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Evaluation of a Practice Change Using COPE (Creating Opportunities for Parent Empowerment) to Address Maternal Anxiety, Depression and Expectations Related to Preterm Birth and Subsequent Neonatal Intensive Care Unit (NICU) Admission

Dennelle Parker

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Evaluation of an Evidence-Based Breastfeeding Education Program for
Pediatric and Women's Health Care Providers,
Family Practice Residents, Medical Students, and Physician Assistant Students

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Doctoral Capstone Project submitted to the
School of Nursing
at West Virginia University

in partial fulfillment of the requirements for the degree of
Doctor of Nursing Practice Degree

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2015

Keywords: breastfeeding, education, health care providers, theory of reasoned action

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ABSTRACT

Evaluation of an Evidence-Based Breastfeeding Education Program for Pediatric and Women's Health Care Providers, Family Practice Residents, Medical Students, and Physician Assistant Students

Alissa Terry Parker, MSN, CPNP, IBCLC

Background

Every year approximately \$13 billion are spent and an estimated 900 infant lives are lost in the United States as a result of infants not exclusively receiving breast milk for the first six months of life. Many health care providers lack knowledge and supportive skills regarding basic breastfeeding management. However, the results of several research studies indicate that health care providers who provide support and who are knowledgeable in breastfeeding management can improve the breastfeeding rates of the maternal-infant dyads that they serve. An evidence-based breastfeeding educational program can significantly increase the breastfeeding knowledge and attitudes of health care providers.

Objectives

The goal of this project was to significantly increase the breastfeeding knowledge and attitudes of family practice residents, medical students, Physician Assistant students and the pediatric and women's health clinical faculty practicing within the outpatient clinics of a rural hospital located in eastern Kentucky.

Design

This study used a quasi-experimental pre-test and post-test design. Clinical faculty working in the pediatric and women's health clinics attended a 1-hour evidence-based breastfeeding education program. Family practice residents, medical students, and Physician Assistant students attended 12 1-hour breastfeeding education seminars which occurred twice weekly for six weeks during hospital Grand Rounds. Pre- and post- measurements included knowledge and attitude scores. Clinical faculty completed the modified Physicians Breastfeeding Assessment Survey pre- and post-intervention. Residents, medical students, and Physician Assistance students completed the American Academy of Pediatrics Breastfeeding Residency Curriculum Tests, the modified Physicians Breastfeeding Assessment Survey, and the modified Nursing Support for Breastfeeding Questionnaire pre- and post- intervention.

Subjects

Thirty clinical faculty members were eligible to attend the program and the program was completed by 27 clinical faculty. All 14 eligible students attended and completed the Grand Rounds program.

Results

Clinical faculty members had a statistically significant improvement in knowledge scores on the modified Physicians Breastfeeding Assessment Survey after attending the 1-hour program ($p < 0.001$). Clinical faculty did not display a statistically significant improvement in attitude scores ($p = 0.19$). Residents and students had statistically significant improvement in knowledge scores on the modified Physicians Breastfeeding Assessment Survey and the American Academy of Pediatrics Breastfeeding Residency Curriculum Tests ($p < 0.001$; $p < 0.001$, respectively). Residents and students also experienced statistically significant improvement in breastfeeding attitudes on the modified Physicians Breastfeeding Assessment Survey and the modified Nursing Support for Breastfeeding Questionnaire ($p = 0.054$; $p < 0.001$, respectively).

Conclusion

The implementation of an evidence-based breastfeeding education program for students and faculty improved breastfeeding knowledge and attitudes of students and breastfeeding knowledge of faculty. Evidence-based breastfeeding programs are a cost-effective strategy to improve knowledge of health care providers.

Dedication

I dedicate this work to the memory of my mother, Sue Carol Holliday Terry.

Acknowledgements

I wish to pause for a moment to express my deep gratitude and thanks to those who have offered help and assistance so I could reach my educational goals.

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Table of Contents

Dedication.....	iv
Acknowledgements.....	v
Introduction.....	1
Background and Problem Statement.....	2
Purpose of the Project.....	6
Significance of the Project.....	6
Literature Review and Synthesis.....	7
Search Strategy.....	7
Study Identification.....	7
Selection Criteria.....	8
Methods for Quality Assessment.....	9
Data Abstraction.....	9
Study Characteristics.....	9
Interventions and Outcomes.....	11
Findings.....	12
Discussion.....	12
Implications for Practice.....	14
Theoretical Framework.....	15
Project.....	17
Description and Design.....	17
Participants.....	19
Integration of Theory.....	20

Feasibility Analysis.....	21
Congruence of Organization’s Strategic Plan to Project.....	23
Measureable Project Outcomes.....	25
Evaluation.....	26
Evaluation Tools.....	26
Evaluation of Objectives.....	27
Results.....	29
Faculty Sociodemographics.....	29
Student Sociodemographics.....	29
Faculty Pre-Test and Post-Test Results.....	30
Student Pre-Test and Post-Test Results.....	30
Key Facilitators and Key Barriers.....	31
Unanticipated Consequences.....	32
Discussion and Recommendations.....	32
Additional Findings.....	32
Theoretical Framework.....	33
Site Recommendations and Application to Other Settings.....	33
Ongoing Evaluation.....	34
Application to Other Settings.....	35
Attainment of DNP Essentials.....	35
Conclusion.....	36
References.....	38
Appendix A:.....	47

Appendix B:.....	50
Appendix C:.....	57
Appendix D:.....	66
Appendix E:.....	67
Appendix F:.....	68
Appendix G:.....	79
Appendix H:.....	89
Appendix I:.....	104
Appendix J:.....	107

List of Tables

Table 1. Sociodemographic characteristics of faculty who participated in the breastfeeding education program (n=27).....	104
Table 2. Sociodemographic characteristics of students who participated in the breastfeeding education program (n=14).....	106
Table 3. Changes in faculty knowledge and attitude scores from pre-test to post-test (n=27)..	107
Table 4. Changes in student knowledge and attitude scores from pre-test to post-test (n=14)..	108

Evaluation of an Evidence-Based Breastfeeding Education Program for

Pediatric and Women's Health Care Providers,

Family Practice Residents, Medical Students, and Physician Assistant Students

Breastfeeding rates for Kentucky are among the lowest in the nation. In Kentucky, 61.3% of infants are ever breastfed and only 14.2% of infants are exclusively breastfed by six months of age, while national rates are 79.2% and 18.8%, respectively (CDC, 2014). There are many risk factors that can result in low breastfeeding rates such as low income level, low education status, smoking behaviors, young age at pregnancy, and obesity (Bailey & Wright, 2010; CDC, 2014; Heck, Braveman, Cubbin, Chavez, & Kiely, 2006; Scott, Binns, Oddy, & Graham, 2006). These risk factors for not breastfeeding are present in the population of eastern Kentucky (Henry J. Kaiser Family Foundation, 2014; Kentucky Cabinet for Health & Family Services, 2012b; United States Census Bureau [USCB], 2013).

Research has shown that health care providers (HCPs) who are knowledgeable in breastfeeding management and are supportive of breastfeeding can have a positive impact upon the breastfeeding rates of their clients (Hillenbrand & Larsen, 2002; Feldman-Winter et al., 2010; Ogburn, Espey, Leeman, & Alvarez, 2005; Watkins & Dodgson, 2010). Burton (2001) studied infant feeding practices in southeastern Kentucky and found that in a few cases mothers were discouraged to start or continue breastfeeding by a medical professional. The purpose of this Doctor of Nursing Practice (DNP) capstone project was to evaluate the implementation of a breastfeeding education program (BEP) for family practice residents, medical students, physician assistant (PA) students, and the pediatric and women's health clinic faculty (physicians and nurses) at a rural hospital and associated pediatric clinics serving the people of eastern Kentucky. Martin Fishbein's and Icek Ajzen's Theory of Reasoned Action (TRA) was used to guide the capstone project.

Background and Problem Statement

Every year approximately \$13 billion are spent and an estimated 900 infant lives are lost in the United States as a result of infants not exclusively receiving breast milk for the first six months of life (Bartick & Reinhold, 2010). Suboptimal breastfeeding rates for women result in 4,000 premature maternal deaths per year and \$18.3 billion maternal health costs (Bartick et al., 2013). Multiple health organizations recommend exclusive breastfeeding for the first six months of life (American Academy of Family Physicians [AAFP], 2012; American Academy of Pediatrics [AAP], 2012; American Congress of Obstetricians and Gynecologists [ACOG], 2007; World Health Organization [WHO], 2014). Despite these recommendations many HCP's lack knowledge and supportive skills regarding basic breastfeeding management (Anchondo et al., 2012; Brodribb, Fallon, Kackson, & Hegney, 2008; Pound, Williams, Grenon, Aglipay, & Plint, 2014). However, the results of several research studies indicate that HCP's who provide support and who are knowledgeable in breastfeeding management can improve the breastfeeding rates of the maternal-infant dyads whom they serve (Hillenbrand & Larsen, 2002; Feldman-Winter et al., 2010; Ogburn, Espey, Leeman, & Alvarez, 2005; Watkins & Dodgson, 2010).

Lack of Breastfeeding Knowledge in HCP's

Evidence suggests HCP's provide minimal support or education to mothers, that support is contradictory and lacking in content, and that HCP's report a lack of knowledge and confidence when providing lactation education and services (Guise & Freed, 2000; Leavitt, Martinez, Ortiz, & Garcia, 2008; Wambach et al., 2005; Watkins & Dodgson, 2010). Prior to the implementation of the BEP, students (family practice residents, medical students, and PA students) at the rural hospital received minimal formalized training or education regarding breastfeeding management and support. All breastfeeding education occurred informally between the resident, medical student, or PA student and the clinical faculty. Prior to the capstone project, system did not

provide routine evidence-based breastfeeding education for the medical students, faculty, or nurses (G. Feinberg, personal communication, January 19, 2015).

Advance practice registered nurses. APRN's often focus on health promotion activities in their practice areas, and APRN's generally acknowledge that breastfeeding enhances the short term and long term health of both the mother and child (Hellings & Howe, 2000). According to the results of a survey by Hellings and Howe (2000; 2004), APRN's reported receiving minimal breastfeeding education in their programs of study. When Hellings and Howe (2000) compared the results of their survey to the results of the 1995 pediatrician survey by Freed et al., APRN's were found to be more knowledgeable concerning the benefits of breastfeeding, but only two-thirds of APRN's and pediatricians felt comfortable meeting the needs of breastfeeding mothers (Freed et al., 1995a; Freed et al., 1995b; Hellings & Howe 2000). Hellings and Howe (2000) also identified that APRN's were likely to rely on their personal breastfeeding experiences or those of their partner when counseling breastfeeding mothers, which may result in non-evidence based problem solving strategies and education. This may also limit the assistance that APRNs are able to provide to breastfeeding mothers (Hellings & Howe 2000; 2004).

Family practice residents. Freed, Clark, Curtis, and Sorenson (1995a) found family practice residents to possess large deficits in breastfeeding knowledge and management of common breastfeeding issues. Additional findings from this survey included inappropriate recommendations to terminate breastfeeding and usage of formula supplementation. A study by Haughwout, Eglash, Plane, Mundt, and Fleming (2000) further confirmed a widespread deficit of breastfeeding knowledge and lack of experience in management of breastfeeding problems in family practice residents.

Medical students. To date, there are no published studies in which the focus population

includes medical students. It could be inferred that if breastfeeding education for residents has been insufficient and resident knowledge is lacking, medical students' knowledge of breastfeeding management and support is also inadequate. In 2011, The Academy of Breastfeeding Medicine developed guidelines for undergraduate education and stated, "All physicians, regardless of discipline, should have basic knowledge and skills in breastfeeding preventative maintenance, diagnosis, and treatment. Therefore, the theory and practice of breastfeeding should be incorporated routinely into medical school curricula" (p. 99).

Nurses. Nurses continue to be in a position to provide education and support to breastfeeding mothers, but the literature repeatedly suggests that nurses exhibit a lack of knowledge and supportive attitudes concerning breastfeeding (Bernaix et al 2000; Bernaix et al., 2010; Dillaway & Douma, 2004; Register et al., 2000; Spear, 2004). In a study by Register et al. (2004), only 46% of participants received breastfeeding training while in nursing school and 85% of participants received on the job training. More than a quarter of the respondents had not observed a mother breastfeeding within the previous year. Spear (2004) found that 41.9% of 151 surveyed nurses believed formula and breastmilk to be comparable.

Pediatricians. The AAP (2012) continues to recognize that infants should exclusively breastfeed until the age of 6 months, and physician support to breastfeeding mothers can positively impact breastfeeding rates (Dillaway & Douma, 2004). Nevertheless, pediatricians continue to lack necessary knowledge concerning breastfeeding. The results of a national survey completed by Freed et al. (1995b), suggested pediatricians and residents lacked knowledge and clinical competency in breastfeeding management and support. Williams and Hammer (1995) had similar findings in their study of pediatric residents. More recently, Pound et al. (2014) studied Canadian pediatricians and also found knowledge deficits. Less than half of the

physicians in that study believed it was the responsibility of the primary care physician to assess and evaluate breastfeeding in the mother and child, and only 5.1% of pediatricians routinely observed breastfeeding dyads (Pound et al., 2014).

Female physicians as an at-risk group. Results of surveys by Freed et al. (1995a; 1995b) and Sattari, Levine, Neal, and Serwint (2013) suggest that that a strong predictor of physician breastfeeding advocacy is the physician's personal breastfeeding success or the breastfeeding success of a significant other. Physician mothers continue to have excellent breastfeeding initiation rates with some studies citing initiation as high as 97%, but breastfeeding rates of female physicians at one year are routinely below the Healthy People 2020 goals, and in some cases lower than state averages (Arthur, Saenz, & Replogle, 2003; Riggins, Rosenman, & Szucs, 2012; Sattari, Levine, Bertram, & Serwint, 2010; Sattari, Levine, & Serwint, 2010; Sattari, Levine, Neal, & Serwint, 2013). Return to work and inability to find time to pump while at work with resulting low milk supply have been identified as problems for physician breastfeeding mothers to maintain breastfeeding success (Arthur et al., 2003; Dixit, Feldman-Winter, & Szucs, 2015; Riggins et al., 2013; Sattari et al., 2010). Riggins et al. (2013) found that approximately two thirds of female physicians who initiated breastfeeding had difficulties and in 25% of these cases, they were unable to resolve the problem. In a study completed by Dixit et al. (2015), 25% of female pediatric residents did not meet their personal breastfeeding goals, 33% were unable to meet their goal for exclusive breastfeeding and 92% identified that their clinical interaction with patient's mothers was affected by their personal or partner's breastfeeding experience. Low breastfeeding continuation rates of female physicians could impact their level of active breastfeeding advocacy (Sattari et al., 2013).

Physician assistants. Although the American Academy of Physician Assistants (2013)

specifically endorses breastfeeding, results of a study by Meusch, Elliot, and Fasser (2013), suggest that participating PA students felt unprepared in regard to breastfeeding knowledge and counseling skills. The authors also recommended that because PA's participate in providing one-on-one patient care, "all PA programs implement formalized breastfeeding education as a fundamental topic within the core curriculum" (Meusch et al., 2013 para 15).

Purpose of the Project

The purpose of this DNP capstone project was to evaluate the implementation of a BEP in two populations: family practice residents, medical students, and physician assistant students and pediatric and women's health clinic faculty within the rural hospital. The BEP project was comprised of two phases and two evidence-based breastfeeding educational programs: a short, 1-hour in-service program for faculty and a 12-hour intensive program for students. The BEP also expanded community-based partnerships and provided professional development. Fishbein's and Azjen's Theory of Reasoned Action provided guidance for the implementation of the BEP.

Significance of the Project

According to many research findings, the use of an evidence-based BEP can result in increasing HCP's breastfeeding knowledge and attitude toward breastfeeding, as well as increasing the breastfeeding rates of the mother-infant dyads they serve (Hillenbrand & Larsen, 2002; Feldman-Winter et al., 2010; Ogburn, Espey, Leeman, & Alvarez, 2005; Watkins & Dodgson, 2010). The goals of this capstone were consistent with the positive outcomes documented in studies which implemented a BEP. The use of an evidence-based BEP did result in an increase in breastfeeding knowledge and more positive attitude towards breastfeeding by the attending students and an increase in knowledge by the attending faculty at the rural hospital.

The significance of the BEP was demonstrated by improving the knowledge of breastfeeding management and attitude toward breastfeeding by the participating students and by improving

the knowledge of faculty within a hospital system serving eastern Kentucky. In addition the project provided the rural hospital with the distinction of being the first hospital organization in the Tri-State area to provide an evidence-based BEP for students and pediatric and women's health faculty.

Literature Review and Synthesis

Search Strategy

A search of the literature was performed according to a framework developed by Larrabee (2009). The search for new publications ended on July 9, 2014. Key search words were: breastfeeding, education, medical student, resident, physician, and nurse. Databases that were searched were: PubMed, CINAHL, Academic Search Complete, Health Source: Nursing/Academic Edition, and The Cochrane Library. Inclusion criteria for the search included publication in peer-reviewed English language journals. Publication dates for studies in which the intervention group included physicians, residents, medical students or physician assistants were 1992-2014. Publication dates for studies in which the intervention group included nurses or advance practice registered nurses were 2002-2014. Due to the cultural context of breastfeeding, studies completed in developing countries were excluded. The search resulted in a total of 256 hits across all five databases. After removal of duplicate articles across the five databases, a total of 91 articles remained.

Study Identification

A three- step process was utilized to determine if an article should be retained or excluded. The first step of this process was to screen titles and abstracts of the articles. Articles were excluded if they were not research studies or systematic reviews (n= 26). Full-text articles were retrieved in cases where the title or abstract did not provide enough information to make this determination. Next, the full texts of the articles were reviewed to ensure all of the inclusion

criteria were met. Articles were excluded if they occurred in developing countries (n= 3), if they were not studies of outcomes of the implementation of a breastfeeding education program (n=4), if participants were undergraduate nursing students (n=2) or other types of health care providers (n=3), if measured outcomes did not include either breastfeeding knowledge, attitude, or intent to support breastfeeding (n=3), or if the article was utilized in either of the two identified systematic reviews (n=24). No additional articles were found after careful hand searching of the reference lists of all relevant articles. A total of eight articles were included in this review: two systematic reviews (Ward & Byrne, 2011; Watkins & Dodgson, 2010) and six quasi-experimental studies (Bernaix, Bearman, Schmidt, Harris, & Miller, 2010; Feldman-Winter et al., 2010; Haughwout et al., 2000; Holmes, McLeod, Thesing, Kramer, & Howard, 2012; Mellin, Poplawski, & Gole, 2011; O'Connor, Brown, & Lewin, 2011).

Selection Criteria

Population. The focus population of this review is health care providers, and for the purpose of this project this is defined as physicians, residents, medical students, physician assistants, advance practice registered nurses, and nurses. This review excluded individual studies which involved undergraduate nursing students or other health occupations such as dietitians. In the systematic review by Watkins and Dodgson (2010), one study reviewed included Bachelor of Science in Nursing (BSN) students and another study reviewed included participants from the administrative staff of a Women, Infants, and Children (WIC) clinic. Ward and Byrne (2011) included the same study of the administrative staff of the WIC clinic in their review. It was decided to retain these two systematic reviews for this review because the overwhelming number of articles in each of the two systematic reviews did have the appropriate population focus as identified above.

Intervention. The intervention had to include some form of formal breastfeeding education. Style of education provided was not limited and could consist of written or spoken word, in-person training, self-paced internet learning, or a combination of varied presentation techniques.

Principle outcomes. The outcome of interest was breastfeeding knowledge and attitude as well as intent to provide breastfeeding supportive behaviors. Articles that measured any of these outcomes were included.

Study Design. To be included in the review articles had to either be a systematic review or quantitative research study. Qualitative studies were excluded.

Methods for Quality Assessment

A critical appraisal was completed by a single reviewer on all eight of the studies. The Scottish Intercollegiate Guidelines Network (2011) form was used for the two systematic reviews. The remaining six studies were appraised using the quantitative literature review worksheet developed by Larrabee (2009).

Data Abstraction

Data were abstracted by a single reviewer. Abstracted data included characteristics of the studies, and detailed data concerning the interventions and outcomes were entered into a separate table to assist with synthesis of findings of the included studies. In addition an analysis of similarities and differences across populations, interventions, measures, outcomes was performed by the single reviewer.

Study Characteristics

The six studies and two systematic reviews varied in location. One study involved both inpatient and outpatient groups within a single hospital setting (Haughwout et al., 2000). One of the studies was completed in a single hospital setting with a maternity/labor and delivery unit

(Mellin et al., 2011). Three studies involved more than one hospital with a maternity/labor and delivery unit (Bernaix et al., 2010; Feldman-Winter et al. 2010; Holmes et al. 2010). One study was a nation-wide internet-based learning activity (O'Connor et al., 2011). All of the studies were completed in the United States, two in multiple areas of the United States (Feldman-Winter et al., 2010; O'Connor et al., 2011), one in the mid-west and one on the east coast (Bernaix et al., 2010), one in the north-central region (Haughwout et al., 2000), and two in north eastern region (Holmes et al., 2012; Mellin et al., 2011). Both systematic reviews included studies completed outside of the United States but only in developed countries (Ward & Byrne, 2011; Watkins & Dodgson, 2010).

Data collection was varied across studies. All of the studies utilized a pre and post-test design with a convenience sample. In two of the studies, participants acted as their own control group (Mellin et al., 2011; O'Connor et al., 2011). In four of the studies, groups were divided into intervention and control groups and were not randomized (Bernaix et al., 2010; Feldman-Winter et al., 2010; Haughwout et al., 2000; Holmes et al., 2012). Five of the studies collected and analyzed data over a period of less than one year (Bernaix et al., 2010; Feldman-Winter et al., 2010; Haughwout et al., 2000; Holmes et al., 2012; Mellin et al., 2011). One study collected data over a nine year period (O'Connor et al., 2011). Sample sizes ranged from 24 participants (Haughwout et al., 2000), to 1838 participants (O'Connor et al., 2011). All of the study participants were HCP's, however studies differed on type of HCP's included. One of the studies included only maternal newborn nurses (Bernaix et al., 2010). One of the studies included family practice, pediatric, and obstetrics and gynecology residents (Feldman-Winter et al., 2010). One study included only family practice residents (Haughwout et al., 2000). And three of the studies were multidisciplinary including primary care providers, residents, and

nurses (Holmes et al., 2012; Mellin et al., 2011; O'Connor et al., 2011). Both systematic reviews contained detailed methodology. Watkins and Dodgson (2010) included all healthcare providers, nursing students, and nonprofessional staff, while Ward and Byrne (2011) examined only nurses and midwives.

Interventions and Outcomes

Though all of the studies utilized some type of breastfeeding education intervention, the format and length of intervention utilized varied widely from study to study. Five of the studies had some form of in-person education or training (Bernaix et al., 2010; Feldman-Winter et al., 2010; Haughwout et al., 2000; Holmes et al. 2012; Mellin et al., 2011). One study was completely on-line and self-paced (O'Connor et al., 2011). Four of the studies used a multidisciplinary approach with teaching while one utilized a peer facilitator (Bernaix et al., 2010). Length of instruction differed across studies. The shortest study educational session was one hour (Mellin et al., 2011). The longest total amount of education hours listed by a study was 4.5 hours (Haughwout et al., 2000). Four of the studies did not specify the total amount of instructional time (Bernaix et al., 2010; Feldman-Winter et al., 2010; Holmes et al., 2012; O'Connor et al., 2011).

The outcomes examined in these six studies were breastfeeding knowledge, attitude concerning breastfeeding and intent to provide breastfeeding support. Measurement tools utilized by the studies also were various. All of the studies utilized a different form of a pre-test and post-test to measure change and in four studies the authors developed their own pre-test and post-test (Bernaix et al., 2010; Haughwout et al., 2000; Mellin et al., 2011; O'Connor et al., 2011). One study utilized a pre-test and post-test developed by the American Academy of Pediatrics (Feldman-Winter et al., 2010). Haughwout et al. (2000) also used the Objective

Structured Clinical Examination (OSCEs). Two studies modified an existing survey (Bernaix et al., 2010; Holmes et al., 2012). Bernaix et al. (2010) was the only study to specifically measure changes in intent to provide supportive breastfeeding behaviors. All six studies examined knowledge outcome and four studies also measured change in attitude (Bernaix et al., 2010; Haughwout et al., 2000; Holmes et al., 2012; Mellin et al., 2011). Both systematic reviews examined changes in attitude and knowledge (Ward & Byrne, 2011; Watkins & Dodgson, 2010).

Findings

The findings of the studies concerning breastfeeding knowledge strongly support breastfeeding education for HCP's. The evidence from the two systematic reviews (Ward & Byrne, 2011; Watkins & Dodgson, 2010) and the five quasi-experimental studies (Bernaix et al., 2010; Feldman-Winter et al., 2010; Holmes et al., 2012; Mellin et al., 2011; O'Connor et al., 2011) show that a breastfeeding education intervention significantly increased breastfeeding knowledge of participants. In the study by Haughwout et al. (2000), however, there were conflicting outcomes. Knowledge scores on the written exam were not significantly increased, but the scores on the OSCE were increased.

Findings concerning improvement in breastfeeding attitudes were positive overall. Of the six studies that examined change in attitude, four found significant improvement in attitude toward breastfeeding (Bernaix et al., 2010; Holmes et al., 2012; Ward & Byrne, 2011; Watkins and Dodgson, 2010). Findings of the two remaining studies showed an increase in breastfeeding attitude in the sample, although the findings were not statistically significant (Haughwout et al., 2000; Mellin et al., 2011).

Discussion

Overall, this review supports the use of a breastfeeding education intervention for HCP's as a

way to increase breastfeeding knowledge and attitude in the professional population that engages in maternal-infant health promotion and education. While studies concerning breastfeeding educational interventions are more prevalent now compared to the mid 1990's when Freed began to identify the need for further education of HCP's, very few studies use a randomized controlled trial (RCT) design, which would be the recommended standard for intervention research (Polit & Beck, 2012). While most education research focus is on physicians, residents, APRN's, and nurses, there still remains minimal research in which the population of focus is medical students, PA students, or PA's.

There are several weaknesses identified in the evidence. The first weakness is the differing educational programs provided by the various studies, without a standard educational approach. Lacking a standard educational approach to breastfeeding education, it is difficult to compare the differing programs to determine which is most effective in improving knowledge and attitudes thereby limiting educational conclusions. In some studies, the approach was multidisciplinary and used an assortment of techniques to convey information (Feldman-Winter et al., 2010; Haughwout et al., 2000; Holmes et al., 2012, Mellin et al., 2011). In other studies, the education was self-guided and completely on-line or used a peer facilitator (Bernaix et al., 2010; O'Connor et al., 2011). Another gap identified was the lack of consistency between the tools used to measure changes in knowledge and attitude. In only two studies were the tools measured for validity or reliability (Bernaix et al., 2010; O'Connor et al., 2011). In two studies, researchers developed their own knowledge and attitude assessments, although they were not rigorously tested for reliability or validity (Haughwout et al., 2000; Mellin et al., 2011). Feldman-Winter et al. (2010) and Holmes et al. (2012) used assessments developed by other researchers, but these assessments had only been examined for content validity. Additionally, in these studies,

knowledge and attitude changes were measured immediately after the end of the program. There is no data to determine if a breastfeeding educational program would have any type of effect on breastfeeding knowledge or attitudes six months to a year after program completion.

There is need for further research concerning breastfeeding education. Because of the wide variety of programs used in studies, it is unknown which type of program is most effective in improving knowledge and attitudes. Programs have also varied in length and it has not been determined if longer hours of instruction result in a larger increases in knowledge and attitude improvement in comparison to shorter programs. Long-term effects of educational programs have also not been identified. The majority of studies were limited by a small sample size, and so large-scale longitudinal studies would provide more strength to the evidence.

Implications for Practice

There is strong evidence that HCP's have knowledge deficits concerning breastfeeding management and support. This is largely due to educational programs providing minimal formal breastfeeding education (Freed et al., 1995a; Hellings & Howe, 2004). While this review was unable to determine if any long-term improvement in knowledge or attitude can be achieved, there is strong evidence that an evidence-based BEP can immediately improve HCP's breastfeeding knowledge and attitudes. Additionally, short 1-hour sessions and longer sessions spaced out over multiple weeks both had positive impacts upon improving knowledge and attitudes.

This review has resulted in some recommendations for practice. HCP's who provide care to women, infants, and/or children will likely benefit from an evidence-based breastfeeding educational program. Women and children who receive care from well-trained HCP's may have improved rates of breastfeeding as a result of receiving appropriate care.

Theoretical Framework

Fishbein's and Ajzen's TRA was used to guide this DNP capstone project. This theory has been successfully utilized as the theoretical framework in studies which focused on breastfeeding education for HCP's (Anchondo et al., 2012; Bernaix et al., 2008; Bernaix et al., 2010). A study of attitude and behavior, the TRA proposes that a person's behavioral intention is dependent upon his or her attitude about the behavior and the subjective norm. For example, an HCP's intent to perform positive breastfeeding support and promotion is based upon his or her beliefs and attitudes about breastfeeding as well as his or her level of knowledge and personal experiences (Ajzen & Fishbein, 1980; Bernaix, 2000). Improving a provider's knowledge concerning breastfeeding norms and management of common breastfeeding challenges, could result in a positive change in a provider's intent to exhibit behaviors considered to be supportive of breastfeeding (Bernaix, 2000).

History and Key Elements of the Theory of Reasoned Action

The development of the TRA began in the 1960's by Fishbein and over the following four decades has been expanded and revised by Fishbein and Ajzen (2010). The roots of the model come from the field of social psychology, and the TRA has been used in the areas of health promotion and health education as well as a multitude of other fields. The TRA is considered one of the most influential theories concerning human behavior (Hale, Householder, & Greene, 2002).

History. The beginning of the formulation of the TRA began in 1963, when Fishbein adapted Donelson Dulany's verbal learning theory of propositional control. Essentially, Dulany's theory suggested that in a verbal learning environment, people's specific verbal responses to a question were influenced by how they believed the experimenter wanted them to respond to the question. The more the participants were motivated to conform to the wishes of the experimenter, the more

likely they were to provide a response which complied with how they believed the experimenter wished them to answer (Fishbein & Azjen, 2010). From this, the concept of the effect of attitude and social norms on behavior and intention to perform a behavior was born (Fishbein & Azjen, 2010).

Attitude. According to Azjen and Fishbein (1980), attitude is the whole sum of beliefs concerning performing a specific behavior and this attitude can be positive, negative, or neutral. A person's attitude about a behavior is often based upon the person's knowledge and previous experience concerning the behavior. There are two major components that can influence attitude: beliefs concerning the outcome of the behavior and the personal evaluation of the potential outcome. If a person considers the outcome of the behavior likely to occur and the personal evaluation of the potential outcome is seen as positive, then that person's attitude concerning performing a specific behavior will be positive. Conversely, if a person believes the outcome of the behavior is not likely to occur and the potential outcome is seen as negative, that person will have a negative attitude about performing a specific behavior (Azjen & Fishbein, 1980).

Subjective norms. Subjective norm is comprised of normative beliefs and motivation to comply. Normative beliefs are the perception one has about what others would want or expect him to do. Motivation to comply is the level of importance one places on the expectations of those around him (Azjen & Fishbein, 1980). The concept of subjective norms accounts for the influence of social pressure on human behavior and was defined as "an individual's perception that most people who are important to her think she should (or should not) perform a particular behavior" (Fishbein & Azjen, 2010, p. 130).

Behavioral intention. Behavioral intention is the readiness to perform a behavior and is the

summation of attitude and subjective norms. The more positive the attitude and perceived norm is toward a behavior, the stronger a person's behavioral intention will be and the more likely it is that the person will perform the behavior. However the level of importance or weight an individual places on attitude and subjective norms can affect the outcome of behavioral intention. For example, if a person is minimally affected by social pressure, then a positive or negative subjective norm may have a minimal effect upon behavioral intention (Fishbein & Azjen, 2010). Intentions can also be subject to change over time, and it has been suggested that intentions should be measured as closely as possible in time proximity to the desired behavior (Hale et al., 2002).

Behavior. According to the TRA, behaviors are influenced directly by behavioral intentions and are observable events “composed of four elements: the action performed, the target at which the action is directed, the context in which it is performed, and the time at which it is performed” (Fishbein & Azjen, 2010, p. 29). The definition of a particular behavior must consist of each of these four elements, hence, if any one of these four elements is changed, so is the behavior (Fishbein & Azjen, 2010).

Project

Description and Design

This project used a quasi-experimental pre-test and post-test design. The project was designed to evaluate the effectiveness of a 1-hour BEP and a 12-hour BEP in increasing participants' knowledge concerning breastfeeding management and attitude towards breastfeeding. The project was approved by the West Virginia University Office of Research Integrity and Compliance (IRB) on January 7, 2015 (see Appendix A for IRB approval letter). Prior to participating in a BEP, all eligible faculty members and students completed the consent form (see Appendix B for BEP consent forms). Phase one was the 1-hour BEP and was

implemented at the pediatric and women's health primary care offices of the rural hospital, which is also the main sites where students receive their outpatient pediatric and women's health training. Phase one was completed prior to the start of phase two. Phase two was a 12-hour BEP and was implemented during Grand Rounds at the rural hospital over a six week period with lectures occurring twice weekly for a one hour period per session. Both of these programs were delivered by the Project Leader who is board certified as a Pediatric Nurse Practitioner (CPNP) and an International Board Certified Lactation Consultant (IBCLC).

Phase one. Faculty attended a 1-hour BEP during one of the routinely scheduled in-service periods. The 1-hour BEP was developed by Dr. Ilana Chertok (2010) and has been used in teaching medical students at the West Virginia University School of Medicine. The Project Leader was trained by the developer on the use of the educational program prior to implementation. The program provided an overview of the general management of common breastfeeding problems and issues as well as risks of not breastfeeding. Benefits of breastfeeding, latch techniques, and breastfeeding assessment were discussed. There was a brief review of anatomy and physiology and lactogenesis and strategies for breastfeeding promotion were reviewed. Faculty completed the modified Physicians Breastfeeding Assessment Survey (PBAS) as a pre-test and post-test during phase one.

Phase two. The 12-hour BEP was developed using the AAP's Breastfeeding Residency Curriculum (BRC). This program was developed by the AAP in partnership with the Health Resources and Services Administration's Maternal and Child Health Bureau to meet one of the initiatives of the Breastfeeding Promotion in Physicians' Offices Practices and was pilot tested in 14 residency programs across the United States prior to 2008 (AAP, n.d.; Feldman-Winter et al., 2010). The curriculum is organized according to the Accreditation Council for Graduate

Medical Education Core Competencies and covers content in five main categories: medical knowledge, patient care, systems based practice, practice based learning, and interpersonal communications skills (AAP, n.d.). The BEP used a variety of techniques for learning such as lecture and discussion, case studies, assigned readings, videos, and hands-on instruction (see Appendix C for detailed curriculum outline). Students completed three pre-tests and post-tests during phase two: the AAP's BRC Pre-Test and Post-Test, the modified PBAS, and the modified Nursing Support for Breastfeeding Questionnaire (NSBQ).

Participants

The program had a possible total of 44 participants. To be eligible to attend the faculty program, participants had to be employed as either a primary care provider (PCP), RN, or LPN in one of the pediatric or women's health clinic operated by the rural hospital. Eligible clinical faculty totaled 30, although three faculty members were unable to attend a BEP due to conflicting work schedules. The participating faculty numbered 27 and was comprised of three female and two male board-certified pediatricians, one male and two female PAs, one male and two female advanced practice registered nurses (APRN), and 16 Registered nurses/ licensed practical nurses (RN/LPN) which were comprised of 15 females and 1 male. To be eligible to attend the student program, participants had to be either a resident, medical student, or physician assistant student completing clinical hours at the rural hospital or one of the affiliated clinics and on a rotation which required attendance for Grand Rounds. Eligible Grand Rounds students totaled 14 and were comprised of two female and four male Doctor of Osteopathy (DO) family practice residents, three male and four female DO medical students, and one female PA student (Parker, 2015). It was projected that 80% of clinical faculty would fully complete the program and 80% of eligible students would also complete the program. The program was successfully

completed by 90% of eligible clinical faculty and 100% of eligible students (Parker, 2015a).

Integration of Theory

According to the TRA, subjective norms can positively or negatively impact a person's decision to perform a specific behavior (Ajzen & Fishbein, 1980). As part of the learning process, students at the rural hospital are evaluated on their performance during a rotation by faculty; hence students are strongly motivated to comply with the expectations of the faculty. If a student perceives that the faculty expects him or her to promote breastfeeding as well as to provide breastfeeding support, then according to the TRA, this would positively motivate the student's intention to perform the behavior. Obtaining buy-in from faculty concerning the project and enhancing the breastfeeding knowledge and attitude of faculty can help promote a subjective norm which values breastfeeding.

Completion of an evidence-based BEP during Grand Rounds with required attendance by students positively impacted the students' attitudes concerning breastfeeding. According to the TRA, attitude can be influenced by knowledge and personal experience. In a study by Feldman-Winter et al. (2010), the use of the BRC was shown to increase medical residents' knowledge and confidence concerning breastfeeding management. In this planned intervention for students at the rural hospital, attitude towards breastfeeding was measured by using the modified NSBQ, which was based on the Theory of Reasoned action and developed by Bernaix (2000) and the attitude items in the modified PBAS developed by Pound et al. (2014). Breastfeeding knowledge was measured by use of the knowledge items in the modified PBAS and the AAP Pre-test and Post-test (AAP, n.d.). The surveys developed by Bernaix (2000) and Pound et al. (2014) have been tested for validity and reliability, as will be discussed later. The surveys were given before and after the evidence-based Ground Rounds breastfeeding education course, and pre-test and

post-test scores were compared to examine changes in knowledge and attitude by the participants following the intervention.

An outcome of the project was an increase in the students' intent to perform behaviors supportive of breastfeeding. The findings of a study by Bernaix (2000), suggested that nurses' behavior intention to perform supportive breastfeeding behaviors was best predicted by the nurses' attitude and subjective norm score on the NSBQ. A 2010 study by Bernaix et al. examined the effect of a breastfeeding educational program on nurses' intent to support breastfeeding. The findings from this study suggested the educational program increased the nurses' breastfeeding knowledge and attitude as well as their intent to provide breastfeeding support. In this capstone project, behavior intention and attitude was measured both before and after the intervention with the use of the modified NSBQ.

Due to the time constraints of this project, actual breastfeeding supportive behavior of the faculty was not measured as it would require following the behavior change of the faculty over time. However, studies have suggested that breastfeeding education of healthcare providers can have a positive impact upon providers' practice patterns and in turn can improve the breastfeeding rates of the populations they serve (Bernaix et al., 2008; Feldman-Winter et al., 2010; Shinwell et al., 2006). Conversely the findings of a 2003 study by DiGirolamo et al., suggested that a mother's perception of neutral attitudes toward breastfeeding by her HCP was related to breastfeeding cessation by 6 weeks. Future projects at the rural hospital may focus on the family practice residency graduates' self-report of actual supportive breastfeeding behaviors and breastfeeding rates in their practices.

Feasibility Analysis

The strengths, weaknesses, opportunities, and threats (SWOT) analysis were conducted for

this project and are illustrated in the following table:

SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> • Strong working relationship between Residency Program Director and Project Leader • No loss of faculty or student productivity for training • Low added cost to implement program • First program of its kind in the surrounding area • Project Leader has appropriate credentials to be lead educator 	<ul style="list-style-type: none"> • Increase in responsibilities of Project Leader • Additional monies required to implement program
Opportunities	Threats
<ul style="list-style-type: none"> • Increase in professional development • Increase in quality of care in a primary care setting • Increase in reputation of the family practice residency program 	<ul style="list-style-type: none"> • Possible loss of personnel to continue program • Inability to secure monies for continuation of program

Resources

Resources necessary for completion of both phases were easily secured. The Project Leader received weekly release time for the development, initiation, and evaluation portions of the program. Each clinical site had a staff lunch room that was used during the first phase and the Project Leader's clinical site took responsibility for the cost of handouts for all phase one sites. The Residency Program Director agreed to use the Grand Rounds budget to pay for all handouts required for phase two; however providing electronic copies of educational handouts via email to the student participants made this expense unnecessary. Grand Rounds already had a dedicated space and all necessary audio visual equipment for the program and the Residency Program Director allowed the Project Leader use of space and equipment free of charge. The Boyd County WIC department's regional breastfeeding education coordinator, Jennifer Burchett, RN, CLC, loaned the Project Leader the Breastfeeding Educational Kit as well as a hospital grade Hygiea double electric pump for use during phase two. Due to the in-kind contributions provided by and to the Project Leader, the cost of the program remained low (see Appendix D for budget).

Congruence of Organization's Strategic Plan to Project

The mission of the rural hospital is to "bring compassion to health care and to be good help to those in need" and "to help bring people and communities to health and wholeness" (OLBH, 2014, para 1). Providing education to healthcare providers concerning breastfeeding management and support can result in a positive impact in the health of women and children in the community. In the United States 79.2% of infants have ever been breastfed, unfortunately only 61.3% of infants born in Kentucky have ever been breastfed. Regarding breastfeeding initiation rates, Kentucky is the third lowest ranking state in the United States with only Louisiana (56.9%) and West Virginia (59.3%) faring worse (CDC, 2014). Breastfeeding

initiation rates of the counties of Kentucky served by the rural hospital are even lower than the state's overall average rate. Lewis county has the highest breastfeeding initiation rate (48%), followed by Greenup county (47%), Boyd county (42.9%), and Carter county (39.5%) (Kentucky Cabinet for Health & Family Services, 2012a). Formula-fed infants have higher rates of respiratory illnesses and acute otitis media and are also at a higher risk for developing chronic health issues such as hypertension, high-cholesterol, obesity, and type-2 diabetes (Arenz et al., 2004; Bachrach, Schwarz, & Bachrach, 2003; Horta et al., 2007; Ip et al., 2007). Furthermore, there is an association of health protection for women who breastfeed such as reduced risk of developing breast and ovarian cancers, cardiovascular disease, and diabetes (Collaborative Group on Hormonal Factors in Breast Cancer, 2002; Ip et al., 2007; Stuebe et al., 2005; Stuebe, 2009). Many of these chronic illnesses are prevalent in the state of Kentucky, and specifically in Greenup County (Kentucky State Data Center, 2006).

The vision of the rural hospital is to be recognized for its leadership in justice and in “transforming the communities in which we serve into places of health and hope” (OLBH, 2014, para 2). The health benefits of breastfeeding extend to mother and child. Breastfeeding women and children who are cared for by trained providers have higher rates of exclusive breastfeeding and length of breastfeeding (Hillenbrand & Larsen, 2002; Feldman-Winter et al., 2010; Ogburn et al., 2005; Watkins & Dodgson, 2010). Adding the BEP to the current Grand Rounds curriculum and providing breastfeeding education to the students and pediatric and women's health faculty at the rural hospital will enable these HCP's to better assist the women and infants of the community to maintain a higher level of health. The educational intervention also made the residency program and pediatric and women's health clinics at the rural hospital the first in the surrounding area to provide formal, evidence-based breastfeeding training for HCP's.

The strategic plan of the rural hospital identifies five areas for growth and improvement: bringing the community to wholeness, providing extraordinary care, transforming health delivery, fostering employee well-being, and expressing a Catholic identity (OLBH, 2014; OLBH, n.d.). The addition of an evidence-based breastfeeding education program for HCP's will be a benefit to the community and to the rural hospital. Feldman-Winter et al. (2010) and Watkins and Dodgson (2010) determined that the providing educational interventions to HCP's can have a positive effect on maternal breastfeeding behavior and can significantly increase the rates of exclusive breastfeeding. With more breastfeeding dyads in the community, there could be a decreased occurrence in certain illnesses for both the mothers and infants, as previously discussed. The additional expertise and knowledge gained by the participants of the program will also result in a higher quality of care provided to these patient populations.

Evidence of Key Site Support

As part of the preplanning phase, approval for the BEP from Dr. Gail Feinberg, Director of Medical Education, was obtained (see appendix E for letter of support).

Measureable Project Outcomes

The BEP included the following four specific objectives:

1. By January 30, 2015, clinical faculty who participate in the BEP will demonstrate an overall improvement in their knowledge and attitude of breastfeeding management as evidenced by higher overall post-test scores on the knowledge and attitude items of the modified PBAS compared to pre-test scores. The statistical test utilized will be a paired t-test.
2. By March 31, 2015, students who participate in the BEP will demonstrate an overall improvement in their knowledge and attitude of

breastfeeding management as evidenced by higher overall post-test scores on the knowledge and attitude items of the modified PBAS compared to pre-test scores. The statistical test utilized will be a paired t-test.

3. By March 30, 2015, students who participate in the BEP will demonstrate an overall improvement in their attitude towards breastfeeding as evidenced by higher overall post-test scores on the attitude and intent to support items of the modified NSBQ compared to pre-test scores. The statistical test utilized will be a paired t-test.
4. By March 31, 2015, students who participate in the BEP will demonstrate an overall improvement in their knowledge of breastfeeding management as evidenced by higher overall post-test scores on the AAP post-test compared to pre-test scores. The statistical test utilized will be a paired t-test.

Evaluation

Evaluation Tools

The evaluation for phases one and two consisted of pre-test and post-test surveys and analysis. Due to the time constraints of the educational program in phase one, only the modified PBAS (2014) was utilized. For phase two, pre-test and post-test surveys by the AAP (n.d.), NSBQ (2000) and PBAS (2014), were used. Participants served as their own controls and the pre-test and post-test survey scores were compared to see if there was statistically significant improvement in the areas of interest. The Project Leader received permission by the authors and developers of these tools to modify and to use the tools as needed.

AAP pre and post-test. The AAP developed a pre-test and post-test for their BRC to

evaluate breastfeeding knowledge (see Appendix F for AAP pre-test and post-test). The tests have not undergone rigorous psychometric testing but were adapted from the American Academy of Pediatrics Periodic Survey and the “What Every Physician Needs to Know about Breastfeeding” course developed by the Academy of Breastfeeding Medicine (AAP, n.d.). These pre-test and post-tests question were not the same so that answers could not be memorized (AAP, n.d.). The pre-tests and post-tests were used successfully by Feldman-Winter et al. (2010) when there was a statistically significant increase in test scores by residents participating in the program. Knowledge was measured by 25 questions in the pre-test and 25 questions in the post-test. For scoring purposes, all questions had equal weight.

NSBQ. A modified version of Bernaix’s (2000) NSBQ was used to measure attitude toward breastfeeding for both pre-test and post-test surveys in phase two. Bernaix developed the tool based upon the Theory of Reasoned Action, which was the theoretical framework for this project. The tool has undergone psychometric evaluation which indicated excellent internal consistency reliability with Cronbach’s α coefficients ranging from 0.75 to 0.93 for the subscales (Bernaix, 2000). The data analysis plan developed by Dr. Bernaix for use with her tool was utilized (see Appendix G for NSBQ and data analysis plan).

PBAS. To measure knowledge and attitude in both phase one and two, a modified version of the PBAS was utilized. Developed by Pound et al. (2014), this tool also underwent evaluation which indicated acceptable reliability for knowledge (Cronbach’s $\alpha=0.62$) and attitudes (Cronbach’s $\alpha=0.60$) (see Appendix H for PBAS).

Evaluation of Objectives

After completion of data collection, the Project Leader evaluated the objectives of the BEP.

The first objective was: *By January 30, 2015, clinical faculty who participate in the BEP will*

demonstrate an overall improvement in their knowledge and attitude of breastfeeding management as evidenced by higher overall post-test scores on the knowledge and attitude items of the modified PBAS compared to pre-test scores. This objective was partially met. Following the faculty BEP, all participants' knowledge scores on the PBAS showed statistically significant improvement from pre-test to post-test scores but no statistically significant improvement between pre-test and post-test attitude scores on the PBAS was found. Method of statistical analysis utilized was a one-tailed paired t-test.

The second objective was: *By March 30, 2015, students who participate in the BEP will demonstrate an overall improvement in their knowledge and attitude of breastfeeding management as evidenced by higher overall post-test scores on the knowledge and attitude items of the modified PBAS compared to pre-test scores.* This objective was met. Following student participation in the BEP, there was a statistically significant improvement in student post-test scores compared to pre-test scores on the knowledge and attitude items from the modified PBAS. Method of statistical analysis utilized was a one-tailed paired t-test.

The third objective was: *By March 30, 2015, students who participate in the BEP will demonstrate an overall improvement in their attitude towards breastfeeding as evidenced by higher overall post-test scores on the attitude and intent to support items of the modified NSBQ compared to pre-test scores.* This objective was met. Following student participation in the BEP, there was a statistically significant improvement in student post-test scores compared to pre-test scores on the attitude and intent to support items of the modified NSBQ. Method of statistical analysis utilized was a one-tailed paired t-test.

The fourth objective was: *By March 30, 2015, students who participate in the BEP will demonstrate an overall improvement in their knowledge of breastfeeding management as*

evidenced by higher overall post-test scores on the AAP post-test compared to pre-test scores.

This objective was met. Following student participation in the BEP, there was a statistically significant improvement in student post-test scores compared to pre-test scores on the AAP knowledge exam. Method of statistical analysis utilized was a one-tailed paired t-test.

Results

Faculty Sociodemographics

A total of 27 faculty members completed the 1-hour BEP. A total of 30 faculty members were eligible for participation in the BEP. Three faculty members were unable to attend the in-office BEP due to work schedules. The final sample consisted of 5 males and 22 females with 16 (59.3%) members being RNs/LPNS (see Appendix H for faculty sociodemographics). The PCPs consisted of 3 (11.1%) APRN's, 3 (11.1%) PA's, and 5 (18.5%) pediatricians. Faculty age ranged from 25 to 65 years (M 39.3, SD 10.7). Twenty four faculty members (88.9%) were born in either the state of Kentucky, Ohio, or West Virginia. Four faculty members (14.8%) had no children, 13 faculty members (48.1%) had 1-2 children, and 10 (37.0%) faculty members had 3-7 children. Of the 23 faculty members that had children, 20 (87%) faculty members had breastfed or their partner had breastfed their children. The length of breastfeeding of female faculty or a partner ranged from 1.5 to 18 months (M 7.3, SD 5.0). No faculty members identified themselves as having certification in breastfeeding support.

Student Demographics

All eligible students ($n= 14$) completed the 12-hour BEP. The final sample consisted of 7 males and 7 females (see Appendix I for student sociodemographics). The students consisted of 6 (42.9%) family practice residents, 7 (50.0%) medical students, and 1 (7.1%) PA student. The students' age ranged from 26-44 years (M 32, SD 6.5). Eight students (57.0 %) were born in

either the state of Kentucky, Ohio, or West Virginia. Five students (35.7%) had no children and 9 students (64.3%) had 1-2 children. Of the 9 students that had children, 3 (33.3%) students breastfed or their partner had breastfed their children. The length of breastfeeding of female students or a partner ranged from 5 to 18 months ($M 11.7, SD 6.5$). No students identified themselves as having a certification in breastfeeding support.

Faculty Pre-Test and Post-Test Results

The 1-hour BEP for faculty was found to improve breastfeeding knowledge, but not attitudes towards breastfeeding (see Appendix J for faculty results). Faculty members participating in the BEP had a mean pre-test knowledge score on the PBAS of 55.8 and a mean post-test score of 83.6, which was found to be a statistically significant difference ($p < 0.001$). Mean PBAS pre-test attitude scores of faculty were 9.7 and post-test scores were 9.9. Though mean scores did increase, the increase was not statistically significant ($p = 0.19$). This may be a sign that longer BEP are necessary to positively impact breastfeeding attitudes.

Student Pre-Test and Post-Test Results

The 12-hour BEP for students was found to improve both breastfeeding knowledge and attitudes towards breastfeeding (see Appendix J for student results). Students participating in the BEP had a mean pre-test knowledge score on the PBAS of 48.0 and a mean post-test score of 91.3, which was found to be a statistically significant difference ($p < 0.001$). Students' mean AAP pre-test scores were 57.1 and mean post-test scores were 85.1, and this difference was also statistically significant ($p < 0.001$). Mean PBAS attitude pre-test scores were 9.7 with mean post-test scores of 12.4, which was a statistically significant difference ($p = 0.054$). Mean attitude NSBQ pre-test scores were 46.7 and mean post-test scores were 50.6, and this difference was also statistically significant ($p < 0.001$). Mean intent NSBQ pre-test scores were 14.5 and

mean post-test scores were 19.1, and this difference was also statistically significant ($p < 0.001$).

Key Facilitators and Key Barriers

The rural hospital is a small community-based organization with frequent contact between PCP's. The frequent social and work-related interactions between the Project Leader, PCP's and office managers of each of the clinics likely resulted in an over-all positive view of the BEP and resultant high participation rates. All office managers sufficiently staffed the clinics on the days of the BEP so that eligible nursing participants could attend without compromising patient care, and three PCP's attended the BEP on their day off of work. Possibly because of the strong support by the PCP's and office managers, all eligible nursing staff agreed to participate as well.

Students voiced excitement in attending the BEP. High participation rates were the result of required attendance to Grand Rounds when on a rotation that was nearby. In addition, as part of the clinical hours attainment required for completion of the DNP program, the Project Leader had spent many hours working closely with a majority of the residents, medical students, and PA students at the resident clinic. This assisted in fostering a positive work relationship between the students and the Project Leader.

Two key barriers were noted for the successful implementation of the project. The 1-hour BEP for faculty took place during January, a time typically noted to be busy for primary care offices due to the high volumes of sick patients. Three of the faculty members were unable to attend the BEP as a result of busy schedules, and in some cases the presentation of the BEP was interrupted by other clinical staff to discuss urgent patient issues with faculty members. It is likely that higher faculty participation rates may have been possible had the BEP program occurred during the summer, which is typically a time of lower patient volumes. Fifteen students were ineligible to attend the 12-hour BEP due to being on rotations that made it impossible for

them to attend on-campus learning activities so they were provided a complete set of handouts, reading materials, and videos by electronic mail and urged to complete via self-study.

Unanticipated Consequences

Two positive unanticipated consequences of the BEP were observed. The Project Leader had an increase in breastfeeding-related questions via email by some of the participants after the BEP was completed. In addition the local breastfeed support group the Project Leader runs has seen a 50% increase in online members and meeting attendance as a result of increased referrals by the participants of the BEP (Parker, 2015b). The increase in online members placed an extra burden of volunteer work on the Project Leader which was relieved with the addition a third Breastfeeding Counselor from another state who agreed to assist with answering the high volume of questions posted to the online forum.

Discussion and Recommendations

Additional Findings

There were some additional findings that were out of the scope of the project objectives but which showed positive changes for the participants. Faculty members and students had a statistically significant increase in breastfeeding confidence after participation in the BEP. A one-tailed paired t-test was performed. Mean pre-test confidence scores of faculty members were 3.8 and post-test scores were 5.2 ($p < 0.001$). Mean pre-test confidence scores of students were 1.4 and post-test scores were 6.6 ($p < 0.001$). One-tailed paired t-tests also showed a statistically significant increase in normative belief and behavioral belief scores of students ($p = 0.054$, $p < .001$, respectively). This suggests that after participation in the BEP, students had the perception that they were expected to provide positive breastfeeding support by their preceptors, peers, clinical faculty, and others. The increase in behavioral belief scores suggest students felt

their positive breastfeeding supportive behaviors would increase the likelihood a mother would have breastfeeding success.

A t-test was used to compare the attitude scores between the PCP's and the RN/LPN's. Both pre-test and post-test attitude scores of the PCP group compared to the RN/LPN group were significantly different ($p = 0.024$, $p = 0.007$, respectively). PCP's had statistically significant higher attitude means on the PBAS both before and after the BEP (11.3, 11.9, respectively) compared to the RN/LPN group pre-test and post-test means (8.6, 8.6, respectively). This difference may be related to the additional education and training received by the PCP's.

Theoretical Framework

The TRA successfully served as the framework for this DNP capstone project. According to the TRA, attitude can be influenced by knowledge and personal experience. Completion of the BEP by students at the rural hospital significantly increased knowledge scores and attitude scores. In addition there was also a positive improvement in normative and behavioral belief scores. Based on the significant changes in attitude, knowledge and normative and behavioral belief, a positive change in supportive breastfeeding behavior is predicted.

Site Recommendations and Application to Other Settings

The results of the BEP evaluation are significant enough to recommend continuation of an evidence-based BEP for both pediatric and women's health faculty and students at the rural hospital. The BEP is a cost effective program that can enhance HCP's knowledge concerning breastfeeding. Attitudes toward breastfeeding were significantly improved by the participants whom attended multiple 1-hour educational settings over a six week period. Participants of the 1-hour BEP did not have a significant increase in attitude scores. Future BEPs for faculty members may need to focus on multiple 1-hour sessions to have a significant positive impact on

breastfeeding attitudes.

While an in-person BEP allows for more interaction between the Project Leader and participants, more participants would have been eligible for the BEP had the course been on-line. Three faculty members were unable to attend an in-office BEP due to scheduling issues and 15 students were ineligible to participate in the BEP due to being on a rotation that was located too far from the rural hospital campus. Development of an on-line version of the BEP and placement of these modules on HealthStream would have made the program easily accessible to all pediatric and women's health faculty and students and may have yielded in a higher number of participants.

Ongoing Evaluation

Currently there is no long-term data to determine if a BEP would have any long-term effect on breastfeeding knowledge or attitudes. Future evaluation may focus on the re-testing of participants at six months and one year following participation in the BEP to see if scores have significantly changed. Two areas of the rural hospital's strategic plan are bringing the community to wholeness and providing extraordinary care. HCPs who continue to have adequate knowledge concerning breastfeeding support and management as well as positive attitudes towards breastfeeding can be a benefit to the community and patient populations served in the form of significantly increased rates of exclusive breastfeeding (Feldman-Winter et al., 2010). Future phases will be over-seen by the Project Leader with additional help by Dr. Gail Feinberg and the office managers and staff of the pediatric and women's health clinics.

Application to Other Settings

The rural hospital has many family care clinics which also provide pediatric and women's health care to the local population. Future considerations for expansion of this program are to

offer a BEP to all primary care providers and nurses working in the rural hospital family care clinics. This may be best achieved by development of an on-line BEP with required completion by primary care providers and nursing staff.

Attainment of DNP Essentials

Essentials I-IV

Throughout the DNP capstone process, the Project Leader demonstrated attainment of each of the DNP essentials. The TRA was utilized as the theoretical framework of the capstone project and guided the design and objectives of the BEP, which demonstrated use of Essential I: Scientific Underpinning for Practice. Attainment of Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking was accomplished by completion of the organizational and feasibility analysis for the BEP and by identifying the congruence of the BEP to the organization's mission, vision, and strategic goals. Ethical considerations were taken into account when attaining IRB approval and when ensuring participant information remained protected before, during and after the completion of the BEP. Completion of a literature review and synthesis and use of the findings in development of the BEP exhibited use of Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice. Fulfillment of Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care was accomplished during this capstone project during the attainment of clinical hours via the development of electronic health record patient education handouts for common breastfeeding issues.

Essentials V-VIII

Attainment of Essential V: Health Care Policy for Advocacy in Health Care was achieved during the student BEP by encouraging students to critically analyze breastfeeding health policy

at the local and national level and the impact of local hospital policies on initiation of breastfeeding. Women, Infants, and Children (WIC) provided in-kind contributions to the BEP in the form of hospital-grade breast pumps and visual aid supplies. In addition the BEP encouraged interaction between different types of health care providers, such as physicians, residents, PAs, APRNs, PA students, RNs, LPNs and an IBCLC and was able to increase the knowledge of participants which will likely have a positive effect on the populations they serve. This demonstrates fulfillment of Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes. Attainment of Essential VII: Clinical Prevention of Population Health for Improving Health was achieved during the capstone process when the Project Leader analyzed epidemiological and biostatistical data of the population of eastern Kentucky. In addition the capstone process allowed the Project Leader to identify and improve causes of inadequate health care delivery to an aggregate. For the purpose of the BEP, this was found to be HCP's poor attitude and knowledge level concerning breastfeeding and supportive breastfeeding behaviors. Essential VIII: Advanced Nursing Practice was achieved during the process of the capstone project. The process of the DNP capstone prepared the Project Leader to design, implement, and evaluate an intervention based on nursing, sociological and psychological sciences as well as to develop partnerships and relationships with other professionals and organizations to improve breastfeeding education in HCPs.

Conclusion

Breastfeeding is an important factor in both the short and long term health of infants and mothers. Decreased access to support and education from knowledgeable, trained HCP's remains a barrier to successful breastfeeding. The implementation of an evidence-based breastfeeding education program for students and faculty at the rural hospital improved

breastfeeding knowledge and attitudes in students and breastfeeding knowledge of faculty and could possibly have a positive impact upon breastfeeding rates and practices at the local level. The implementation of the BEP has laid the groundwork for future study on the sustained knowledge and attitude of the participants. An on-line BEP program via HealthStream for all students, PCPs, and nursing staff at the outpatient clinics of the rural hospital may also provide an accessible means of dissemination of breastfeeding education and should be explored.

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Appendix A

IRB Approval Letter and Amendment



Approval Letter Expedited

To Ilana Chertok
From WVU Office of Research Integrity and Compliance
Action Date 01/05/2015
Approval Period 01/05/2014 **Expiration Date** 01/04/2015
Subject Protocol Approval Letter
Protocol Number 1411493545
Title Evaluation of Breastfeeding Education for Medical Providers

The above-referenced research study was reviewed by the West Virginia University Institutional Review Board IRB and was approved in accordance with 46 CFR 46.101b.

It has been determined that this study is of minimal risk and meets the criteria as defined by the expedited categories listed below:

- Category 7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. [NOTE: Some research in this category may be exempt from the DHHS regulations for the protection of human subjects. See Exempt Categories and 45 CFR 46.101(b)(2) and (b)(3). This listing refers only to research that is not exempt.]

Documents for use in this study are available in the WVUkc system in the Notes and Attachments section of your protocol.

The Office of Research Integrity and Compliance is here to provide assistance to you from the initial submission of an IRB protocol and all subsequent activity. Please feel free to contact us by phone at 304.293.7073 with any question you may have. Thank you.

WVU Office of Research Integrity and Compliance

Date: 01/05/2015

Signed:



Approval Letter Amendment

To Ilana Chertok
From WVU Office of Research Integrity and Compliance
Action Date 01/07/2015
Approval Period 01/07/2015 **Expiration Date** 01/04/2016
Last Approval Date 01/07/2015
Subject **Amendment to Approved Protocol**
Protocol Number 1411493545A002
Title Evaluation of Breastfeeding Education for Medical Providers

The West Virginia University Institutional Review Board (IRB) has reviewed and approved the above referenced amendment. The amendment wording is as follows:

- Action Date is 01/05/2015, On Approval Letter Expedited, Approval period states: 01/05/2014- 01/04/15. Can this please be corrected to 01/05/2015-01/04/2016?

The Office of Research Integrity and Compliance is here to provide assistance to you from the initial submission of an IRB protocol to its approval and all subsequent activity. Please feel free to contact us by phone at 304.293.7073 with any question you may have. Thank you.

WVU Office of Research Integrity and Compliance

Date: 01/07/2015

Signed:

Lilo Ast
 Senior Program Coordinator

Once you begin your human subject research, the following regulations apply:

Appendix B
Faculty and Student Consent Forms



Human Research Protocol
Only Minimal Risk Consent Form
Without HIPAA

**Only Minimal Risk
Consent Information Form (without HIPAA)**

Principal Investigator Dr. Ilana Chertok
Department Nursing
Protocol Number 1411493545A002
Study Title **Evaluation of Breastfeeding Education for Medical Providers**
Co-Investigator(s) Ms. Alissa Parker
Sponsor (if any) **N/A**

Contact Persons

Click here to enter text.

In the event you experience any side effects or injury related to this research, you should contact Dr. _____ Ilana Chertok _____ at (304) __293_- 6518 ____. (After hours contact: Ms. Alissa Parker at (606) 923-4517). If you have any questions, concerns, or complaints about this research, you can contact Dr. Ilana Chertok at (304) 293-6518.

For information regarding your rights as a research subject, to discuss problems, concerns, or suggestions related to the research, to obtain information or offer input about the research, contact the Office of Research Integrity & Compliance at (304) 293-7073.

In addition if you would like to discuss problems, concerns, have suggestions related to research, or would like to offer input about the research, contact the Office of Research Integrity and Compliance at 304-293-7073.

Introduction

You, _____, have been asked to participate in this research study, which has been explained to you by Ms. Alissa Parker. This study is being conducted by Ms. Alissa Parker and Dr. Ilana Chertok in the School of Nursing at West Virginia University.

Purpose(s) of the Study

The purpose of this study is to determine if an evidence-based breastfeeding education program can improve medical providers' knowledge of breastfeeding management and attitude towards breastfeeding. The specific aim of the project is to observe a statistically significant increase in knowledge and attitude on pretest and posttest score of participants after attending a breastfeeding education program.

Phone: 304-293-7073
Fax: 304-293-3098
<http://oric.research.wvu.edu>

Chestnut Ridge Research Building
886 Chestnut Ridge Road
PO Box 6845
Morgantown, WV 26506-6845

Page | 1

Subject's Initials _____
Date _____



Human Research Protocol
Only Minimal Risk Consent Form
Without HIPAA

Description of Procedures

This study involves attending a 1-hour Breastfeeding Education session and completion the modified Physicians Breastfeeding Assessment Survey and will take approximately ___1 hour_ for you to complete. You will be asked to fill out a questionnaire regarding management of breastfeeding and attitudes towards breastfeeding. This will take approximately __10 minutes__]. You do not have to answer all the questions. You will have the opportunity to see the questionnaire before signing this consent form.

Discomforts

There are no known or expected risks from participating in this study, except for the mild frustration associated with answering the questions.

Alternatives

You do not have to participate in this study. Not participating in this study will not impact your employment.

Benefits

You may increase your knowledge of breastfeeding management.

Financial Considerations

There are no financial incentives for participating in this study.

Confidentiality

Any information about you that is obtained as a result of your participation in this research will be kept as confidential as legally possible. Your research records and test results, just like hospital records, may be subpoenaed by court order or may be inspected by the study sponsor or federal regulatory authorities (including the FDA if applicable) without your additional consent.

In addition, there are certain instances where the researcher is legally required to give information to the appropriate authorities. These would include mandatory reporting of infectious diseases, mandatory reporting of information about behavior that is imminently dangerous to your child or to others, such as suicide, child abuse, etc.

Audiotapes or videotapes will be kept locked up and will be destroyed as soon as possible after the research is finished. In any publications that result from this research, neither your name nor any information from which you might be identified will be published without your consent.

Voluntary Participation

Participation in this study is voluntary. You are free to withdraw your consent to participate in this study at any time.

Refusal to participate or withdrawal will not affect your employment.

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Page | 2

Subject's Initials _____
Date _____



Human Research Protocol
Only Minimal Risk Consent Form
Without HIPAA

In the event new information becomes available that may affect your willingness to participate in this study, this information will be given to you so that you can make an informed decision about whether or not to continue your participation.

You have been given the opportunity to ask questions about the research, and you have received answers concerning areas you did not understand.

Upon signing this form, you will receive a copy.

I willingly consent to participate in this research.

Signatures

Signature of Subject

Printed Name	Date	Time
_____	_____	_____

The participant has had the opportunity to have questions addressed. The participant willingly agrees to be in the study.

Signature of Investigator or Co-Investigator

Printed Name	Date	Time
_____	_____	_____

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Subject's Initials _____
Date _____



Human Research Protocol
Only Minimal Risk Consent Form
Without HIPAA

**Only Minimal Risk
Consent Information Form (without HIPAA)**

Principal Investigator Dr. Ilana Chertok
Department Nursing
Protocol Number 1411493545A002
Study Title **Evaluation of Breastfeeding Education for Medical Providers**
Co-Investigator(s) Ms. Alissa Parker
Sponsor (if any) **N/A**

Contact Persons

Click here to enter text.

In the event you experience any side effects or injury related to this research, you should contact Dr. _____ Ilana Chertok _____ at (304) __293_- 6518 ____. (After hours contact: Ms. Alissa Parker at (606) 923-4517). If you have any questions, concerns, or complaints about this research, you can contact Dr. Ilana Chertok at (304) 293-6518.

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Purpose(s) of the Study

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Page | 1

Subject's Initials _____
Date _____



Human Research Protocol
Only Minimal Risk Consent Form
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Description of Procedures

This study involves attending 12 1-hour Breastfeeding Grand Rounds sessions and completion of three surveys: The American Academy of Pediatrics Breastfeeding Residency Curriculum Pretest and Posttest, the modified Physicians Breastfeeding Assessment Survey and the modified Nursing Support for Breastfeeding Questionnaire and will take approximately ___12 hours for you to complete. You will be asked to fill out a questionnaire regarding management of breastfeeding and attitudes towards breastfeeding___. This will take approximately ___1 hour___. You do not have to answer all the questions. You will have the opportunity to see the questionnaire before signing this consent form.

Discomforts

There are no known or expected risks from participating in this study, except for the mild frustration associated with answering the questions.

Alternatives

You do not have to participate in this study. Not participating in this study will not impact your course grade.

Benefits

You may increase your knowledge of breastfeeding management

Financial Considerations

There are no financial incentives for participating in this study. You will not receive extra credit for participating in this study.

Confidentiality

Any information about you that is obtained as a result of your participation in this research will be kept as confidential as legally possible. Your research records and test results, just like hospital records, may be subpoenaed by court order or may be inspected by the study sponsor or federal regulatory authorities (including the FDA if applicable) without your additional consent.

In addition, there are certain instances where the researcher is legally required to give information to the appropriate authorities. These would include mandatory reporting of infectious diseases, mandatory reporting of information about behavior that is imminently dangerous to your child or to others, such as suicide, child abuse, etc.

Audiotapes or videotapes will be kept locked up and will be destroyed as soon as possible after the research is finished. In any publications that result from this research, neither your name nor any information from which you might be identified will be published without your consent.

Voluntary Participation

Participation in this study is voluntary. You are free to withdraw your consent to participate in this study at any time.

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Page | 2

Subject's Initials _____
Date _____



Human Research Protocol
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Refusal to participate or withdrawal will not affect grade or class standing and will involve no penalty to you. Refusal to participate or withdrawal will not affect your future care.

In the event new information becomes available that may affect your willingness to participate in this study, this information will be given to you so that you can make an informed decision about whether or not to continue your participation.

You have been given the opportunity to ask questions about the research, and you have received answers concerning areas you did not understand.

Upon signing this form, you will receive a copy.

I willingly consent to participate in this research.

Signatures

Signature of Subject

Printed Name	Date	Time

The participant has had the opportunity to have questions addressed. The participant willingly agrees to be in the study.

Signature of Investigator or Co-Investigator

Printed Name	Date	Time

Phone: 304-293-7073
Fax: 304-293-3098
<http://oric.research.wvu.edu>

Chestnut Ridge Research Building
886 Chestnut Ridge Road
PO Box 6845
Morgantown, WV 26506-6845

Page | 3

Subject's Initials _____
Date _____

Appendix C

Educational Curriculum Outline

I. Week 1 Learning Objectives and Grand Rounds Activities.

A. Learning objectives.

1. Describe the anatomy of the breast.
2. Describe the physiology of lactogenesis.

B. Grand Rounds activities week 1, day 1.

1. Introduce start of BRC.
2. Administer pre-test from American Academy of Pediatrics Breastfeeding Curriculum.
3. Administer Physician's Breastfeeding Assessment Survey.
4. Administer Bernaix NSBQ Survey.
5. Assigned Reading: Wellstart Manual from <http://www.wellstart.org/Self-StudyModule.pdf>.

C. Grand Rounds activities week 1, day 2.

1. Discuss anatomy of lactation.
2. Discuss physiology of lactation.

II. Week 2 Learning Objectives and Grand Rounds Activities

A. Learning objectives.

1. Understand the indications and application of breastfeeding technology (manual and mechanical), supplemental feeding methods, test weighing of the infant, milk storage, donor human milk.
2. Describe the influence of contraceptive methods on breastfeeding (lactational amenorrhea method, other non-hormonal and hormonal methods, and how they influence breastfeeding).

B. Grand Rounds activities week 2, day 1.

1. Discuss manual and mechanical breastfeeding technology, supplemental feeding methods, test weights, milk storage and donor human milk.
2. Demonstrate how to assemble and operate the Medela Harmony Manual Breast Pump and the Medela Symphony Breast Pump.

3. Observe videos showing alternative feeding methods:

<http://www.breastfeedinginc.ca/content.php?pagename=videos>

3. Assigned reading:

a. Chantry, C.J., Dewey, K.G., Peerson, J.M., Wagner, E.A., & Nommsen-Rivers, L.A. (2014). In-hospital formula use increases early breastfeeding cessation among first-time mothers intending to exclusively breastfeed. *The Journal of Pediatrics*, 164, 1339-1345.

b. Eats on Feets (n.d.). The four pillars of safe milk sharing. Retrieved from <http://www.eatsonfeets.org/docs/TheFourPillars.pdf>

c. Flaherman, V.J., Aby, J., Burgos, A.E., Lee, K.A., Cabana, M.D., & Newman, T. B. (2013). Effect of early limited formula on duration and exclusivity of breastfeeding in at-risk infants: An RCT. *Pediatrics*, 131, 1059-1065.

Doi:10.1542/peds.2012-2809.

d. Keim, S.A., Hogan, J.S., McNamara, K.A., Gudimetla, V., Dillon, C.E., Kweik, J.J., & Geraghty, S.R. (2013). Microbial contamination of human milk purchased via the internet. *Pediatrics*, 132, 1227- 1235. Doi: 10.1542/peds.2013-1687.

C. Grand Rounds activities week 2 day 2.

1. Observe Jane Morton's video: "Maximizing Milk Production with Hands On Pumping" <http://newborns.stanford.edu/Breastfeeding/MaxProduction.html>.
2. Discuss contraceptive methods and influence on breastfeeding.
3. Assigned reading:
 - a. ABM Clinical Protocol #13: Contraception during Breastfeeding
<http://www.bfmed.org/Media/Files/Protocols/Contraception%20During%20Breastfeeding.pdf>

III. Week 3 Learning Objectives and Grand Rounds Activities.

A. Learning objectives.

1. Identify normal nutritional parameters for the term infant.
2. Evaluate positioning and latch-on.
3. Demonstrate hand expression.
4. Discuss how to perform a detailed mother/infant breastfeeding history.
5. Identify absolute contraindications to breastfeeding.
6. Identify factors that are not contraindications to breastfeeding.
7. Identify and suggest initial management strategies for common challenges.
 - a. Insufficient milk production.
 - b. Attachment problems (latch-on, milk supply).
 - c. Sore nipples.

B. Grand Rounds activities week 3, Day 1.

1. Discuss normal nutritional parameters.
2. Present AAP's "Basic Breastfeeding Assessment".
3. Observe Jane Morton's video: A Perfect Latch

<http://newborns.stanford.edu/Breastfeeding/FifteenMinuteHelper.html>.

4. Observe Jane Morton's video: Hand Expression of Breast Milk

<http://newborns.stanford.edu/Breastfeeding/HandExpression.html>.

5. Observe latching and drinking videos from:

<http://www.breastfeedinginc.ca/content.php?pagename=videos>

C. Grand Rounds activities week 3, day 2.

1. Discuss obtaining detailed mother/infant feeding history.
2. Discuss contraindications to breastfeeding and factors that are not contraindications to breastfeeding.
3. Present AAP's "Management of Common Breastfeeding Situations."
4. Assigned reading:

a. Noel-Weiss, J., Woodend, A.K., Peterson, W.E., Gibb, W., & Groll, D.L. (2011). An observational study of associations among maternal fluids during parturition, neonatal output, and breastfed newborn weight loss. *International Breastfeeding Journal*, 6. Retrieved from

<http://www.internationalbreastfeedingjournal.com/content/6/1/9>.

b. ABM Clinical Protocol #1: Guidelines for blood glucose monitoring and treatment of hypoglycemia in term and late-preterm neonates, Revised 2014. Retrieved from

<http://www.bfmed.org/Media/Files/Protocols/HypoglycemiaEnglish922.pdf>.

c. ABM Clinical Protocol #3: Hospital guidelines for the use of supplementary feedings in the healthy term breastfed neonate, revised 2009. Retrieved from:

<http://www.bfmed.org/Media/Files/Protocols/Protocol%203%20English%20Supp>

mentation.pdf

d. Preserving beverages, water, juice, and milk. Retrieved from:

<http://ohioline.osu.edu/hyg-fact/5000/pdf/5354.pdf>

IV. Week 4 Learning Objectives and Grand Rounds Activities.

A. Learning objectives.

1. Identify and suggest initial management of common challenges.

- a. engorgement, mastitis, blocked nipples, and over supply.
- b. hyperbilirubinemia/dehydration.
- c. ineffective breastfeeding.
- d. delay or failure of lactogenesis II.
- e. diagnosis and treatment of mastitis, breast abscess, and candida breast infections.

2. Discuss use of galactogogues.

B. Grand Rounds activities week 4, day 1

1. Present AAP's "Management of Common Breastfeeding Problems."

2. Assigned readings

a. ABM Clinical Protocol #9: Use of galactogogues in initiating or augmenting the rate of maternal milk secretion. Retrieved from <http://www.bfmed.org/Media/Files/Protocols/Protocol%209%20-%20English%201st%20Rev.%20Jan%202011.pdf>.

b. ABM Clinical Protocol #14: Breastfeeding-friendly physician's office: Optimizing care for infants and children, revised 2013. Retrieved from: http://www.bfmed.org/Media/Files/Protocols/Protocol_14_revised_2013.pdf

c. ABM Clinical Protocol #24: Allergic proctocolitis in the exclusively breastfed infant. Retrieved from:

http://www.bfmed.org/Media/Files/Protocols/Protocol24_English_120211.pdf.

d. ABM Clinical Protocol #19: Breastfeeding promotion in the prenatal setting.

Retrieved from:

<http://www.bfmed.org/Media/Files/Protocols/Protocol%2019%20-%20Breastfeeding%20Promotion%20in%20the%20Prenatal%20Setting.pdf>

C. Grand Rounds Activities week 4, day 2.

1. Discuss AAP's Clinical Case Study "Low Milk Supply and Breastfeeding."
2. Discuss AAP's Clinical Case Study "Jaundice and Breastfeeding."
3. Discuss AAP's Clinical Case Study "Oversupply of Milk and Breastfeeding."

4. Assigned reading:

a. ABM Clinical Protocol #4: Mastitis, revised 2014. Retrieved from:

http://www.bfmed.org/Media/Files/Protocols/2014_Updated_Mastitis6.30.14.pdf.

b. ABM Clinical Protocol #20: Engorgement, Retrieved from:

<http://www.bfmed.org/Media/Files/Protocols/Protocol%2020%20-%20Engorgement%206-2009.pdf>.

c. ABM Clinical Protocol #21: Guidelines for breastfeeding and substance use of substance use disorder, revised 2015. Retrieved from:

<http://www.bfmed.org/Media/Files/Protocols/Guidelines%20for%20Breastfeeding%20and%20Substance%20Use%20or%20Use%20Disorder.pdf>.

d. ABM Clinical Protocol #22. Guidelines for management of jaundice in the breastfeeding infant equal to or greater than 35 weeks' gestation. Retrieved from:

<http://www.bfmed.org/Media/Files/Protocols/Protocol%202022%20Jaundice.pdf>.

V. Week 5 Learning Objectives and Grand Rounds Activities.

A. Learning objectives.

1. Describe the general benefits of and risks of not breastfeeding for the infant, mother, and the community at large, and be able to list common barriers to successful breastfeeding.
2. Understand why it is important to work actively toward eliminating hospital policies and practices that discourage breastfeeding for patients, employees, and residents.
3. Identify the Baby Friendly Hospital Initiative, The Ten Steps to Successful Breastfeeding (<http://www.babyfriendlyusa.org/about-us/baby-friendly-hospital-initiative/the-ten-steps>).
4. Identify local professionals who contribute to the support and management of the breastfeeding infant and mother.
5. Practice communication skills about the topic of breastfeeding.
6. Define culture and cultural competency.
7. Describe how culture affects the decision to breastfeed and impacts breastfeeding behavior.

B. Grand Rounds activities week 5, day 1.

1. Discuss and assess local hospital practices with respect to the Baby Friendly Hospital Initiative and identify at least 1 barrier and 1 solution to improve care.
2. Discuss hospital's breastfeeding program for employees and identify 1 area for improvement.
3. Discuss general benefits to breastfeeding and common barriers.

4. Assigned reading

a. ABM Clinical Protocol #5: Peripartum breastfeeding management for the healthy mother and infant at term, revision 2013. Retrieved from:

http://www.bfmed.org/Media/Files/Protocols/Protocol_5_revised2013.pdf.

b. ABM Clinical Protocol #7: Model breastfeeding policy, revision 2010.

Retrieved from:

<http://www.bfmed.org/Media/Files/Protocols/English%20Protocol%207%20Model%20Hospital%20Policy.pdf>.

c. Bartick, M. & Reinhold, A. (2010). The burden of suboptimal breastfeeding in the United States: A pediatric cost analysis. *Pediatrics*, *125*, 1048-1056

d. Bartick, M.C., Stuebe, A.M., Schwarz, E.B., Luongo, C., Reinhold, A.G., & Foster, M.F. (2013). Cost analysis of maternal disease associated with suboptimal breastfeeding. *Obstetrics and Gynecology*, *122*, 111-120.

C. Grand Rounds activities week 5, Day 2.

1. Conduct role play based on AAP's Clinical Case Study "Using Anti-Depressants and Breastfeeding."
2. Conduct role play based on AAP's Clinical Case Study "Slow Weight Gain and Breastfeeding."
3. Discuss importance of communications between different types of physicians and providers when providing breastfeeding support.
4. Present Culture and Breastfeeding.
5. Assigned reading of ABM Clinical Protocol #6: Guideline on co-sleeping and breastfeeding, revised 2008. Retrieved from:

http://www.bfmed.org/Media/Files/Protocols/Protocol_6.pdf.

VI. Week 6 Learning Objectives and Grand Rounds Activities.

A. Learning objectives.

1. Demonstrate counseling skills that enable mothers to overcome barriers to Breastfeeding.
2. Recognize the effect of cultural diversity on breastfeeding attitudes and practice and encourage variations to practice, if appropriate that effectively promote and support breastfeeding in different cultures.

B. Grand Rounds activities week 6 day 1.

1. Discuss AAP's Cultural Case Study "Mrs. Rust- African American."
2. Discuss AAP's Cultural Case Study "Ms. Martinez- Hispanic."
3. Discuss AAP's Cultural Case Study "Ms Nguyen- Vietnamese Teenager."
4. Discuss AAP's Cultural Case Study "Ms Weeks- African American Teenager."

C. Grand Rounds activities week 6 day 2.

1. Identify three personal practice changes regarding breastfeeding support.
2. Administer post-test from American Academy of Pediatrics Breastfeeding Curriculum.
3. Administer Physician's Breastfeeding Assessment Survey.
4. Administer Bernaix NSBQ Survey

*Learning objectives are from the American Academy of Pediatrics Breastfeeding Residency Curriculum

Appendix D

Budget

Budget Categories	Requested Funds	In-Kind Contributions
ADMINISTRATIVE COSTS	\$ 0	\$ 4070
Administrative justification: Salary for one administrative assistant for 1 hours of labor and one Project Leader for 90 hours of labor, to plan and develop educational program, compile and print handouts and to coordinate event.		
MARKETING	\$ 0	\$ 0
Marketing justification: Notification will be done via e-mail		
EDUCATIONAL MATERIALS/ INCENTIVES	\$ 0	\$ 12.30
Educational Materials/Incentives justification: Grand Rounds: 14 Handout packets @ 0.30/handout packet (includes printing) Clinics: 27 handout packets @ 0.30/handout packet (includes printing)		
HOSPITALITY (room rental)	\$ 0	\$ 1500
Hospitality justification: Room and equipment rental and set up at 125/hour for 12 hours		
PROJECT SUPPLIES (office supplies, postage, printing, etc.)	\$ 5.40	\$ 0
Project supplies justification: 36 #2 Pencils @ 1.80/dozen (includes sales tax)		
PATIENT CARE	\$ 0	\$ 0
Patient Care justification: There are no patient care expenses for this project		
TRAVEL EXPENSES	\$ 0	\$ 0
Travel expenses justification: Travel expenses are not needed for this project		
TOTALS	\$ 5.40	\$ 5582.30

Appendix E
Letter of Support



November 18, 2014

Re: Alissa Parker
Capstone Project

To Whom It May Concern:

This letter is written in support of Alissa Parker's proposed Capstone Project and the utilization of our institution for same (Our Lady of Bellefonte Hospital). The implementation of breastfeeding education for our providers and medical student/PA student and Family Medicine Residency groups not only ties into the mission and values of Our Lady of Bellefonte, but also ties in nicely to formal student/didactic programming through the residency program. Unfortunately our community tends to be less affluent and relies on public assistance as a "solve it all" system. This means that expectant mothers rely on WIC not as the supplement it is intended, but as the only food resource for their newborn. Early contact with their primary provider and early education regarding the importance of breastfeeding can have a major impact on the health in our region. Additionally, formal teaching of our students and residents can only add to more physician comfort regarding opening discussion with patients in this regard.

We are happy to have Alissa present her educational programming at our facilities, and again, support her completely in this regard.

If I can provide you with any further information, please do not hesitate to contact me directly.

Very truly yours,

Gail Feinberg, DO, FACOFP, M.Ed.
Director of Medical Education
Our Lady of Bellefonte Hospital
(606) 833-3171
gail_feinberg@bshsi.org

Appendix F

AAP Pre-Test and Post-Test



Pre-test

Resident Name or Code: _____

Section I: Knowledge

- 1) Hypoglycemia, both symptomatic and asymptomatic, is a common concern in healthy term breastfed neonates. While glucose monitoring should be performed only in high-risk infants and those who are symptomatic, the management strategies employed to prevent and treat hypoglycemia should support breastfeeding. Which one of the following strategies is the **BEST** method to prevent symptomatic hypoglycemia:
 - a) Glucose monitoring every thirty minutes following delivery
 - b) Oral glucose solution by mouth immediately following birth, followed by breastfeeding on demand
 - c) Early initiation of breastfeeding on demand, within 30–60 minutes after delivery
 - d) Define hypoglycemia <45 mg/dL (<2.5 mmol/L) within the first 3 hours after delivery
 - e) All of the above
- 2) Anticipatory guidance for the breastfeeding infant and mother on the day of hospital discharge includes all of the following **EXCEPT**:
 - a) Instructions on the techniques for milk expression including how to use a breast pump
 - b) A scheduled follow-up visit for the baby at 2 weeks of life
 - c) Methods of contacting individuals or organizations, including names and phone numbers, who can provide support and advice related to breastfeeding
 - d) Advise to exclusively breastfeed regardless of cultural practices, or need for vitamin supplementation
 - e) Answers (b) and (d)
- 3) All of the following are recommended to encourage successful breastfeeding **EXCEPT**:
 - a) Initiation of breastfeeding within 1 hour of birth
 - b) Avoiding the use of pacifiers and artificial nipples in term breastfeeding infants
 - c) Continuous rooming in with breastfeeding on demand
 - d) Restricting length of breastfeeding time to prevent nipple soreness and engorgement
 - e) Avoiding use of supplemental formula during the early stages of milk production
- 4) Which of the following is a correct statement about the latch during breastfeeding?
 - a) The baby must take all of the areola into the mouth to achieve a good latch
 - b) A narrow angle at the corner of the infant's mouth is indicative of a good latch
 - c) The baby needs to be latched so that he compresses the milk sinuses when suckling at the breast
 - d) The baby needs to be latched so that he compresses the base of the nipple when feeding
 - e) Mothers who have had previous breastfeeding experience rarely require assessment of the baby's latch in the hospital or birthing center

- 5) The mother of a breastfed 3-month-old will be away from her baby overnight for a business trip. She has an electric pump, but will not have a refrigerator available to her during the trip. Of the following, which is the **BEST** advice to give her regarding pumping and storing of her breast milk during the time of separation?
 - a) She should pump the milk and save it to take home with her; it's okay for 24 hours without refrigeration
 - b) She should pump and dump her milk; she won't be able to save the milk, but at least she can maintain her supply
 - c) She doesn't need to bring the pump; with such a short separation, she won't need to pump at all
 - d) She should pump the milk and store it with ice in a cooler at approximately refrigerator temperature (<40°F)
- 6) All of the following medications given during a nursing mother's hospitalization are compatible with uninterrupted breastfeeding **EXCEPT**:
 - a) Acetaminophen
 - b) Technetium-99m (for nuclear medicine scans)
 - c) Cefoxitin
 - d) Prednisone
 - e) Ibuprofen
- 7) Breastfeeding has been associated with the following health benefits:
 - a) A reduction in otitis media
 - b) A reduction in lower respiratory illness
 - c) A reduction in gastroenteritis
 - d) A reduction in hospitalization from any cause
 - e) All of the above
- 8) The hormone primarily responsible for milk ejection ("let-down") is:
 - a) Estrogen
 - b) Progesterone
 - c) Prolactin
 - d) Oxytocin
 - e) Transferrin
- 9) Compared with mature milk, colostrum is:
 - a) Lower in sodium, potassium and chloride
 - b) Higher in fat and sodium
 - c) Higher in protein, sodium, and fat soluble vitamins
 - d) Lower in fat and carotenoids
 - e) Higher in water-soluble vitamins
- 10) Severe engorgement is most often due to:
 - a) High prolactin levels
 - b) Infrequent feedings
 - c) Postpartum depression
 - d) Epidural anesthesia
 - e) None of the above

- 11) The most common cause of poor weight gain among breastfed infants during the first 4 weeks after birth is:
- Infant metabolic disorders
 - Infrequent or ineffective feedings
 - Low fat content of breast milk
 - Maternal endocrine problems
 - Maternal nutritional deficiencies
- 12) The addition of complementary foods is recommended at about:
- 2 months
 - 4 months
 - 6 months
 - 9 months
 - 12 months
- 13) Breast milk jaundice is **BEST** characterized by:
- Weight loss
 - Poor feeding
 - Brick dust urine
 - A high direct bilirubin
 - A thriving infant with persistent jaundice
- 14) Breastfeeding is contraindicated in which of the following conditions:
- Infants with galactosemia
 - Maternal Hepatitis B
 - Maternal Hepatitis C
 - Maternal mastitis
 - Infants with Cystic Fibrosis
- 15) A mother with a 3-day-old baby presents with sore nipples. The problem began with the first feeding and has persisted with every feeding. The most likely source of the problem is:
- Baby's suck is too strong
 - Feeding time is too long
 - Lack of nipple preparation during pregnancy
 - Inverted nipples
 - Poor attachment to the breast
- 16) Hospital policies that interfere with breastfeeding include all of the following **EXCEPT**:
- Moving the infant to the nursery for the night to allow mother to rest and build up her milk supply
 - Feedings scheduled every 4 hours to allow mother's breasts to make more milk
 - Use of pacifiers to prevent the infant using mother as a pacifier and giving her sore nipples
 - Showing all mothers how to express or pump breast milk in case they are separated from their infants
 - Routine water supplementation by dropper to prevent dehydration

- 17) In which of the following circumstances should it be necessary to delay the initiation of breastfeeding after delivery (for more than 1 hour):
- C-section with spinal anesthesia
 - Mother fatigued due to a long and difficult labor
 - Mother receiving MgSO₄ for preeclampsia
 - All of the above
 - None of the above
- 18) Which of the following factors should be considered when choosing drug therapy for a nursing mother?
- Age of the infant
 - Experience with the drug in infants
 - Relative concentration of the drug in mother's milk and plasma
 - Potential long-term effects in the infant
 - All of the above
- 19) Signs of milk ejection in the first few weeks include all of the following **EXCEPT**:
- Milk leaking from the other breast
 - Uterine cramping
 - Breast erythema
 - Audible swallowing
 - "Pins and needles" sensation in the breast
- 20) All of the following will influence maternal milk production **EXCEPT**:
- Retained placental fragments
 - Maternal smoking
 - Maternal fatigue and stress
 - Excessive maternal caloric intake
 - Diuretic medications

Section II: Clinical Practice

This section of the test is meant to assess your normal clinical practices as they relate to breastfeeding care.

- 21) When do you usually schedule the *first postnatal office visit* for an infant discharged to home?
- At 3–5 days of life
 - At 2 weeks of life
 - At 1 month of life
 - At 2 months of life
 - Any of the above is acceptable
- 22) When discussing feeding options with parents of healthy full-term infants in your practice, which one of the following do you usually recommend for the first month of life?
- Formula feeding exclusively
 - Breastfeeding exclusively
 - Breastfeeding with formula supplement
 - Make no recommendation/support mother's choice
- 23) For approximately what length of time do you recommend exclusive breastfeeding?
- 1 month
 - 2 months
 - 4 months
 - 6 months
 - 9 months
- 24) How frequently do you usually recommend that infants be breastfed *during the first week of life*?
- Every hour
 - Every 2 hours
 - Every 3 hours
 - Every 4 hours
 - Whenever the baby seems hungry or fussy (i.e., on demand), approximately 8–12 times per day
- 25) How frequently do you usually recommend that infants be breastfed *during the first month of life*?
- Every hour
 - Every 2 hours
 - Every 3 hours
 - Every 4 hours
 - Whenever the baby seems hungry or fussy (i.e., on demand), approximately 8–12 times per day



Post-test

Resident Name or Code: _____

Section I: Knowledge

- 1) The recommended treatment of symptomatic hypoglycemia includes all of the following **EXCEPT**:
 - a) Gavage feeds with glucose water or expressed breast milk
 - b) Breastfeeding on demand once symptoms resolve
 - c) Glucose monitoring before each feed until glucose is stabilized
 - d) Intravenous glucose using 2 cc/Kg 10% glucose bolus, followed by 6–8 mg/kg/min continuous glucose infusion
 - e) Examination and evaluation to exclude underlying illness

- 2) During the postpartum stay, a breastfeeding mother reports that she is having difficulty getting her infant to breastfeed. Your best response to this situation should be to:
 - a) Explain that most babies have a difficult time starting out and to just keep trying
 - b) Advise that the baby may be getting dehydrated, so he is not interested in feeding
 - c) Encourage supplementation until the baby learns to breastfeed
 - d) Discharge the infant, so the mother will be more relaxed breastfeeding at home
 - e) Request assistance for the mother at the infant's next feeding to evaluate the breastfeeding technique

- 3) An adequately breastfed healthy, term infant can be expected to have all of the following **EXCEPT**:
 - a) Infrequent stools in the first 2 weeks of life
 - b) Loss of no more than 8%–10% of birth weight initially, with regain of birth weight by about 2 weeks of age
 - c) Loose, yellow, seedy stools after most feedings in the early weeks of life, beginning when the mother experiences an increase in her milk production
 - d) Desire to feed frequently, at least every 2–3 hours
 - e) Weight gain pattern of 15–30 grams per day beginning with mother's increased milk production

- 4) When positioning a newborn to breastfeed, all of the following are correct **EXCEPT**:
 - a) After a cesarean section delivery, the side-lying or football hold (clutch) positions are most comfortable for mother.
 - b) When using the cradle hold, the infant should be placed in a supine position across the mother's lap, with the infant's neck extended and rotated to latch on to the nipple.
 - c) The mother needs to be sitting or lying in a comfortable position without excessive strain on her shoulders, arms, or back.
 - d) The cross-cradle, or transitional, hold usually works well for most breastfeeding infant and mother when learning to breastfeed.
 - e) Alternating or rotating 2 or more breastfeeding positions may help to prevent nipple discomfort in the early days after delivery.

- 5) The mother of a breastfed infant is going to have surgery (not involving the breast) requiring general anaesthesia and an overnight hospital stay. How soon after surgery can she resume breastfeeding?
 - a) 6 hours
 - b) 12–24 hours
 - c) 48 hours
 - d) 1 week
 - e) When she is fully awake and able to care for herself
- 6) Although some older studies found a correlation between breastfeeding and higher intelligence, more recent studies, which controlled or adjusted for maternal education, socio-economic status, and related factors have:
 - a) Found no correlation between IQ and breastfeeding duration in full-term infants
 - b) Found no correlation between IQ and breast milk intake in preterm infants
 - c) Found a small, but statistically significant increase, in IQ and academic performance in breastfed or breast milk-fed infants
 - d) Found breastfed infants have a 13–15 IQ point advantage over artificially fed infants
- 7) The primary hormone responsible for milk synthesis is:
 - a) Estrogen
 - b) Prolactin
 - c) Progesterone
 - d) Oxytocin
- 8) The component of human milk that binds iron locally to inhibit bacterial growth is:
 - a) Lactoferrin
 - b) Transferrin
 - c) Macrophages
 - d) Oligosaccharides
 - e) Secretory IgA
- 9) Milk production is increased by:
 - a) More frequent milk removal
 - b) Forcing fluids
 - c) Increasing maternal caloric intake
 - d) Vitamin D
 - e) Hearing an infant cry
- 10) A breastfeeding mother with a 3-month-old infant has a red, tender, wedge-shaped area at the outer quadrant of 1 breast. She has flu-like symptoms and a temperature of 39°C. Your management includes all of the following EXCEPT:
 - a) Antibiotics for 10 days
 - b) Extra rest
 - c) Interrupt breastfeeding for 48 hours
 - d) Moist heat to the involved area of breast
 - e) Fever and pain control with acetaminophen

- 11) Poor weight gain in the breastfed infant is **MOST OFTEN** caused by:
- Low fat content of the milk
 - Inappropriate feeding routines
 - Poor maternal nutrition
 - Neglect
 - Inadequate maternal milk intake
- 12) Exclusive breastfeeding (no other foods) is recommended for the first:
- 2 months
 - 4 months
 - 6 months
 - 9 months
 - 12 months
- 13) Breastfeeding jaundice is reduced by:
- Frequent feedings at the breast (8–12 times per 24 hours)
 - Water after breastfeeding, given by dropper
 - Supplemental glucose water
 - Letting the baby sleep more
 - All of the above
- 14) Signs of adequate breast milk intake in the first 4–6 weeks include all below **EXCEPT**:
- At least 3–4 stools in 24 hours
 - At least 4–6 wet diapers wet with urine in 24 hours
 - Baby gaining weight
 - Baby sleeping through the night
 - Sounds of swallowing
- 15) Nipple candidiasis can be associated with all of the following **EXCEPT**:
- Burning pain in the breast
 - Fever, malaise, and headache
 - Oral thrush in the infant
 - Pink and shiny appearance of the nipples
 - Nipple tenderness between breastfeedings
- 16) Breastfeeding should be temporarily interrupted when:
- Mothers are undergoing diagnostic tests with radioactive contrast agents
 - Mothers have an acute viral illness
 - Mothers have mastitis
 - Infants have acute gastroenteritis
 - All of the above

- 17) The WHO/UNICEF Baby Friendly Hospital Initiative (BFHI) Ten Steps include all of the following **EXCEPT**:
- Infants should be given nothing but breast milk, unless medically indicated
 - Infants should room in with their mothers
 - Mothers should be informed of the benefits and management of breastfeeding
 - Infants should be given pacifiers to improve their suck coordination
 - Infants should be put to breast within the first 30 minutes after birth
- 18) Markers of failure to thrive in the breastfed infant include:
- Maximum weight loss of >8% of birth weight
 - Failure to gain 8–10 oz per week
 - Weight loss after day 5
 - Under birth weight by day 7
 - a and c
- 19) An acceptable medical reason to supplement a breastfed infant in the hospital is:
- To quiet a fussy baby
 - Separation from the mother due to maternal or infant illness
 - To teach the baby to take a bottle for later
 - To prevent dehydration
 - To allow the mother to rest
- 20) When women believe they have a low milk supply, they can **BEST** be helped by:
- Supplementing the baby by cup or finger-feeding to give the mother a break
 - Taking a breastfeeding history and assessing the infant at the breast
 - Having the mother pump for 15 minutes after every feeding
 - Teaching the mother to assess urine output
 - Reassurance that it is only an infant growth spurt — that her milk supply is adequate

Section II: Clinical Practice

This section of the test is meant to assess your normal clinical practices as they relate to breastfeeding care.

- 21) When do you usually schedule the *first postnatal office visit* for an infant discharged to home?
- At 3–5 days of life
 - At 2 weeks of life
 - At 1 month of life
 - At 2 months of life
 - Any of the above is acceptable
- 22) When discussing feeding options with parents of healthy full-term infants in your practice, which one of the following do you usually recommend for the first month of life?
- Formula feeding exclusively
 - Breastfeeding exclusively
 - Breastfeeding with formula supplement
 - Make no recommendation/support mother's choice
- 23) For approximately what length of time do you recommend exclusive breastfeeding?
- 1 month
 - 2 months
 - 4 months
 - 6 months
 - 9 months
- 24) How frequently do you usually recommend that infants be breastfed *during the first week of life*?
- Every hour
 - Every 2 hours
 - Every 3 hours
 - Every 4 hours
 - Whenever the baby seems hungry or fussy (i.e., on demand), approximately 8–12 times per day
- 25) How frequently do you usually recommend that infants be breastfed *during the first month of life*?
- Every hour
 - Every 2 hours
 - Every 3 hours
 - Every 4 hours
 - Whenever the baby seems hungry or fussy (i.e., on demand), approximately 8–12 times per day

Appendix G

Modified Nursing Support for Breastfeeding Questionnaire

**NURSING SUPPORT FOR BREASTFEEDING QUESTIONNAIRE (NSBQ)
GRAND ROUNDS PARTICIPANTS PRE-TEST and POST-TEST**

*Adapted by Dr. Laura Bernaix from the Minnesota Infant Feeding Questionnaire Short Form,
developed by Dr. Laura Duckett

Subject ID#

For sections A-G, mark the box on the scale that most clearly represents how you feel.

A. Intention to Provide Support to Breastfeeding Mothers

1. Lactation consultants define adequate nursing support for breastfeeding mothers as:

Providing each breastfeeding mother with informational assistance (fact-sharing), technical assistance (demonstrating technique/skill), and emotional assistance (encouraging and empowering words and gestures) based on an individualized needs assessment of the mother and baby by the provider.

Based on this definition and the realities of practice,

a. I would rate my intention to provide informational support to breastfeeding mothers as...

Very weak						Very strong

b. I would rate my intention to provide emotional support to breastfeeding mothers as...

Very weak						Very strong

c. I would rate my intention to provide technical support to breastfeeding mothers as...

Very weak						Very strong

B. Other People in General and Providing Support to Breastfeeding Mothers

1. Most people who are important to me strongly think that I _____ provide support to breastfeeding mothers.

Should not						Should

Not applicable

C. Specific Other People and Providing Support to Breastfeeding Mothers

Regarding: Providing Support to Breastfeeding Mothers:

1. My program director strongly thinks I _____ provide support to breastfeeding mothers.

Should not						Should
------------	--	--	--	--	--	--------

Not applicable

In general, I want to do what program director thinks I should do.

Unlikely						Likely

2. My clinical preceptors strongly think I _____ provide support to breastfeeding mothers.

Should not						Should
------------	--	--	--	--	--	--------

Not applicable

In general, I want to do what my clinical preceptors think I should do.

Unlikely						Likely

3. My program peers working in my same unit strongly think I _____ provide support to breastfeeding mothers.

Should not						Should
------------	--	--	--	--	--	--------

Not applicable

In general, I want to do what my program peers think I should do.

Unlikely						Likely

4. The clinical staff working in my same unit, strongly think I _____ provide support to breastfeeding mothers.

Should not						Should
------------	--	--	--	--	--	--------

Not applicable

In general, I want to do what the other clinical staff think I should do.

Unlikely						Likely

5. Please write in anyone important to you not previously listed, who has verbally or non-verbally expressed an opinion about providing support to breastfeeding mothers.

My _____ strongly thinks I _____ provide support to breastfeeding mothers.

Should not						Should

Not applicable

6. In general, I want to do what my _____ thinks I should do.

Unlikely						Likely

D. Feelings about Providing Support to Breastfeeding Mothers

Mark the box on the scale that most clearly represents how you feel.

To me, providing support to breastfeeding mothers is:

1. Unimportant						Important

2. Necessary						Unnecessary

3. Embarrassing						Not embarrassing

4. Enjoyable						Not enjoyable

5. Positive						Negative

6. Over-emphasized						Underemphasized

7. Energizing						Tiring

8. Unpleasant						Pleasant

E. Personal Beliefs about Providing Support to Breastfeeding Mothers

Below please indicate your personal beliefs about possible results that might occur if a healthcare provider provides support to a breastfeeding mother and her baby, and how important those results are to a breastfeeding mother and her baby. Mark your response in a box on the scale from unlikely to likely and then, not important to very important.

If I provide support to a breastfeeding mother and her baby:

1. The mother and baby will achieve breastfeeding success.

Unlikely						Likely

2. The mother will experience fewer breastfeeding complications.

Unlikely						Likely

If I provide support to a breastfeeding mother and her baby:

3. The mother will have confidence in her ability to breastfeed.

Unlikely						Likely

4. The mother will be less anxious about providing breastmilk for her baby.

Unlikely						Likely

5. The mother will be knowledgeable about breastfeeding.

Unlikely						Likely

6. The mother will develop skills for getting the baby to breastfeed.

Unlikely						Likely

7. The mother will feel satisfied with her ability to provide breastmilk for her baby.

Unlikely						Likely

8. The mother will feel satisfied that the baby is getting the best type of milk for his/her health.

Unlikely						Likely

9. The mother will feel that breastfeeding is worth the effort.

Unlikely						Likely

10. The mother will demonstrate correct technique for getting the baby to breastfeed before discharge.

Unlikely						Likely

11. I will receive recognition for my time and efforts from my peers.

Unlikely						Likely

If I provide support to a breastfeeding mother and her baby:

12. I will receive recognition for my time and efforts from my superiors.

Unlikely						Likely

13. I will experience satisfaction with my work.

Unlikely						Likely

14. I will receive recognition for my time and efforts from the breastfeeding mother.

Unlikely						Likely

15. I will not have difficulty getting my other work done.

Unlikely						Likely

16. I will not have to work overtime in order to finish my work.

Unlikely						Likely

17. The baby's nutritional needs will be met.

Unlikely						Likely

18. The baby will breastfeed effectively.

Unlikely						Likely

19. The baby's emotional needs will be met.

Unlikely						Likely

20. The baby will have few feeding problems.

Unlikely						Likely

How important is it to you that:

21. The mother and baby achieve breastfeeding success?

Not important						Important

22. The mother experience fewer breastfeeding complications?

Not important						Important

23. The mother has confidence in her ability to breastfeed?

Not important						Important

24. The mother be less anxious about providing breastmilk for her baby?

Not important				Important		

25. The mother be knowledgeable about breastfeeding?

Not important				Important		

26. The mother develop skills for getting the baby to breastfeed?

Not important				Important		

27. The mother feel satisfied with her ability to breastfeed her baby?

Not important				Important		

28. The mother feel satisfied that the baby is getting the best type of milk for his/her health?

Not important				Important		

29. The mother feel that breastfeeding is worth the effort?

Not important				Important		

How important is it to you that:

30. The mother demonstrates correct technique for getting the baby to breastfeed?

Not important				Important		

31. I receive recognition for my time and efforts from my peers?

Not important				Important		

32. I receive recognition for my time and efforts from my superiors?

Not important				Important		

33. I experience satisfaction with my work?

Not important				Important		

34. I receive recognition for my time and efforts from the breastfeeding mother?

Not important				Important		

35. I do not have difficulty getting my work done?

Not important				Important		

36. I do not have to work overtime in order to finish my work?

Not important				Important		

37. The baby's nutritional needs be met?

Not important				Important		

38. The baby breastfeed effectively during the first feedings in the hospital?

Not important				Important		

How important is it to you that:

39. The baby's emotional needs be met?

Not important				Important		

40. The baby has few feeding problems?

Not important				Important		

NURSING SUPPORT FOR BREASTFEEDING QUESTIONNAIRE DATA ANALYSIS PLAN

1. Perform psychometric evaluation (Internal consistency reliability) of the instrument subscales: No need to do on the subjective norm items as they do not pertain to all participants (would not get good internal consistency); do for Subscale A, D, E (break up 1-20 and 21-40), and F.
2. Recode education (LPN, RN) to be 1 and 2; Use them as 2 groups for a t-test, and run t-test for pre test scores and again with post test scores.
3. Do same type of thing for Setting (hospital, office, clinic) as 1, 2, 3; Use them then as 3 groups and run an ANOVA with the pre test scores and again for the post test scores.
4. Take previous BF experience and get a score. Add all experiences to get a BF score. Then do Pearson's r correlations using this score and the test scores.
5. Also, determine an attitude score by adding all semantic differential item (make sure to reverse code when necessary; in fact, rename each item as NewD1, NewD2, etc. and change numbering to make sure most positive is 7 and least positive is 1.) Once you get a score for attitude, then you can do correlations, t-tests with the groupings of education, gender, and ANOVA for work setting
6. Section E deals with the beliefs and evaluation of those beliefs according to the Fishbein Model. Multiply the corresponding items (item 1 to item 21) and then add the 20 pairs to get the belief subscale score. Once again, you can then do correlations, t-tests, and ANOVA.
7. Section C is the normative belief subscale: Take each part of each item and multiply them together (i.e. My supervisor..... and In general, I want to do.....) If they rated the first part as a 5 and the second part as a 7, the score would be a 35. There is a total possible range for each numbered pair of 1-49. Do this for each pair then add all of the items that the participant responded to. Take that score and divide by the number of referents they identified and this will give you the mean. Use that as your normative belief score and then you can use it for additional stats (i.e. correlations, t-tests, etc.)
8. Run a multiple regression model (using Stepwise forward.) The DV or outcome should be post test knowledge scores and the IVs should be years of exp, pre test knowledge scores, attitude score (which was measured pre-intervention, right??), Breastfeeding experience score (#4 above), normative belief score (#7 above), and belief score (#6 above.)



Alissa Parker <aparke10@mix.wvu.edu>

Nurses' Support for Breastfeeding Questionnaire (NSBQ)

Laura Bernaix <lbernai@siue.edu>
 To: "Chertok, Ilana" <ichertok@hsc.wvu.edu>
 Cc: aparke10@mix.wvu.edu

Thu, Jul 10, 2014 at 10:04 AM

Dr. Chertok,

Thank you for your email. I am sorry that I was delinquent in responding to Ms. Parker. The last two weeks of June and now into July have been a transition period for me, as I have assumed the Interim Dean position here at our School. Needless to say, it has been very busy. I must have overlooked her email. Please accept my apology.

I would be glad to share my tool. My usual protocol for sharing the tool is to have you and/or Ms. Parker sign an agreement that basically recognizes that I am the author of the tool and that you will recognize me in any published or public presentation of your work related to using my tool. The agreement form (attached) does not obligate you to use the tool, but it helps me keep track of who has the tool.

If agreeable with signing the document, please sign and either fax, mail, or email it back to me, and then I will email the tool and its instructions for use. The tool has been modified for different participant populations (nurses caring for adolescent moms, nurse-midwives, and nurses caring for moms of infants in the NICU); the original is designed for the healthy postpartum mom-baby unit. I am sure that you could easily adapt it to work with your residents. All versions have demonstrated excellent internal consistency reliability. I am assuming you wanted to look at the original version, however since you may be modifying it for your needs, you also might want to see one of the other versions. Let me know if that is the case.

I am thrilled that Ms. Parker is pursuing this line of study and will be interested to hear the results, regardless of whether my tool is used or not. The continued amount of interest in my tool over the years indicates to me that we still need to improve the quality of breastfeeding support provided by health professionals. Thank you taking on this line of inquiry and need for practice change.

Sincerely,

Dr. Bernaix

Laura W. Bernaix, PhD, RN
 Interim Dean and Professor

SIUE School of Nursing fully accredited since 1970

<https://mail.google.com/mail/u/1/?ui=2&ik=ee5fa3fac2&view=pt&q=lbernai%40siue.edu...> 4/23/2015

Appendix H

Modified Physicians Breastfeeding Assessment Survey

Physicians Breastfeeding Assessment Survey

Modified with permission from The Children's Hospital of Eastern Ontario (CHEO) Department of Pediatrics and the CHEO Research Institute

GRAND ROUNDS PRE-TEST AND POST-TEST

Please tell us about your current practices, perceptions and preferences regarding breastfeeding by circling ONLY ONE answer, unless otherwise specified.

1. How old are you? _____
2. What is your gender?
 - a) Male
 - b) Female
3. Where were you born? _____
4. What is your occupation? (please circle all that apply)
 - a) Resident trainee
 - b) Family physician
 - c) General Pediatrician
 - d) Advance Practice Registered Nurse
 - e) Physician Assistant
 - f) RN/LPN
 - g) Physician Assistant student
 - h) Medical student
5. Do you hold a certification in breastfeeding support? (e.g. the International Board of Lactation Consultants)

Yes / No
6. In what state do you spend most of your time working? _____
7. Do you work in a rural or urban area? Rural / Urban
8. Is the majority of your work spent in: (please select only one answer)
 - a) Clinic
 - b) Community hospital
 - c) Teaching hospital
 - d) Other: _____

9. What percentage of your practice comprises children under 1 year of age?

- a) 0 to 10%
- b) 11 to 25%
- c) 26 to 50%
- d) 51 to 75 %
- e) > 75%

10. How many years have you been in practice?

- a) 0 to 5
- b) 6 to 10
- c) 11 to 15
- d) > 15 years

11. How many children do you have? _____

If you do not have children, please skip to question 15

12. Were your children breastfed? Yes / No

If your children were not breastfed, please skip to question 12

13. What was the longest time, in months, that any of your children were breastfed?

14. How would you describe your / your partner's breastfeeding experience?

- a) Very positive
- b) Somewhat positive
- c) Somewhat negative
- d) Very negative

15. Where did you learn about breastfeeding? (please circle all that apply)

- a) Own experience
- b) Medical school
- c) Residency
- d) Physician assistant program
- e) Nurse practitioner program
- f) Undergraduate nursing program
- g) Self-directed learning
- h) Other, please specify: _____
- i) I do not know anything about breastfeeding

16. Do you feel confident in teaching mothers how to breastfeed and addressing breastfeeding-related problems? Yes / No

17. How comfortable are you in evaluating whether a baby's latch is successful?

- a) Not comfortable
- b) Somewhat comfortable
- c) Very comfortable

18. How comfortable are you in assessing whether there is good milk transfer from mother to baby during breastfeeding?

- a) Not comfortable
- b) Somewhat comfortable
- c) Very comfortable

19. How comfortable are you in teaching mothers how to use a breast pump?

- a) Not comfortable
- b) Somewhat comfortable
- c) Very comfortable

20. Are you comfortable with mothers who breastfeed their infant in front of you?

- a) Not comfortable
- b) Somewhat uncomfortable
- c) Somewhat comfortable
- d) Very comfortable

21. Are you comfortable with mothers who breastfeed their toddler in front of you?

- a) Not comfortable
- b) Somewhat uncomfortable
- c) Somewhat comfortable
- d) Very comfortable

22. How often do you ask your breastfeeding patients how breastfeeding is going in the first year of their infant's life?

- a) Never or almost never
- b) On some visits
- c) On most visits
- d) Always or almost always

23. How often do you typically discuss breastfeeding prior to birth if you have a chance to meet the mother?

- a) Never or almost never
- b) Sometimes
- c) Often
- d) Always or almost always

24. How often do you ask mothers to breastfeed their infant in front of you so that you can assess the feeding?

- a) At least once with every breastfeeding mother
- b) Only if the mother voices concerns regarding breastfeeding difficulties
- c) Never or almost never

25. Do you keep samples of formula in your office to distribute to mothers and their babies?

Yes / No

26. In your office, are there formula company advertisements, or office supplies, pictures, or well baby care documents that have formula companies' logo on them?

Yes / No

27. Do you have brochures or pamphlets in your office that you give to mothers about breastfeeding resources in the area?

Yes / No

28. As a general rule, for an otherwise healthy term baby who is exclusively breastfed and who has not regained birth weight by 2 weeks, is your first recommendation to start supplementing with formula?

Yes / No

29. Do you routinely recommend supplementing with formula if a mother feels that her milk supply is inadequate?

Yes / No

30. Do you agree with this statement?

Supplementing with formula in the first weeks of life is a major risk factor for breastfeeding failure.

Yes / No

31. What do you routinely recommend regarding the frequency of breastfeeding in the first month of life?

- a) Breastfeeding on each side for 15-20 minutes every 3 hours
- b) Breastfeeding when your baby needs
- c) I don't know

32. When a breastfeeding mother complains that her nipples are sore, the first thing you recommend is:

- a) Assess baby's position and latch
- b) Encourage the mother to continue breastfeeding as she will get used to it soon
- c) Give the mother a prescription for a topical anti-fungal medication
- d) Recommend that the mother hold off breastfeeding for a few days so that her nipples heal
- e) I don't know

33. All of the following are signs that a baby is properly latched except:

- a) The baby's lips are visible and flanged outward
- b) There is no clicking sound as the baby sucks
- c) No part of the areola can be seen
- d) The mother has no persistent nipple pain
- e) I don't know

34. A mother complains that her 6 week old infant has been breastfeeding almost every hour for a day or two. What do you tell her?

- a) Explain that the baby requires more milk because he/she is growing and frequent breastfeeding is his/her way to increase milk supply
- b) Recommend giving the infant formula to help with the frequent feedings
- c) Explain to the mother that this is a sign of insufficient breast milk and that she should start supplementing
- d) Recommend that she come in to weigh the baby before and after a feed to see if he/she is taking enough in
- e) I don't know

35. An otherwise healthy 5-day old breastfeeding infant is admitted to the hospital with jaundice. After treating the child with phototherapy, what would be your next step?

- a) Recommend offering the infant formula after every breastfeeding session
- b) Recommend offering glucose water to the infant
- c) Recommend more frequent breastfeeding sessions, and teach the mother how and when to use a breast pump
- d) Explain to the mother that she likely does not have enough milk and that she should have her partner give a few formula feeds to the baby while she gets some rest
- e) I don't know

36. Increasing a mother's milk or fluid intake will increase milk production.

True / False / I don't know

37. Breastfeeding has been shown to decrease the incidence of many infectious diseases.

True / False / I don't know

38. Breastfeeding is contraindicated in mothers with Hepatitis C.

True / False / I don't know

39. Breastfeeding is contraindicated in mothers with HIV in North America

True / False / I don't know

40. Breastfeeding decreases the risk of ovarian and breast cancers in mothers.

True / False / I don't know

41. Breastfeeding is safe to continue in mothers who have active herpes simplex lesions on a breast as long as the child only feeds from the unaffected breast.

True / False / I don't know

Thank you for your participation!

Subject ID # _____

Physicians Breastfeeding Assessment Survey

Modified with permission from The Children's Hospital of Eastern Ontario (CHEO) Department of Pediatrics and the CHEO Research Institute

CLINICAL FACULTY PRE-TEST

Please tell us about your current practices, perceptions and preferences regarding breastfeeding by circling **ONLY ONE** answer, unless otherwise specified.

1. How old are you? _____
2. What is your gender?
 - c) Male
 - d) Female
3. Where were you born? _____
4. What is your occupation? (please circle all that apply)
 - a) Resident trainee
 - b) Family physician
 - c) General Pediatrician
 - d) Advance Practice Registered Nurse
 - e) Physician Assistant
5. Do you hold a certification in breastfeeding support? (e.g. the International Board of Lactation Consultants)

Yes / No
6. What percentage of your practice comprises children under 1 year of age?
 - e) 0 to 10%
 - f) 11 to 25%
 - g) 26 to 50%
 - h) 51 to 75 %
 - e) > 75%
7. How many years have you been in practice?
 - e) 0 to 5
 - f) 6 to 10
 - g) 11 to 15
 - h) > 15 years

8. How many children do you have? _____

If you do not have children, please skip to question 12

9. Were your children breastfed? Yes / No

If your children were not breastfed, please skip to question 12

10. What was the longest time, in months, that any of your children were breastfed?

11. How would you describe your / your partner's breastfeeding experience?

- a) Very positive
- b) Somewhat positive
- c) Somewhat negative
- d) Very negative

12. Where did you learn about breastfeeding? (please circle all that apply)

- a) Own experience
- b) Medical school
- c) Residency
- d) Physician assistant program
- e) Nurse practitioner program
- f) Undergraduate nursing program
- g) Self-directed learning
- h) Other, please specify: _____
- i) I do not know anything about breastfeeding

13. Do you feel confident in teaching mothers how to breastfeed and addressing breastfeeding-related problems? Yes / No

14. How comfortable are you in evaluating whether a baby's latch is successful?

- d) Not comfortable
- e) Somewhat comfortable
- f) Very comfortable

15. How comfortable are you in assessing whether there is good milk transfer from mother to baby during breastfeeding?

- d) Not comfortable
- e) Somewhat comfortable
- f) Very comfortable

16. How comfortable are you in teaching mothers how to use a breast pump?

- a) Not comfortable
- b) Somewhat comfortable
- c) Very comfortable

17. Are you comfortable with mothers who breastfeed their infant in front of you?

- e) Not comfortable
- f) Somewhat uncomfortable
- g) Somewhat comfortable
- h) Very comfortable

18. Are you comfortable with mothers who breastfeed their toddler in front of you?

- a) Not comfortable
- b) Somewhat uncomfortable
- c) Somewhat comfortable
- d) Very comfortable

19. How often do you ask your breastfeeding patients how breastfeeding is going in the first year of their infant's life?

- a) Never or almost never
- b) On some visits
- c) On most visits
- d) Always or almost always

20. How often do you typically discuss breastfeeding prior to birth if you have a chance to meet the mother?

- e) Never or almost never
- f) Sometimes
- g) Often
- h) Always or almost always

21. How often do you ask mothers to breastfeed their infant in front of you so that you can assess the feeding?

- d) At least once with every breastfeeding mother
- e) Only if the mother voices concerns regarding breastfeeding difficulties
- f) Never or almost never

22. Do you keep samples of formula in your office to distribute to mothers and their babies?

Yes / No

24. In your office, are there formula company advertisements, or office supplies, pictures, or well baby care documents that have formula companies' logo on them?

Yes / No

25. Do you have brochures or pamphlets in your office that you give to mothers about breastfeeding resources in the area?

Yes / No

26. As a general rule, for an otherwise healthy term baby who is exclusively breastfed and who has not regained birth weight by 2 weeks, is your first recommendation to start supplementing with formula?

Yes / No

27. Do you routinely recommend supplementing with formula if a mother feels that her milk supply is inadequate?

Yes / No

28. Do you agree with this statement?

Supplementing with formula in the first weeks of life is a major risk factor for breastfeeding failure.

Yes / No

29. What do you routinely recommend regarding the frequency of breastfeeding in the first month of life?

- f) Breastfeeding on each side for 15-20 minutes every 3 hours
- g) Breastfeeding when your baby needs
- h) I don't know

30. When a breastfeeding mother complains that her nipples are sore, the first thing you recommend is:

- a) Assess baby's position and latch
- b) Encourage the mother to continue breastfeeding as she will get used to it soon
- c) Give the mother a prescription for a topical anti-fungal medication
- d) Recommend that the mother hold off breastfeeding for a few days so that her nipples heal
- e) I don't know

31. All of the following are signs that a baby is properly latched except:

- f) The baby's lips are visible and flanged outward
- g) There is no clicking sound as the baby sucks
- h) No part of the areola can be seen
- i) The mother has no persistent nipple pain
- j) I don't know

32. A mother complains that her 6 week old infant has been breastfeeding almost every hour for a day or two. What do you tell her?

- a) Explain that the baby requires more milk because he/she is growing and frequent breastfeeding is his/her way to increase milk supply
- b) Recommend giving the infant formula to help with the frequent feedings
- c) Explain to the mother that this is a sign of insufficient breast milk and that she should start supplementing
- d) Recommend that she come in to weigh the baby before and after a feed to see if he/she is taking enough in
- e) I don't know

33. An otherwise healthy 5-day old breastfeeding infant is admitted to the hospital with jaundice. After treating the child with phototherapy, what would be your next step?

- a) Recommend offering the infant formula after every breastfeeding session
- b) Recommend offering glucose water to the infant
- c) Recommend more frequent breastfeeding sessions, and teach the mother how and when to use a breast pump
- i) Explain to the mother that she likely does not have enough milk and that she should have her partner give a few formula feeds to the baby while she gets some rest
- j) I don't know

34. Increasing a mother's milk or fluid intake will increase milk production.

True / False / I don't know

35. Breastfeeding has been shown to decrease the incidence of many infectious diseases.

True / False / I don't know

36. Breastfeeding is contraindicated in mothers with Hepatitis C.

True / False / I don't know

37. Breastfeeding is contraindicated in mothers with HIV in North America

True / False / I don't know

38. Breastfeeding decreases the risk of ovarian and breast cancers in mothers.

True / False / I don't know

39. Breastfeeding is safe to continue in mothers who have active herpes simplex lesions on a breast as long as the child only feeds from the unaffected breast.

True / False / I don't know

Thank you for your participation!

Subject ID # _____

Physicians Breastfeeding Assessment Survey

Modified with permission from The Children's Hospital of Eastern Ontario (CHEO) Department of Pediatrics and the CHEO Research Institute

CLINICAL FACULTY POST-TEST

Please tell us about your current practices, perceptions and preferences regarding breastfeeding by circling **ONLY ONE** answer, unless otherwise specified.

1. How old are you? _____
2. What is your gender?
 - a) Male
 - b) Female
3. Where were you born? _____
4. What is your occupation? (please circle all that apply)
 - a) Resident trainee
 - b) Family physician
 - c) General Pediatrician
 - d) Advance Practice Registered Nurse
 - e) Physician Assistant
5. Do you hold a certification in breastfeeding support? (e.g. the International Board of Lactation Consultants)

Yes / No
6. Do you feel confident in teaching mothers how to breastfeed and addressing breastfeeding-related problems? Yes / No
7. How comfortable are you in evaluating whether a baby's latch is successful?
 - a) Not comfortable
 - b) Somewhat comfortable
 - c) Very comfortable
8. How comfortable are you in assessing whether there is good milk transfer from mother to baby during breastfeeding?
 - a) Not comfortable
 - b) Somewhat comfortable
 - c) Very comfortable
9. How comfortable are you in teaching mothers how to use a breast pump?
 - a) Not comfortable
 - b) Somewhat comfortable
 - c) Very comfortable

10. Are you comfortable with mothers who breastfeed their infant in front of you?

- a) Not comfortable
- b) Somewhat uncomfortable
- c) Somewhat comfortable
- d) Very comfortable

11. Are you comfortable with mothers who breastfeed their toddler in front of you?

- a) Not comfortable
- b) Somewhat uncomfortable
- c) Somewhat comfortable
- d) Very comfortable

12. How often do you ask your breastfeeding patients how breastfeeding is going in the first year of their infant's life?

- a) Never or almost never
- b) On some visits
- c) On most visits
- d) Always or almost always

13. How often do you typically discuss breastfeeding prior to birth if you have a chance to meet the mother?

- a) Never or almost never
- b) Sometimes
- c) Often
- d) Always or almost always

14. How often do you ask mothers to breastfeed their infant in front of you so that you can assess the feeding?

- a) At least once with every breastfeeding mother
- b) Only if the mother voices concerns regarding breastfeeding difficulties
- c) Never or almost never

15. Do you keep samples of formula in your office to distribute to mothers and their babies?

Yes / No

16. In your office, are there formula company advertisements, or office supplies, pictures, or well baby care documents that have formula companies' logo on them?

Yes / No

17. Do you have brochures or pamphlets in your office that you give to mothers about breastfeeding resources in the area?

Yes / No

18. As a general rule, for an otherwise healthy term baby who is exclusively breastfed and who has not regained birth weight by 2 weeks, is your first recommendation to start supplementing with formula?

Yes / No

19. Do you routinely recommend supplementing with formula if a mother feels that her milk supply is inadequate?

Yes / No

20. Do you agree with this statement?

Supplementing with formula in the first weeks of life is a major risk factor for breastfeeding failure.

Yes / No

21. What do you routinely recommend regarding the frequency of breastfeeding in the first month of life?

- a) Breastfeeding on each side for 15-20 minutes every 3 hours
- b) Breastfeeding when your baby needs
- c) I don't know

22. When a breastfeeding mother complains that her nipples are sore, the first thing you recommend is:

- a) Assess baby's position and latch
- b) Encourage the mother to continue breastfeeding as she will get used to it soon
- c) Give the mother a prescription for a topical anti-fungal medication
- d) Recommend that the mother hold off breastfeeding for a few days so that her nipples heal
- e) I don't know

23. All of the following are signs that a baby is properly latched except:

- a) The baby's lips are visible and flanged outward
- b) There is no clicking sound as the baby sucks
- c) No part of the areola can be seen
- d) The mother has no persistent nipple pain
- e) I don't know

24. A mother complains that her 6 week old infant has been breastfeeding almost every hour for a day or two. What do you tell her?

- a) Explain that the baby requires more milk because he/she is growing and frequent breastfeeding is his/her way to increase milk supply
- b) Recommend giving the infant formula to help with the frequent feedings
- c) Explain to the mother that this is a sign of insufficient breast milk and that she should start supplementing
- d) Recommend that she come in to weigh the baby before and after a feed to see if he/she is taking enough in
- e) I don't know

25. An otherwise healthy 5-day old breastfeeding infant is admitted to the hospital with jaundice. After treating the child with phototherapy, what would be your next step?

- a) Recommend offering the infant formula after every breastfeeding session
- b) Recommend offering glucose water to the infant
- c) Recommend more frequent breastfeeding sessions, and teach the mother how and when to use a breast pump
- d) Explain to the mother that she likely does not have enough milk and that she should have her partner give a few formula feeds to the baby while she gets some rest
- e) I don't know

26. Increasing a mother's milk or fluid intake will increase milk production.

True / False / I don't know

27. Breastfeeding has been shown to decrease the incidence of many infectious diseases.

True / False / I don't know

28. Breastfeeding is contraindicated in mothers with Hepatitis C.

True / False / I don't know

29. Breastfeeding is contraindicated in mothers with HIV in North America

True / False / I don't know

30. Breastfeeding decreases the risk of ovarian and breast cancers in mothers.

True / False / I don't know

31. Breastfeeding is safe to continue in mothers who have active herpes simplex lesions on a breast as long as the child only feeds from the unaffected breast.

True / False / I don't know

Thank you for your participation!



Alissa Parker <aparke10@mix.wvu.edu>

Questionnaire from breastfeeding Knowledge, Confidence, Beliefs, and Attitudes of Canadian Physicians

Pound, Catherine <cpound@cheo.on.ca>
 To: Alissa Parker <aparke10@mix.wvu.edu>

Sun, Jun 29, 2014 at 8:49 PM

Hi Alissa
 I have no problems at all with you using the questionnaire as long as you acknowledge the source :)
 Thank you
 Catherine

On Jun 27, 2014, at 4:41 PM, Alissa Parker <aparke10@mix.wvu.edu> wrote:

Dr. Poundm

I contacted you not too long ago about the questionnaire used in the published study, "Breastfeeding Knowledge, Confidence, Beliefs and Attitudes of Canadian Physicians." Thank you for sending me the copy so quickly. I would like your permission to use and to modify this survey I will be implementing a breastfeeding education program for the medical students and residents at a local hospital. I would like to be able to modify the survey slightly so that I may use it as a pre and post test for the intervention.

Thank you for your time.

Sincerely,
 Alissa

On Mon, Jun 16, 2014 at 1:00 PM, Alissa Parker <aparke10@mix.wvu.edu> wrote:
 Catherine,

Thank you so very much for your quick response!

Alissa

On Mon, Jun 16, 2014 at 11:42 AM, Pound, Catherine <cpound@cheo.on.ca> wrote:

Hi Alissa
 Thanks for your e-mail
 Here is the questionnaire that was used for our study
 Thank you
 Catherine

On Jun 15, 2014, at 10:45 AM, Alissa Parker <aparke10@mix.wvu.edu> wrote:

> Dear. Dr. Pound,
 >
 > I am writing to request access to the questionnaire used in the published study, "Breastfeeding Knowledge, Confidence, Beliefs and Attitudes of Canadian Physicians." I am an advanced practice registered nurse and IBCLC working in the USA. I am working on my doctorate and will be doing educational programs on breastfeeding to medical residents and students. I am collecting questionnaires to examine and for possible use.

<https://mail.google.com/mail/u/1/?ui=2&ik=ee5fa3fac2&view=pt&q=cpound%40cheo.on....> 4/23/2015

Appendix I

Faculty and Student Sociodemographics

Table 1. Sociodemographic characteristics of clinical faculty who participated in the breastfeeding education program (n=27).

	Primary Care Providers, n (%)	Nursing Staff n (%)
Total No.	11	16
Sex		
Male	4 (36.4)	1 (6.3)
Female	7 (63.6)	15 (93.7)
State of Birth		
KY, OH, WV	8 (72.7)	16 (100)
Other	2 (18.2)	0
No answer	1 (9.1)	0
Faculty type		
APRN	3 (27.3)	0
PA	3 (27.3)	0
Pediatrician	5 (45.5)	0
RN/LPN	0	16 (100)
Percentage of children < 1 year of age in practice		
0-10	4 (36.4)	2 (12.4)
11-25	6 (54.6)	7 (43.8)
> 25	1 (9.0)	7 (43.8)
No answer	0	1 (6.3)
Years in Practice		
0-5	3 (27.3)	4 (25.0)
6-10	4 (36.4)	5 (31.3)
11-15	1 (9.1)	2 (12.4)
> 15	3 (27.3)	4 (25.0)
No answer	0	1 (6.3)
Breastfeeding learning		
Own experience	7 (63.6)	11 (68.8)
Medical School	2 (18.2)	0

Residency	3 (27.3)	0
Physician Assistant program	1 (9.1)	0
Nurse Practitioner program	2 (18.2)	0
Undergraduate program	1 (9.1)	6 (37.5)
Self-directed	5 (45.5)	5 (31.3)
From an IBCLC	2 (18.2)	1 (6.3)
Continuing Education Opportunities	1 (9.1)	0
Children		
0	2 (18.2)	2 (12.4)
1-2	5 (45.5)	8 (50.0)
3-7	4 (36.4)	6 (37.5)
Self/Partner with breastfeeding experience		
No	2 (18.2)	5 (31.3)
Yes	9 (81.8)	11 (68.8)
Certification in breastfeeding support	0	0

Table 2. Sociodemographic characteristics of students who participated in the breastfeeding education program (n=14).

	Students n (%)
Sex	
Male	7 (50)
Female	7 (50)
State of Birth	
KY, OH, WV	8 (57)
Other USA	5 (35.7)
Outside of USA	1 (7.1)
Percentage of children < 1 year of age in practice	
0-10	13 (92.9)
11-25	1 (7.1)
Student Type	
Resident	6 (42.9)
Medical Student	7 (50)
Physician Assistant Student	1 (7.1)
Breastfeeding learning	
Own experience	4 (28.6)
Medical School	8 (57.1)
Residency	3 (21.4)
Physician Assistant program	0
Undergraduate program	0
Self-directed	2 (14.3)
From an IBCLC	1 (7.1)
From a family member	1 (7.1)
Continuing Education Opportunities	0
Children	
0	5 (35.7)
1-2	9 (64.3)
Self/Partner with breastfeeding experience	
No	11 (78.6)
Yes	3 (21.4)
Certification in breastfeeding support	0

Appendix J

Faculty and Student Pre-Test and Post-Test Results

Table 3. Changes in faculty knowledge and attitude scores from pre-test to post-test (n=27).

	Mean Pre-Test Score	Meant Post- Test Score	Mean Score Difference	<i>P</i>
Knowledge PBAS ^a	55.8	83.6	27.8	< 0.001
Attitude PBAS ^b	9.7	9.9	0.2	0.19

^a Knowledge scores indicate percent correct responses (perfect score=100)

^b Attitude scores were measured on a scale with a maximum possible score of 20

Table 4. Changes in student knowledge and attitude scores from pre-test to post-test (n=27).

	Mean Pre-Test Score	Mean Post-Test Score	Mean Score Difference	P
Knowledge PBAS ^a	48.0	91.3	43.3	< 0.001
Knowledge AAP ^a	57.1	85.1`	28	< 0.001
Attitude PBAS ^b	9.7	12.4	2.7	0.054
Attitude NSBQ ^c	46.7	50.6	3.9	< 0.001
Intent NSBQ ^d	14.5	19.1	4.6	< 0.001

^a Knowledge scores indicate percent correct responses (perfect score=100)

^b BPAS Attitude scores were measured on a scale with a maximum possible score of 20

^c NSBQ Attitude scores were measured on a scale with a maximum possible score of 56

^d NSBQ Intent scores were measured on a scale with a maximum possible score of 21