday, July 30, 2015 12:49 PM

To: Washburn, Sarah R

Dear Sarah,

I have not seen this done before but I guess it is ok. Only a few of my items are included and the rest are other none related items. Good luck with your study.

Warm regards,

Cindy-Lee

Cindy-Lee Dennis, PhD

Professor in Nursing and Medicine, Dept. of Psychiatry;

Canada Research Chair in Perinatal Community Health;

Shirley Brown Chair in Women's Mental Health Research, Women's College Research Institute;

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