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# MAKING BREASTFEEDING WORK PROPOSAL

Making Breastfeeding Work for Medical Offices:

A Six-Point Plan Proposal

Kathleen A. Seckinger

Submitted in Partial Fulfillment for the Doctor of Nursing Practice Degree

Regis University

October 28, 2020

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## **Executive Summary**

### **Making Breastfeeding Work for Medical Offices: A Six-Point Plan Proposal**

#### **Problem**

The health benefits of breastfeeding, for both mother and child, has been researched, documented and acknowledged by experts and leaders of health. Identification of limited evidence-based lactation support for breastfeeding women and their children (the breastfeeding dyad) in primary care clinics/offices, has been noted as a major barrier to breastfeeding exclusivity and duration.

#### **Purpose**

Making Breastfeeding Work for Medical Offices: A Six-Point Plan has been devised to meet the needs of a busy office. The purpose of this project is to provide a streamlined, evidence-based breastfeeding support toolkit for medical providers of all levels caring for the breastfeeding dyad.

#### **Goals**

The goal of the project was to identify perceived barriers to providing evidence-based breastfeeding and lactation support in primary care offices and to provide a toolkit of evidenced-based education, resources, and guidance for busy medical offices.

#### **Objectives**

The first objective was to identify the perceived and actual barriers providers and clinics face with breastfeeding support. The next objective was the development of a streamlined, evidenced-based, breastfeeding support toolkit for medical providers of all levels caring for the breastfeeding dyad. Finally, the implementation of the toolkit in offices and certification as breastfeeding friendly medical office.

#### **Plan**

The Making Breastfeeding Work for Medical Offices: A Six-Point Plan, was piloted in four medical clinics in Boulder County Colorado. Each office performed the self-assessment then implemented the toolkit over four months, and did the self-test again for post implementation assessment. Two site visits, pre and post intervention, and a Lunch-and-Learn with basic breastfeeding education was done during the intervention. A quasi-experimental quantitative design using a convenience sample with a coded before and after survey. Each survey was compiled and evaluated for statistical comparison using *t*-test.

#### **Outcomes and Results**

Other countries, states, and professional boards have established a Baby-Friendly Office Initiative or Breastfeeding Friendly Community Clinic guidelines. These vary from 8-19 steps yet, research states that providers do not follow all the steps, and on average, only five to six steps after implementation. The most difficult step identified was the approval of a lactation/breastfeeding policy in each clinic- even with a generic policy included in the toolkit. The clinics all verbally reported that the toolkit was easy to use and helpful to their offices. Over all, the intervention was successful with improvement in post-assessment scores compare to the pre-assessment  $p < .05$ . Two out of the four pilot clinics will receive Breastfeeding Friendly Medical Office Certification from the Boulder County Public Health Department – Breastfeeding Friendly Environments, in May 2019.

### Acknowledgements

There are not enough words to describe how grateful I am for all those who supported me throughout this project.

To Linda Kopecky, my mentor and project leader for Boulder County Breastfeeding Friendly Environments, thank you for your expertise, patience, public health knowledge, and enthusiasm for breastfeeding friendly medical offices.

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To Dr. Cheryl Kruschke, my statistics professor and advisor, thank you for your excitement and helping me interpret my data.

To the Boulder County Breastfeeding Coalition, Colorado Breastfeeding Coalition, and all of my IBCLC and CLC friends, thank you. A big thanks to all of my coworkers and friends for your support during this journey.

To Annie, my daughter, thank you for being your most fabulous you.

To my family, thank you for all your support throughout my many, many years of education.

This project is dedicated to the most amazing nurse I have ever known, my mother, Sheila Seckinger.

I would not be here now if were not for each and every one of you.

*In loving memory of my dad Harold Seckinger for always telling me I'm amazing, and believing I could do anything.*

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## Making Breastfeeding Work for Medical Offices: A Six-Point Plan Proposal

### **Problem Recognition**

Colorado is a leader in the nation with 48.9% of babies born at baby-friendly hospitals (Centers for Disease Control-CDC, 2015). Breastfeeding initiation rates are also one of the highest in the nation with 90.0% of mothers electing to breastfeed their infants (CDC National Immunization Survey, 2017). However, these rates precipitously drop to 57.2% and 22.4% for exclusive breastfeeding at three and six months (CDC National Immunization Survey, 2016). The drop is below the national average of 24.9% for breastfeeding continuity, and the author was curious as to why that was the case in an area with such a high percentage of Baby-Friendly hospitals which support breastfeeding (CDC National Immunization Survey, 2017). This article details a pilot effort with community clinics in Boulder County, Colorado to implement six evidence-based steps and the tool kit to support breastfeeding in the community clinic setting and to evaluate the process and outcomes in the future.

### **Problem**

The health benefits for both mother and child of exclusive breastfeeding for six months and continuing for one year along with complementary foods, are widely acknowledged by the Centers for Disease Control and Prevention (CDC), Academy of Breastfeeding Medicine (ABM), American Academy of Pediatrics (AAP), American Congress of Obstetrics and Gynecology (ACOG), American Academy of Family Physicians (AAFP), United Nations International Children's Emergency Fund (UNICEF), the World Health Organization (WHO), and the United States Public Health Service (PHS) (see Appendix A). Postpartum hospital stays of 24-48 hours have shifted the responsibility for breastfeeding support to community primary care providers (Lieu, Wilker, Braverman et al., 1996).

**Project Purpose**

The purpose of this project is to provide a streamlined, evidence-based breastfeeding support toolkit for medical providers of all levels caring for the breastfeeding dyad in four medical clinics in Boulder County Colorado.

**Project Question**

Does the creation/development and implementation of a breastfeeding friendly medical office toolkit increase provider and personnel breastfeeding knowledge and comfort in supporting breastfeeding in participating offices/clinics serving the breastfeeding dyad?

**Population-Intervention-Comparison-Outcome (PICO)**

**Population.** The providers, healthcare workers, and personnel serving the breastfeeding dyad in four medical offices/clinics in Boulder County, Colorado. The providers were medical doctors (MD), doctors of osteopathy (DO), nurse practitioners (APRN), and physician assistants (PA). The healthcare workers were registered nurses (RN), medical assistants (MA), and nurse aids (CNA). The medical office personnel was practice managers, receptionists, and front office staff.

**Intervention.** The Breastfeeding Friendly Medical Office: A Six-Point Plan Toolkit with a self-assessment survey was developed, distributed and analyzed to explore breastfeeding support and provider breastfeeding knowledge.

**Comparison.** Compared standard care of the medical offices and clinics before the educational intervention.

**Outcome.** Increased provider and staff knowledge and comfort with breastfeeding support and breastfeeding friendliness of the medical offices within the study population.

**Project significance**

The Making Breastfeeding Work for Medical Offices: A Six-Point Plan is a pilot for Boulder County, Colorado through the Breastfeeding Friendly Environments Department. It is a county project with state support from Cancer, Cardiovascular and Pulmonary Disease (CCPD) Grants Program (Boulder County Public Health BCPH, 2018). The toolkit will be released state wide May 2019 through the Colorado Breastfeeding Coalition and Colorado Department of Public Health & Environment. The toolkit is projected to assist in increasing evidence-based breastfeeding and lactation knowledge in the primary care community which will benefit the dyad, provider, community, and society on the whole.

**Foundational theories**

Two theories were necessary to guide this project to fruition. First, a nursing theory to support the mission of the project. Second, since this project required cooperation from state and county departments, private and health care corporation sponsored clinics, as well as individuals, a business or change theory was also needed.

**The Health Promotion Model by Nola J. Pender.** Pender's Health Promotion theory was chosen for its stated goal of increasing a person's well-being, through health promotion, and how interactions with health professionals are part of the interpersonal environment of said persons, and exert influence, positive or negative through their life span (Pender, 2011). Pender (2011) defines health as "a positive dynamic state rather than simply the absence of disease" (p. 3); and the breastfeeding dyad are a prime example of the dynamic state of health. Breastfeeding is well documented as promoting health for mother and child, as well as having population health benefits.

The Health Promotion Model states four assumptions, 13 theoretical statements, and recognizes five key concepts: person, environment, nursing, health, and illness (Pender, 2011). The major concepts Pender (2011) outlines in the model are; individual characteristics and experiences, prior behavior, and the frequency of the similar behavior in the past (see Appendix B). She also emphasizes the direct and indirect effects on the likelihood of engaging in health-promoting behaviors, and how nurses and health care providers exert influence (Pender, 2011). The effects providers can have on persons can be positive or negative, such as the use of evidence-based information, or the use of anecdotal personal experiences to guide patients (Taveras, Li, & Grummer-Strawn et al., 2004). When persons have positive emotions associated with a behavior (i.e. successful establishment and continued breastfeeding support), the probability of commitment to breastfeeding is increased (Pender, 2011).

**John Kotter Change Theory.** The Theory of Change by John Kotter started with *Leading Change* (1996), then was re-introduced in 2014 by the Harvard Business Review Press (2018) as, *Eight Steps to Accelerate Change in Your Organization*. The theory was started as a process to promote a culture of change in corporations and businesses (Kotter, 1996). There are eight steps involved in Kotter's Change Theory:

- Step 1. Create a sense of urgency;
- Step 2. Form a guiding coalition;
- Step 3. Create a vision for change;
- Step 4. Enlist a volunteer army;
- Step 5. Remove obstacles and address barriers;

Step 6. Generate short-term wins, identify small successes and share them frequently;

Step 7. Sustain acceleration, build on the change, and set goals to continue the momentum when change occurs;

Step 8. Anchor the changes into the culture. (p. 9)

To ensure the vision of creating long term change with this project, it was paramount to have the continued support of organizational leaders, present and future. Kotter identified this continued support as keystone to permanent change (1996). Each of the steps helped to guide the project and provided structure to all involved.

### **Literature Search and Selection**

A literature search and review was completed using PubMed.gov, Cumulative Index of Nursing and Allied Health Literature (CINAHL), MedLine, PsychINFO, Academic Search Premier, and EBSCO. The key words included breastfeeding, breastfeeding support, breastfeeding promotion, community, primary care. Humans was also added to the search keywords after multiple articles about animals were discovered. Conclusion of the search occurred when no new articles generated despite changes in keywords. The search was expanded past the last five-year exclusion to within the last 10 years due to few relevant community breastfeeding studies. A summary of the search terms and the number of articles yielded along with filtered dates is in Table 1 below.

Table 1.

#### *Literature Review Search Term Summary*

Search Term	All Dates	2007-2018
CINAHL & MEDLINE & PsychINFO		
Breastfeeding support + Promotion	3,288 articles	2,487 articles

Breastfeeding support + Promotion + community	868 articles	657 articles
Breastfeeding support + Promotion + community + Human	746 articles	600 articles
Breastfeeding support + Promotion + community + Primary care	101 articles	79 articles
Breastfeeding support + Promotion + community + Primary care + Human	93 articles	77 articles
<b>PubMed</b>		
Breastfeeding support + Promotion + community + Primary care	85 articles	59 articles
Breastfeeding support + Promotion + community + Primary care + Human	78 articles	48 articles

The searches resulted in 46 articles selected for review based on relevance to the topic (see Appendix C). The rating system for hierarchy of evidence utilized for this was Melnyk Level of Evidence in the ranking of the articles reviewed for this project (Melnik & Fineout-Overholt, 2015 p.11). The levels of evidence for a majority of the articles were Level I, systematic review and meta-analysis or randomized controlled trials; clinical guidelines based on systematic reviews or meta-analyses; and Level III, controlled trial with no randomization. There were four level IV, case control or cohort study, surveys of physicians, residents, and medical training program directors. (See Appendix D).

### **Review of Evidence**

Women report support and encouragement received from healthcare providers as the most important intervention in helping them breastfeed (Lieu et al., 1996). However, lack of support from healthcare providers has been identified as a major barrier to breastfeeding (Taveras, Li, Grummer-Straum et al., 2004).

Limited breastfeeding education in pediatric residency training programs is linked to poor physician breastfeeding knowledge (Esselmont, Moreau, Aglipay, & Pound, 2018).

Approximately three hours a year of breastfeeding training, over a three-year residency program is provided in the United States (Osband, Altman, Patrick, & Edwards, 2011). Rodriguez and Shattuck (2017) surveyed family medicine (FM) and obstetrics-gynecology (OB-Gyn) residency programs on breastfeeding education, and out of the 18 percent that responded, 88 percent reported 24 hours over four years for OB and eight hours over three years for FM. Alternatively, 40 hours of education are required to obtain Certified Lactation Counselor (CLC) certification; and the International Board Certified Lactation Consultants (IBCLC) require at least 90 hours of education in human lactation and breastfeeding plus 1000 clinical hours (Healthy Children Project, 2018; International Board of Lactation Consultant Examiners, 2018).

Physician perceptions were surveyed by Sriraman and Kellams (2016), “Over 71% of both practicing pediatricians and OB-Gyns felt they had little or no breastfeeding education or training” (p. 715). To add to the problem, Szucs, Miracle, and Rosenman (2009), in their report on breastfeeding knowledge, found providers rejected evidence-based practice over their own breastfeeding experiences when making recommendations for mothers and their nursing children - breastfeeding dyads. This leads to significant misinformation in communities regarding lactation and breastfeeding support (Taveras, Li, & Grummer-Strawn et al., 2004). Esselmont, Moreau, Aglipay, and Pound (2018) reported that only four percent of pediatric residents reported being ‘very comfortable’ teaching correct position and latch techniques and addressing breastfeeding difficulties. Limited evidence-based lactation support for breastfeeding couplets in primary care clinics/offices by providers and clinic employees has been noted as a major barrier to breastfeeding exclusivity (Szucs, Miracle, & Rosenman, 2009; Renfrew, McCormick, &



Wade, et al., 2015; Taveras, Capra, & Braveman, et al., 2003; Taveras, Li, & Grummer-Strawn, et al., 2004).

The importance of evidence-based breastfeeding promotion, and support in the primary care medical home, is an opportunity to create and foster coordinated, continuous, comprehensive breastfeeding care (Szucs, Miracle, & Rosenman, 2009). Canada (2000), Italy (2006), and New Zealand (2014) were some of the first countries to establish a Baby-Friendly Office Initiative or Breastfeeding Friendly Community Clinic guideline. Washington state (2015) has, *Washington 'Steps' Up: A 10-Step Quality Improvement Initiative to Optimize Breastfeeding Support in Community Health Centers*, California (2015) *9 Steps to Breastfeeding Friendly: Guidelines for Community Health Centers and Outpatient Care settings*, and Arizona (2016) *8 Steps to Breastfeeding Friendly: Guidelines for Healthcare Providers Working in Maternal and Child Health* yet, research states that providers do not follow all the steps, and on average, only five to six steps after implementation (Bettinelli, Chapin, & Cattaneo, 2012; Fahrin, Levitt, Kaczorowski, Wakefield, Dawson, Sheehan, & Sellors, 2000; Schwartz, Ellings, Baisden, Goldhammer, Lamson, & Johnson, 2015).

### **Market Risk Analysis**

#### **Strengths-Weaknesses-Opportunities-Threats Analysis (SWOT)**

A SWOT analysis was conducted for this project, and driving and restraining forces were Identified. A visual summary of the SWOT is below (Figure 1).

**Strengths.** Making Breastfeeding Work for Medical Offices: A Six-point Plan has many areas of strength important to establishing and maintaining breastfeeding support in the community and technical support resources for clinics and offices serving the breastfeeding dyad. The members of the Boulder County Breastfeeding Coalition (BCBC) and Boulder

County Public Health (BCPH) Breastfeeding Friendly Environments team have worked in the region and with the community for decades and are knowledgeable about breastfeeding support and achieving patient stated breastfeeding goals. The BCBC and BCPH staff are also knowledgeable regarding interdisciplinary collaboration, the establishing and maintaining of these relationships, and the necessary sharing of expertise, knowledge, and skills required to achieve desired organizational goals. These strengths have the potential to maximize our opportunities to establish and build relationships with clinics and potentially improve health outcomes, increase breastfeeding rates and decrease disparity, establish and build community partners, and collaborate with an expert interdisciplinary team. The last strength identified is the author has 20 years lactation and breastfeeding experience in acute care, outpatient, primary care, and community home visits allowing a unique view of the problems faced by providers.

**Weaknesses.** Identified weaknesses of the project included an increasing number of at-risk, single family and women as primary provider households. The lack of breastfeeding culture and acceptance of breastfeeding as a societal norm with little to no maternity leave, with or without pay, available to women, and no family paternity leave is a major weakness. Shortage of lactation trained medical providers is the main weakness the project addresses. Perceived lack of financial sustainability for breastfeeding support in the primary care office perpetuate decreased support.

**Opportunities.** Identified opportunities of the project included establishing evidence-based breastfeeding support in the community to all levels of health care providers. Collaborating with primary care providers, clinics and offices which serve the breastfeeding dyad lends a universal insight to the individual needs of the community. Addressing the issue of mothers breastfeeding and pumping at work through the Breastfeeding Friendly Employers

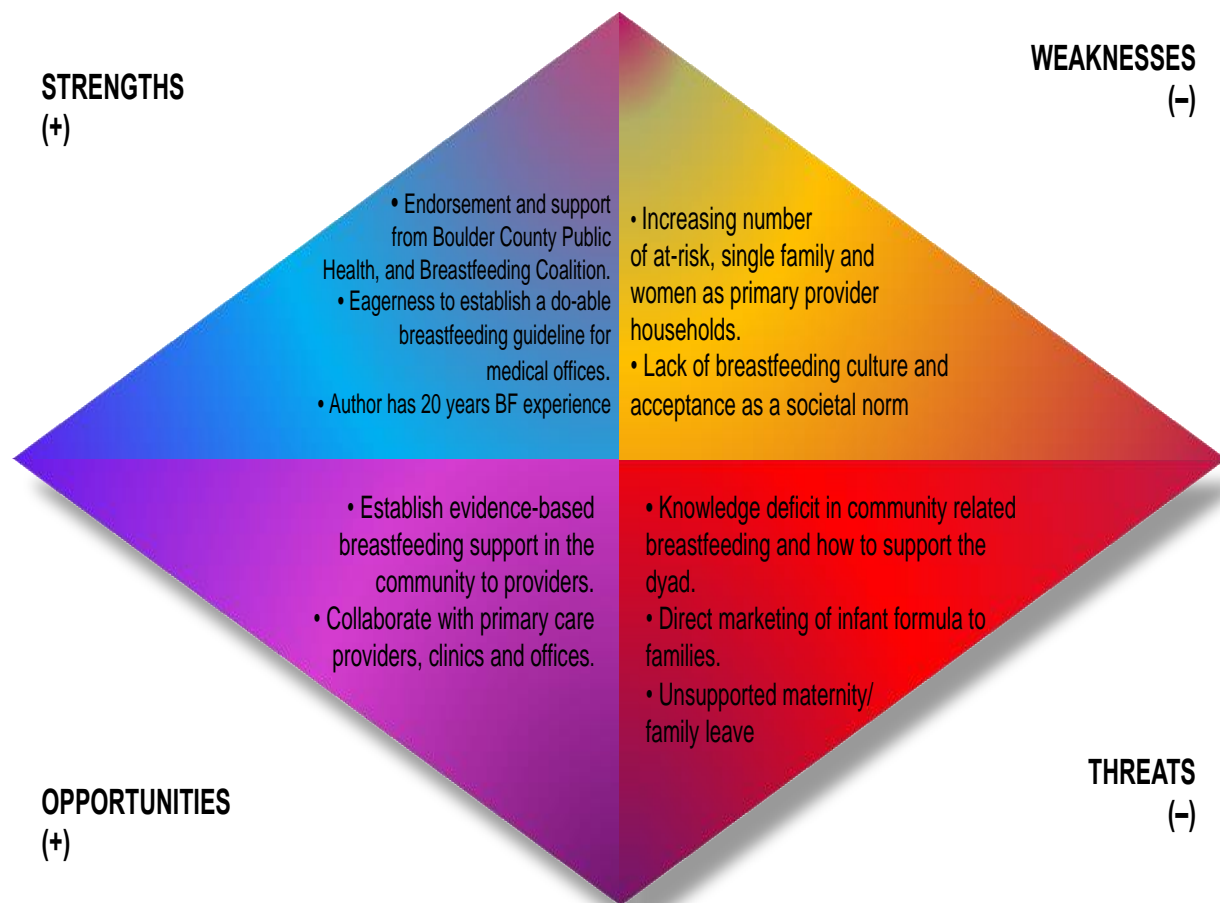
certification through the BCPH helps employers discover the need of employee support that they may not have realized.

**Threats.** Identified threats of the project included the knowledge deficit in community related breastfeeding and how to support the breastfeeding dyad. A difficult ongoing threat is the direct marketing of infant formula to families through direct mail coupons and samples.

Unsupported maternity and family leave in the United States is the last identified threat that requires ongoing support by communities, politicians and the federal government to resolve.

Figure 1.

*SWOT Analysis*



**Driving Restraining Sustaining forces**

**Driving forces.** The major driving force for this project is the identification of more women desiring to breastfeed but lack primary provider/clinic support. Colorado has high breastfeeding rates, and increased initiation of breastfeeding in Boulder County and across the state.

**Restraining forces.** The primary restraining force for this project is the lack of breastfeeding training for providers of all levels. There is a perceived and actual loss of time and revenue by clinics and providers related to lactation support provided in the office. An average lactation visit lasts 45 minutes and reimbursement from insurance is low to not at all. Single and working mothers lacking support also contribute to lower exclusive breastfeeding rates for two months to six months old.

**Sustaining forces.** The major sustaining forces for this project are active state and numerous regional breastfeeding coalitions. A medical community supportive of breastfeeding and lactation is present in the region. Baby-Friendly hospitals with lactation support services and breastfeeding education for the breastfeeding dyad.

**Stakeholders for the Project**

The primary stakeholders of this project are Linda Kopecky, MPH of the Boulder County Department of Health (BCPH), Breastfeeding Friendly Environments Project Coordinator, project team, and the Boulder County Breastfeeding Coalition (BCBC). Also, involved in the final product of the project is the Colorado Department of Public Health & Environment (CDPHE) and the Colorado Breastfeeding Coalition (COBC). Major funding was provided by Cancer, Cardiovascular and Pulmonary Disease (CCPD) Grants Program from the state of Colorado which is supported by tobacco taxes collected in Colorado. Secondary stakeholders are

the clinics and providers volunteering to participate in the initial release of the toolkit and the patients. Over time, the toolkit may lead to additional research that may benefit future providers, patients, and state agencies.

### **Project Team**

The project team consisted of a multidisciplinary team with project leader, Linda Kopecky, MPH, IBCLC, Boulder County Public Health, Breastfeeding Friendly Environments Project Coordinator. The Breastfeeding Medical Office Initiator and leader Kathleen Seckinger, MS APRN CPNP-PC CLC. The breastfeeding friendly medical office team members consist of, BCBC members, community volunteers, and COBC board members. The clinical sites whom volunteered to be the pilot sites for the project and the primary care providers are the clinical community members. A Regis University faculty mentor and statistician were also part of the project.

### **Cost-Benefit Analysis**

The implementation of the completed Making Breastfeeding Work for Medical Offices: A Six-Point Plan can be achieved by any primary care office. The toolkit is available on the BCPH website as a free download; No additional fees for use are required (see Appendix E). Projected costs for implementing will vary by each office (see Table 2 and 3). The cost for printing out the toolkits 49 pages varies from ten to twenty-five cents a page. Use of the existing Making Breastfeeding Work for Medical Offices: A Six-Point Plan eliminates a significant amount of investment (see Appendix F). Time for staff and provider training is greatest identified expense. It is estimated that 4-20 hours per participant with salaries ranging from \$15.00 to \$200.00 an hour will be required. Space allotment for breastfeeding room and decoration expense can vary greatly depending on size and furnishings; \$200-\$3000.

Table 2.

*Project Cost: Breastfeeding Friendly Medical Office Development*

Team Member	Hourly Wage	Time Used in Hours	Estimated Total Cost
Volunteer	\$30.00 **	250	\$7,500.00
Editing	\$30.00 *	20	\$600.00
Web Page	\$30.00 *	6	\$180.00
BCPH Leader	\$30.00 *	200	\$6,000.00
Graduate Student	\$45.00 **	450	\$20,250.00
Printer	\$1.00 per book	50 booklets	\$50.00
		<b>Total Hours 926</b>	<b>Total Cost \$34,580</b>

\*Actual hourly wages. \*\*Hourly wages were estimated based on trends in Boulder County, Colorado

Table 3.

*Project Cost: Breastfeeding Friendly Medical Office Education/Implementation*

Employee	Hourly Wage**	Education Hours*	Project Cost
Front Office	\$12.00	4	\$48.00
Management	\$25.00	4	\$100.00
Back Office MA	\$15.00	8	\$120.00
RN	\$25.00	20	\$500.00
APRN/PA	\$40.00	20	\$800.00
MD/DO	\$200.00	20	\$4,000.00
			<b>Total Cost \$5,568.00</b>
Printing/booklet	Color \$12.25	B&W \$4.90	<b>6 booklets \$29.40-\$73.50</b>

\*Max hours as Lunch & Learns are provided for education during the office lunch hour.

\*\*Hourly wages were estimated based on trends in Boulder County, Colorado

Projected benefits to the offices are, financial sustainability of breastfeeding education and support through billing for services to insurance, and for the long-term, the added increased health status of infants and mothers (Kramer, Chalmers, Hodnett, Sevkovskaya, Dzikovich, & Shapiro et al., 2001).

### Project Objectives

**Vision**

The vision of Making Breastfeeding Work for Medical Offices: A Six-Point Plan, clinic guideline and toolkit, is the restoration of breastfeeding as the cultural norm through evidence-based education of all who serve the breastfeeding dyad.

**Mission**

The mission of the Making Breastfeeding Work for Medical Offices: A Six-Point Plan, guideline and toolkit is to optimize interactions between patients and the medical community, with the goal of increasing education and support of providers as to enable each and every family to reach or surpass their own breastfeeding goals.

**Goals**

The primary project goal is the development and piloting of a six-step streamlined clinic breastfeeding support toolkit with evidence-based training, and focused resources for community and primary care medical providers, of all levels, caring for the breastfeeding dyad in order to facilitate best-practice, increase provider breastfeeding knowledge, and support, to improve clinic lactation and breastfeeding support.

**Objectives**

- Development of a streamlined breastfeeding support toolkit with evidence-based training, and focused resources for all health care workers serving the breastfeeding dyad
- Pilot Making Breastfeeding Work for Medical Offices: A Six-Point Plan and analyze the intervention among participating clinics for effectiveness and ease of use over four months

**Logic Model**

A logic model was designed for visual representation of the project (see Appendix G). The big problem that was identified first was the low breastfeeding rates for three and six months in Colorado. This prompted two assumptions as to why this phenomenon was occurring. The first assumption; there appeared to be limited breastfeeding support for mothers who desire to breastfeed. The second, was the lack of evidence-based breastfeeding support in primary care offices and clinics being offered to the breastfeeding dyad.

Inputs include support from BCPH Breastfeeding Friendly Environments program, the BCBC, and the community. The projects activities were based on the development and implementation of the Breastfeeding Friendly Medical Office (BFMO) resource available on different platforms. Outputs of the project were analysis of the perceptions of the BFMO resource from pilot clinics, identification of additional improvements and edits to the program as to mediate barriers to implementing Making Breastfeeding Work for Medical Offices: A Six-Point Plan. Reduction of barriers would aid in the promotion BFMO certification, increase evidence-based breastfeeding support, and ultimately increase breastfeeding rates. The timeline for the project is included (see Appendix H).

**Methodology****Research Design**

This is a quasi-experimental, pre-test/post-test design using a convenience sample of four primary care medical offices/clinics serving a diverse community. The project is a quantitative study of an educational intervention. Inclusion criteria for this study was each participating clinic needed to serve the breastfeeding dyad. The data collected was coded numerically from



the self-assessment tool included in the Making Breastfeeding Work for Medical Offices: A Six-Point Plan and analyzed through IBM SPSS software.

**Sample Population**

Population: Includes medical doctors (MD), doctors of osteopathy (DO), nurse practitioners (NP), physician assistants (PA), registered nurses (RN), licensed practical nurses (LPN), medical assistants (MA) and certified nursing assistants (CNA), office managers/assistants, and receptionists working in primary care clinics/offices that serve the breastfeeding dyad.

**Setting**

Sample: Includes healthcare providers in four medical clinics; two Family Practice, one Obstetrical/Birth center, and one Pediatric practice located in Boulder County, CO who have agreed to participate. Two of the clinical sites serve predominantly Latino families and have bilingual staff. The project was approved by Regis University Institutional Review Board (see Appendix I). Approval from Boulder County Public Health and CDPHE was received and granted (see Appendix J).

**Methods**

The clinics were recruited through the BCBC participants, word of mouth from BCBC members, and site visits conducted by BCPH Breastfeeding Friendly Environments through the breastfeeding friendly employer certification. Each volunteered/piloted clinic was surveyed pre and post intervention. Each clinical site systematically implemented six evidence-based steps developed for the community primary care setting.

**Instrument**

An office self-assessment with scoring criteria on level of breastfeeding friendly awareness was developed (see Appendix K). The self-assessment consisted of six breastfeeding friendly points, based on Baby-Friendly guidelines. Three levels of breastfeeding awareness; progressing, breastfeeding friendly, and breastfeeding advocate exist in each point. The self-assessment was numerically coded

### **Protection of Human Subjects**

Educational intervention: risk is extremely minimal, and perceived time constraints may be present. Subject Burden: Learning new material, change of behavior, and responsibility to “captain of the ship” to lead office is the greatest burden identified. Human Subject Implications: Exempt, registration with IRBNet completed and permission granted.

CITI Training Verify at: [www.citiprogram.org/verify/?k4fd7d8e4-b14e-4fb1-b099-895f39fb590a-22334765](http://www.citiprogram.org/verify/?k4fd7d8e4-b14e-4fb1-b099-895f39fb590a-22334765) (see Appendix L).

### **Instrument validity and reliability**

A self-assessment included in the Making Breastfeeding Work: A Six-Point Plan was utilized and numerically coded for statistical analysis in IBM-SPSS. The self-assessment was developed to guide clinical practices in becoming breastfeeding friendly. The level of data for the clinical sites was ranked as nominal. The self-assessments were coded and ranked as interval data, as there was a definite zero in the scale. The statistical tests run on IBM-SPSS were descriptive statistical analysis, comparison of means, paired *t*-test for each clinical site, and pre-post data. Pearson’s correlation coefficient was run to calculate effect size of 0.389, which is a strong-medium effect and accounts for 10 percent of the total variance. The reliability was checked with Cronbach’s alpha to test for relatedness or consistency of the clinical groups data,

with 0.8-0.9 being good and 0.7-0.8 as acceptable and 0.5-0.6 poor (UCLA, 2019). The result for Cronbach's  $\alpha = 0.560$  is poor strength signaling low consistency between the clinical sites.

### **Project Findings and Results**

A total of four clinics that volunteered met the inclusion criteria for this study and were visited before the intervention. One month into the study, one clinic stopped participating in phone calls and ceased responding to emails therefore was marked as lost to follow up. The remaining three clinics were active in phone calls, education and site visits. The total sample (n=3) consisted of one free-standing birth center, one Federally Qualified Health Center family clinic, and one pediatric office.

Each clinical site self-reported, before and after, the education intervention of the Making Breastfeeding Work for Medical Offices: A Six-Point Plan. Depending on how the individual clinic has answered the self-assessment, each point has tips and guidance on how the clinical site can improve their breastfeeding knowledge. Change in primary care offices breastfeeding practices, knowledge, and attitudes on the importance of breastfeeding support was measured by the self-assessment included in the toolkit.

Primary outcome was for each of the clinical sites to have improvement in breastfeeding friendly practices and support, as assessed by improvement in the self-assessment scoring. By the end of this project each clinic will have no check marks in the progressing column of the self-assessment tool. Long term goal extending to beyond this project is clinics completing the breastfeeding advocate column of the self-assessment. Sustainability of breastfeeding services through insurance reimbursement, clinics track breastfeeding rates, IBCLC in each office, and achieve breastfeeding friendly workplace certification.

### **Statistical Data**

**Coding.** The coding process consisted of labeling and ranking the data numerically to remove any alpha character descriptors and entering the data into a spreadsheet (see Table 4). The sites were numerically coded as, Pediatric Office, 9; Family Health, 10; and Birth Center, 11. Each of the six points and three sections of the BFMO assessment were coded for responses; one represents a blank box, and two, a checked box. Point 1, 3; point 2, 4; point 3, 5; point 4, 6; point 5, 7; point 6, 8. Each of the three levels of breastfeeding promotion were labeled as sections with progressing, 12; breastfeeding friendly, 13; and breastfeeding advocate, 14. Once all the data was numerically coded, it was entered into SPSS.

Table 4.

*Numeric Coding of Self-Assessment*

Numeric Coding	Alpha Descriptors of Self-Assessment
1	Blank check box
2	Filled check box
3	Point 1 (of BFMO plan)
4	Point 2
5	Point 3
6	Point 4
7	Point 5
8	Point 6
9	Pediatric Office
10	Family Clinic
11	Birth Center
12	Progressing (Level of BF promotion in self-assessment)
13	Breastfeeding Friendly
14	Breastfeeding Advocate

**Aggregate.** The aggregate was run first, then the data was split by site, followed by points and sections using *t*-test (see Appendix M). Aggregate Descriptive statistics were run with a mean of -0.160, standard deviation 0.544 and standard error mean 0.044 calculated. A

paired  $t$ -test was run with 95% CI [-0.248, -0.072] was tabulated,  $t$  (-3.600),  $df$  = 149 and  $p$  = 0.00 were also calculated. The low  $p$  value indicated that there was statistical significance of the intervention, and to reject the null hypothesis. Aggregate Pre: frequency for 1= no checked box, 95 equals 63.3 percent. The frequency for 2 = checked box, 55 equals 36.7 percent. Aggregate Post: frequency for 1 = no checked box 71, 47.3 percent. The frequency for 2 = checked box, 79, 52.7 percent (see Figure 2 & 3). This data indicates that there was a positive improvement in the clinical sites for completed breastfeeding friendly tasks from the toolkit. By looking at the mean values for the pre/post aggregate there is an increase in the means thus signaling a positive change due to the intervention.

Figure 2

*Pie Chart Pre-Assessment Aggregate*

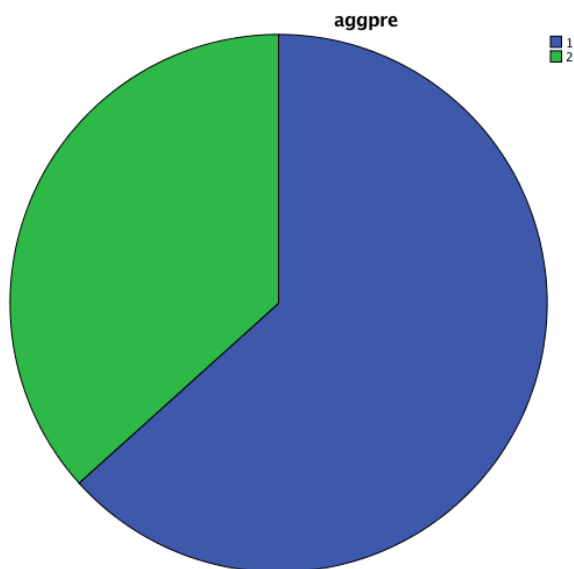
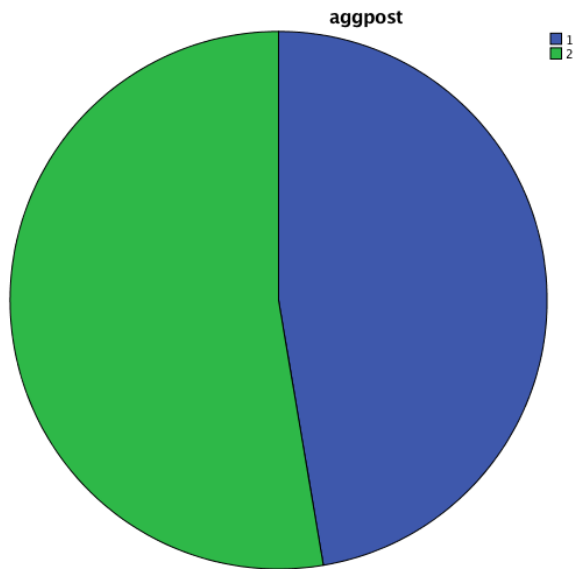


Figure 3

*Pie Chart Post-Assessment Aggregate*



**Sites.** When the sites were compared, the  $p$  value for sites 9, 10, and 11 were  $p = 0.006$ ;  $p = 0.023$ ;  $p = 0.001$ , respectively; all less than the set  $p$  0.05 (see Appendix N). However, when the paired sample  $t$  test was calculated for the clinical sites,  $p = 0.290$ ;  $p = 0.229$ ;  $p = 0.00$ , signaling the change in site 9 and 10 were not as significant as site 11.

**Level of assessment.** The data was then split into clinical site and section of assessment (progressing= 12, breastfeeding friendly=13, breastfeeding advocate=14), overall each section signaled improvement- fewer boxes checked in the red column, more in the yellow and green columns. Code 12, 13, and 14 with  $p = 0.074$ ;  $p = 0.00$ ;  $p = 0.006$  (see Appendix O and Q). Level 12, progressing, is not statistically significant and the area where each clinical site was deficient with one check mark for not having a lactation policy. This is confirmed what was observed and verbally reported by each clinical site with establishing a lactation policy being one of the more difficult aspects of the plan to initiate. The other levels were statistically significant, and the means signaled positive change in each level.

**Six-Point plan.** Point one through six of the BFMO plan was analyzed pre and post intervention with  $t$  test and Pearson (see Appendix P). The points were compared, the  $p$  value for code 3, 4, 5, 6, 7, 8 were  $p = 0.001$ ;  $p = 0.206$ ;  $p = 0.711$ ;  $p = 0.008$ ;  $p = 0.789$ ;  $p = 0.00$ ,

respectively. Point one covers policy and point six continuity of care were statistically significant for those points. Point two addresses provider training, point three patient education, and point five evaluation and sustainability were not statistically significant. When the means were compared, there was positive change in each point. A paired  $t$  test was also run with point two  $p = 0.010$  and four  $p = 0.017$  having statistical significance. The other points were not statistically significant but still had small positive change.

### **Limitations, Recommendations, Implications for Change**

#### **Limitations**

The main limitations of this project were the small sample size of clinics and short project timeframe, due to IRB delays and the end of the semester/program. The short project time contributed to not being able to compare changes in clinic policies and procedures with documented state and county breastfeeding rates. Each clinical site had different levels of ownership and management, i.e. major corporation, Federal Qualified Health Center (FQHC) and small private business. When attempting to implement a new guideline, corporate as well as the individual clinical sites needed to approve the intervention/guideline thus resulting in delays and difficulty implementing parts of the BFMO toolkit. Finally, the rigor of the evidence and documentation collected for each clinical site could have been more robust.

#### **Recommendations**

Additional similar research with regional or state-wide audience is highly recommended. Future studies can contribute to the evidence base by researching the effect of a six-point intervention, the effect of each point, the long-term sustainability of clinic changes, and the effect on breastfeeding outcomes. Having state government support is necessary, and that more methods for invitation to participate in the BFMO certification are utilized including, postal mail,

e-mail, website presence, hospital engagement, and direct contact with providers. Having more resources for free or reduced cost breastfeeding education available in more formats (online, live, webinar, self-paced) is recommended.

### **Implications for Change**

Corriveau et al (2013) showed that implementation of a breastfeeding support protocol in a pediatric primary care practice led to increased exclusive breastfeeding rates. Based on the results of this limited study, having a breastfeeding toolkit with a self-assessment checklist aids medical offices in identifying weaknesses and areas for improvement supporting the breastfeeding dyad. Even a clinical site that considered themselves breastfeeding friendly was able to make small changes and increase their breastfeeding awareness. When medical offices provide a welcoming, supportive environment for breastfeeding families, they help establish and promote breastfeeding as the norm for infant feeding.

### **Conclusion**

The BFMO project demonstrates a diverse sample of clinics can successfully implement Making Breastfeeding Work for Medical Offices: A Six-Point Plan in a short period with the support of supplemental training, and technical assistance. Through this process, clinics heightened breastfeeding awareness, which was a key to success for the project. The change from baseline self-assessment to post self-assessment suggests that efforts through an evidence-based six-point plan is an effective way to optimize primary care clinic support of breastfeeding. It can be implied that the streamlined Making Breastfeeding Work for Medical Offices: A Six-Point Plan has been accepted as more user-friendly than the AAP or ABM breastfeeding guidelines for medical offices by the offices and clinics in this study.



The doctoral level training of the nurse researcher in this project made the quality and professional level of this project possible. Having the base knowledge of epidemiology, project planning, and statistical research analysis provided in the Regis University Doctor of Nursing Practice (DNP) program gave the nurse researcher the tools to bring the project to fruition. Future research includes expanding this project to a wider sample of clinics to include states, regions and possibly nationally. The DNP education not only lends a level of credibility to the project, it allows the researcher to have a level of knowledge and understanding of the entire clinical project process. As a DNP trained practitioner, the possibilities for working with state and national agencies, along with institutes of higher education, is expanded exponentially.

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## Appendix A Policy and Position Statements

### **Academy of Breastfeeding Medicine (ABM):**

- Position Statements & Clinical Protocols - [bfmed.org/Resources/Protocols.aspx](http://bfmed.org/Resources/Protocols.aspx)
- ABM Clinical Protocol #14: The Breastfeeding-Friendly Physicians' Office: Optimizing Care for Infants and Children, Revised 2013.  
[online.liebertpub.com/doi/full/10.1089/bfm.2013.9994](http://online.liebertpub.com/doi/full/10.1089/bfm.2013.9994)

### **American Academy of Family Physicians (AAFP):**

- Policy on Hospital Use of Infant Formula in Breastfeeding Infants - [aafp.org/about/policies/all/formula-hospital.html](http://aafp.org/about/policies/all/formula-hospital.html)
- Policy on Direct-to-Consumer Advertising of Infant Formula - [aafp.org/about/policies/all/advertising-formula.html](http://aafp.org/about/policies/all/advertising-formula.html)
- Position Paper on Family Physicians Supporting Breastfeeding - [aafp.org/about/policies/all/breastfeeding-support.html](http://aafp.org/about/policies/all/breastfeeding-support.html)
- Policy Statement on the Benefits of Breastfeeding - [aafp.org/about/policies/all/breastfeeding.html](http://aafp.org/about/policies/all/breastfeeding.html)
- Breastfeeding Support & Resources Toolkit - [aafp.org/patient-care/public-health/breastfeeding/toolkit.html](http://aafp.org/patient-care/public-health/breastfeeding/toolkit.html)

### **American Academy of Obstetricians and Gynecologists (ACOG):**

- Resource Pages - [acog.org/About-ACOG/ACOG-Departments/Breastfeeding](http://acog.org/About-ACOG/ACOG-Departments/Breastfeeding)
- Breastfeeding in Underserved Women: Increasing Initiation and Continuation of Breastfeeding - [acog.org/Resources-And-Publications/Committee-Opinions/Committee-on-Health-Care-for-Underserved-Women/Breastfeeding-in-Underserved-Women-Increasing-Initiation-and-Continuation-of-Breastfeeding](http://acog.org/Resources-And-Publications/Committee-Opinions/Committee-on-Health-Care-for-Underserved-Women/Breastfeeding-in-Underserved-Women-Increasing-Initiation-and-Continuation-of-Breastfeeding)
- Breastfeeding: Maternal and Infant Aspects - [acog.org/-/media/Committee-Opinions/Committee-on-Health-Care-for-Underserved-Women/co361.pdf?dmc=1&](http://acog.org/-/media/Committee-Opinions/Committee-on-Health-Care-for-Underserved-Women/co361.pdf?dmc=1&)

### **American Academy of Pediatrics (AAP):**

- Policy on Breastfeeding and the Use of Human Milk - [pediatrics.aappublications.org/content/129/3/e827.full](http://pediatrics.aappublications.org/content/129/3/e827.full)
- Recommendations on Breastfeeding Management for Healthy Term Infants - [pediatrics.aappublications.org/content/129/3/e827/T5.expansion.html](http://pediatrics.aappublications.org/content/129/3/e827/T5.expansion.html)
- Breastfeeding Residency Curriculum - [aap.org/breastfeeding/curriculum/index.html](http://aap.org/breastfeeding/curriculum/index.html)
- Recommendations on Newborn Hospital Discharge Readiness - [pediatrics.aappublications.org/content/129/3/e827/T5.expansion.htm](http://pediatrics.aappublications.org/content/129/3/e827/T5.expansion.htm)
- Breastfeeding Initiatives - [aap.org/breastfeeding/faqsBreastfeeding.html](http://aap.org/breastfeeding/faqsBreastfeeding.html)
- How to Have a Breastfeeding Friendly Practice - [aap.org/breastfeeding/files/pdf/AAP%20HaveFriendlyPractice.pdf](http://aap.org/breastfeeding/files/pdf/AAP%20HaveFriendlyPractice.pdf)

### **Baby-Friendly USA (administers the Baby-Friendly Hospital Initiative in the USA):**

- Ten Steps to Successful Breastfeeding (WHO/UNICEF) - [babyfriendlyusa.org/about-us/baby-friendly-hospital-initiative/the-ten-steps](http://babyfriendlyusa.org/about-us/baby-friendly-hospital-initiative/the-ten-steps)

### **Centers for Disease Control and Prevention (CDC):**

- CDC Guide to Strategies to Support Breastfeeding Mothers and Babies - [cdc.gov/breastfeeding/resources/guide.htm](http://cdc.gov/breastfeeding/resources/guide.htm)
- Growth Chart Recommendations - [cdc.gov/growthcharts/index.htm](http://cdc.gov/growthcharts/index.htm)

- Online training course, Using the WHO Growth Charts to Assess Growth in the United States Among Children Ages Birth to 2 Years - [cdc.gov/nccdphp/dnpao/growthcharts/who/index.htm](http://cdc.gov/nccdphp/dnpao/growthcharts/who/index.htm)

#### **Healthy People 2020:**

- Breastfeeding Objectives - [healthypeople.gov/2020/topics-objectives/topic/maternal-infant-and-child-health](http://healthypeople.gov/2020/topics-objectives/topic/maternal-infant-and-child-health)

#### **International Lactation Consultant Association (ILCA):**

- What Is An IBCLC? - [ilca.org/why-ibclc/ibclc](http://ilca.org/why-ibclc/ibclc)
- Professional IBCLC Practice - [ilca.org/learning/resources](http://ilca.org/learning/resources)

#### **The Joint Commission (TJC):**

- Perinatal Care Core Measures - [jointcommission.org/perinatal\\_care/](http://jointcommission.org/perinatal_care/)
- Changes to Breast Milk Feeding Performance Measures PC-05a and PC-05 - [jointcommission.org/changes\\_breastfeeding\\_performance\\_measures/](http://jointcommission.org/changes_breastfeeding_performance_measures/)

#### **National Association of Pediatric Nurse Practitioners (NAPNAP):**

- NAPNAP position statement on breastfeeding. (2013).
- *Journal of Pediatric Health Care*. 27(1): e13-e15.

#### **Office of the Surgeon General:**

- The Surgeon General's call to action to support breastfeeding. Rockville, MD: Office of the Surgeon General. (2011).

#### **UNICEF:**

- Recommendations for optimal breastfeeding - [unicef.org/nutrition/index\\_24824.html](http://unicef.org/nutrition/index_24824.html)

#### **United States Breastfeeding Committee (USBC):**

- Implementing The Joint Commission Perinatal Care Core Measure on Exclusive Breast Milk Feeding; and resource list for hospitals/ maternity centers - [usbreastfeeding.org/TJC-Measure-EBMF](http://usbreastfeeding.org/TJC-Measure-EBMF)
- Model Policy: Payor Coverage of Breastfeeding Support and Counseling Services, Pumps and Supplies - [usbreastfeeding.org/model-payer-policy](http://usbreastfeeding.org/model-payer-policy)

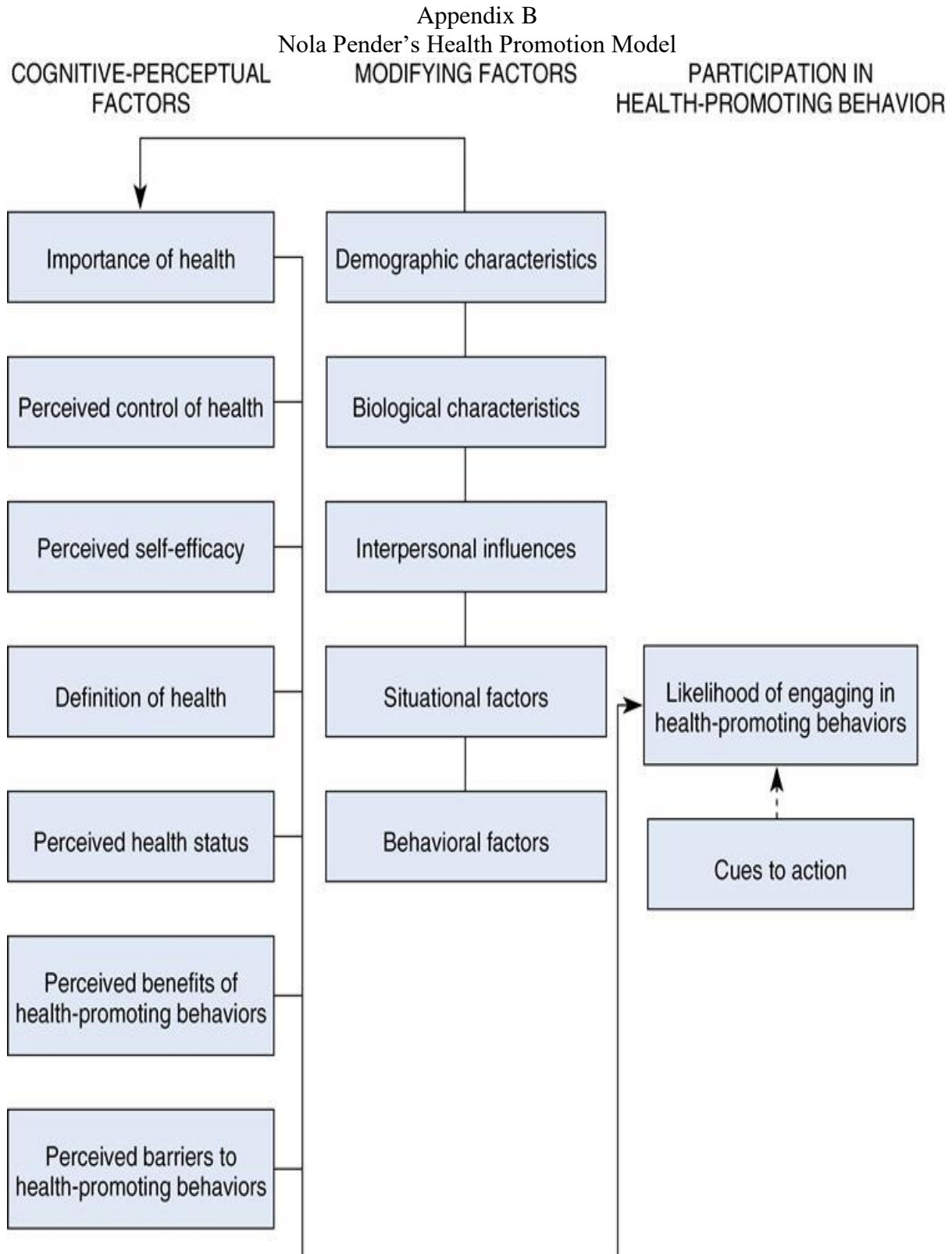
#### **United States Department of Labor:**

- Break Time for Nursing Mothers - [dol.gov/whd/nursingmothers/](http://dol.gov/whd/nursingmothers/)

#### **World Health Organization (WHO):**

- The International Code of Marketing of Breast-milk Substitutes - [who.int/nutrition/publications/infantfeeding/9241541601/en/](http://who.int/nutrition/publications/infantfeeding/9241541601/en/)
- A Global Strategy on Infant and Young Child Feeding Practices - [who.int/nutrition/publications/infantfeeding/9241562218/en/](http://who.int/nutrition/publications/infantfeeding/9241562218/en/)
- The optimal duration of exclusive breastfeeding - [who.int/nutrition/publications/infantfeeding/WHO\\_NHD\\_01.09/en/](http://who.int/nutrition/publications/infantfeeding/WHO_NHD_01.09/en/)
- The nutrient adequacy of exclusive breastfeeding for the term infant during the first six months of life - [apps.who.int/iris/handle/10665/42519](http://apps.who.int/iris/handle/10665/42519)





## Appendix C Systematic Review of the Literature (Example)

<b>Article/ Journal</b>	Renfrew MJ, McCormick FM, Wade A, Quinn B, Dowswell T. (2012). Support for healthy breastfeeding mothers with healthy term babies. <i>Cochrane Database of Systematic Reviews</i> , Issue 5. Art. No.: CD001141. DOI: 10.1002/14651858.CD001141.pub4.	Guise, J. M., Palda, V., Westhoff, C., Chan, B. K. S., Helfand, M., Lieu, T. A. (2003). The effectiveness of primary care based interventions to promote breastfeeding: Systematic evidence review and meta-analysis for the US preventive services task force. <i>Annals of Family Medicine</i> , 1(2), 70-80. DOI: 10.1370/afm.56.
<b>Author/Year</b>	(Renfrew, McCormick, Wade, Quinn, & Dowswell, 2012).	(Guise, Palda, Westhoff, Chan, Helfand, & Lieu, 2003).
<b>Database/ Keywords</b>	EBSCO: MEDLINE, CINAHL Complete, PubMed. Breastfeeding Support	EBSCO: MEDLINE, CINAHL Complete, PubMed. Breastfeeding Promotion
<b>Research Design</b>	Systematic Review	Systematic Review and Meta-analysis
<b>Level of Evidence</b>	Level I	Level I
<b>Study Aim/ Purpose</b>	To assess the effectiveness of support for breastfeeding mothers.	To systematically review whether primary care-based interventions improve initiation and duration of breastfeeding.
<b>Population / Sample size Criteria/ Power</b>	Randomized or quasi-randomized controlled trials comparing extra support for healthy breastfeeding mothers of healthy term babies with usual maternity care.	Thirty randomized and nonrandomized controlled trials and 5 systematic reviews of breastfeeding counseling were included.
<b>Methods/ Study Appraisal Synthesis Methods</b>	We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (3 October 2011).	Studies were found by searching MEDLINE (1966-2001), Health- STAR, the Cochrane Database of Systematic Reviews, the National Health Service Centre for Reviews and Dissemination Databases, and bibliographies of identified trials and review articles.
<b>Study tool/ reliability</b>	Two review authors independently assessed trial quality and extracted data.	

<b>Primary Outcome Measures/ Results</b>	Of the 67 studies that we assessed as eligible for inclusion, 52 contributed outcome data to the review (56,451 mother-infant pairs) from 21 countries. All forms of extra support analyzed together showed an increase in duration of 'any breastfeeding' Extra support by both lay and professionals had a positive impact on breastfeeding outcomes. Maternal satisfaction was poorly reported.	The US Preventive Services Task Force Behavioral Interventions to Promote Breastfeeding: Recommendations and Rationale are available at the supplementary data link from the online full-text version of this article at <a href="http://www.annfammed.org/cgi/content/full/1/2/70/DC2">http://www.annfammed.org/cgi/content/full/1/2/70/DC2</a> .
<b>Conclusions/ Implications</b>	All women should be offered support to breastfeed their babies. Support may be offered either by professional or lay/peer supporters, or a combination of both. face-to-face support is more likely to succeed. Support that is only offered reactively, is unlikely to be effective; women should be offered ongoing visits on a scheduled basis so they can predict that support will be available.	
<b>Strengths/ Limitations</b>	Quality of the trials included in the review were mixed with potential bias due to self-reporting	The lack of scientific rigor in individual studies to date is a limitation for the strength of these findings. These data, however, reflect the summary of the best evidence available to date. Future studies of breastfeeding interventions should make every attempt to follow high-quality standards of randomization, analysis, and reporting.
<b>Funding Source</b>	Work on this review was supported in part by a grant from the National Institute for Health Research Health Technology Assessment program, grant number 10/106/01.	This study was conducted by the Oregon Health & Science University Evidence-based Practice Center under contract to the Agency for Healthcare Research and Quality, contract #290-97-0018, Task Order Number 2, Rockville, Md. Additional support came from the National Institutes of Health grant NIH-K12 HD01243-01 and the Agency for Healthcare Research and Quality grant 1

		K08 HS11338-01.
<b>Comments</b>	review provides evidence that breast- feeding support interventions increase the number of women continuing to breastfeed, and the number of women continuing to exclusively breastfeed, at up to six months and at up to four to six weeks.	<p>Education and support interventions to promote breastfeeding appear to improve breastfeeding initiation and maintenance up to 6 months. Educational sessions that review the benefits of breastfeeding, principles of lactation, myths, common problems, solutions, and skills training appear to have the greatest single effect</p> <p>Must keep in mind for the educational portion for the providers.</p>

Appendix C  
Systematic review of literature table

Levels of Evidence	Number of Articles	Article Citations
I Systematic Review or Meta-analysis of Randomized Controlled Trials (RCTs) or evidence-based clinical practice guidelines based on systematic reviews of RCT's	12 articles	(American College Obstetricians and Gynecologists, 2016); (Baby-Friendly USA, 2016); (Beake, Pellowe, Dykes, Schmied, & Bick, 2012); (Centers for Disease Control and Prevention, 2013); (Kramer & Kakuma, 2012); (Renfrew, McCormick, Wade, Quinn, & Dowswell, 2012); (Guisse, Palda, Westhoff, Chan, Helfand, & Lieu, 2003); (Moran et al., 2015); (Rollins et al., 2016); (Sankar et al., 2015); (U.S. Department of Health and Human Services, 2011); (U.S. Preventive Services Task Force, 2016); (Victora et al., 2016)
II Well-designed RCT	3 articles	(Feldman-Winter et al., 2017); (Silander et al., 2015); (Whalen, Kelley, & Holmes, 2015)
III Well-designed controlled trial without randomization, quasi-experimental	7 articles	(California Department of Public Health, 2015); (Cattaneo, 2016); (Gregg, Prokotym, Dennison, & Waniewski, 2015); (National Association of County and City Health Officials, NACCHO, 2016); (Odom, Li, Scanlon, Perrine, & Grummer-Strawn, 2013); (Schwartz, Ellings, Baisden, Goldhammer, Lamson, & Johnson, 2015); (Shariff et al., 2000); (Verbiest, Tully, & Stuebe, 2016)
IV Well-designed case-control and cohort studies	2 articles	(Garner et al., 2016); Meek (2017)
V Systematic reviews of descriptive or qualitative study	0 articles	
VI Single descriptive or qualitative study	2 articles	(Johnson, Lamson, Schwartz, Goldhammer, & Ellings, 2015); (Thomas, Ebisch-Burton, & Flacking, 2015)
VII Opinion of authorities and/or reports of expert committees	3 articles	(Bettinelli, Chapin, & Cattaneo, 2012); (Martucci & Barnhill, 2016); (National Association of County and City Health Officials, NACCHO, 2016)

Appendix E  
Making Breastfeeding Work for Medical Offices: A Six-point Plan



<https://assets.bouldercounty.org/wp-content/uploads/2018/05/medical-office-toolkit.pdf>

View on the Boulder County website.

## Appendix F



## Budget

Development of Making Breastfeeding Work for Medical Offices: A Six-Point Plan has been funded through the Cancer, Cardiovascular and Pulmonary Disease Grants Program (CCPD) from the CDPHE. Time required for research, editorial support, meetings with all involved, and travel to pilot offices for meetings, provided by Kathleen Seckinger in part of doctoral studies at Regis University, has totaled over 475 volunteered hours and \$75.00 for gas. BFMO Advisory Team is volunteer based.

250 volunteered hours by subject matter experts, average \$30.00 an hour. Editing and formatting by the BCPH communication team for the final online and print toolkit, 20 hours at \$30.00 an hour. Addition of webpage to existing BCPH Breastfeeding platform, six hours at \$30.00 an hour. Printing at the BCPH print shop, \$1.00 per toolkit per 50 printed. Doctoral research student time of 450 hours, at \$40.00 an hour, if paid for time (see Table 2 & 3).

## Appendix G

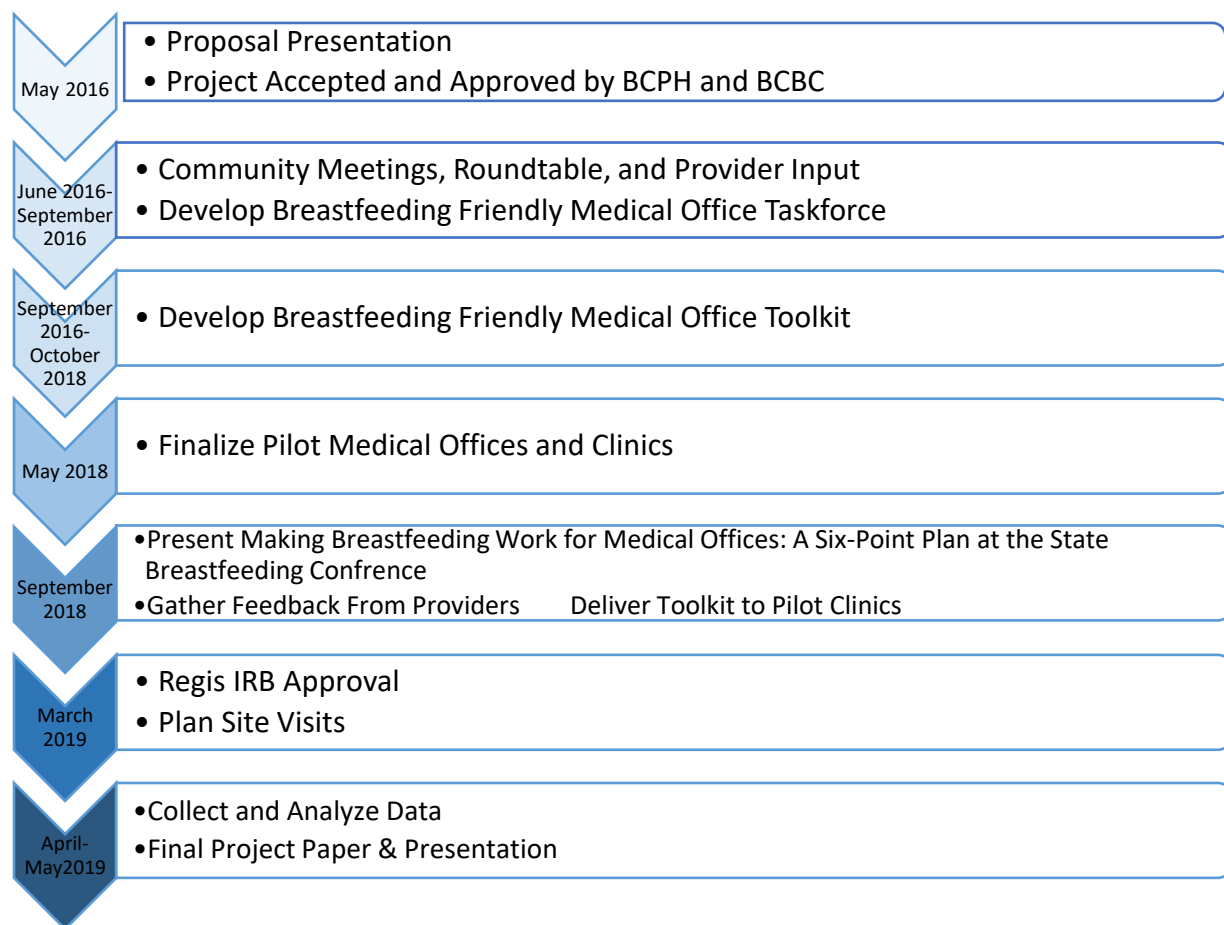
## Logic Model

Inputs					Outcomes		
		Activities	Outputs		Short-term	Long-term	Impact
Support from Boulder County Department of Public Health, Breastfeeding Friendly Environments program.  Ongoing support from Boulder County Breastfeeding Coalition.  Dedicated Breastfeeding Friendly Medical Office and Clinic Committee.  Community support from medical offices volunteering to be certified breastfeeding friendly.		Design and implement a Breastfeeding Friendly Medical Office certification.  Design and implement a Breastfeeding Friendly Medical Provider resource guide and tool box.  Design a web page with information available to the public on finding a breastfeeding friendly medical provider.  Create an evaluation plan. Educate medical providers.	Written, communicated, and implemented lactation policy in medical offices and clinics that serve the breastfeeding dyad.  Increase of exclusive breastfeeding rates at 3 and 6 months.  Increase of breastfeeding for at least one year.  Change in primary care provider's and medical office personnel attitudes on the importance of breastfeeding support.		Sustainability of breastfeeding services through insurance reimbursement or other financial sources.  CLC on staff in every medical office that serves the breastfeeding dyad.  IBCLC on staff or available via direct referral for complex issues.	Clinics track breastfeeding rates and use data to improve breastfeeding outcomes.  Decreased volume of unreimbursed lactation consultation in medical offices.  Lactation trained Healthcare providers in primary care clinics.  Increased breastfeeding rates in all area	Improved/increased number of providers/clinics that are breastfeeding friendly  Improved exclusive breastfeeding rates at 3 and 6 months, and continued breastfeeding for at least 12 months.  Improved health status of both mother and child across the lifespan.



## Appendix H Time Frame

Development of the Breastfeeding Friendly Medical Office (BFMO) plan began May 2016 at a meeting with Dr. Neifert, Linda Kopecky, and Kathleen Seckinger. Then community roundtables were held to assess the community need and desired support. The development of the BFMO toolkit continued over the next two years, while at the same time searching for volunteer pilot clinics were assessed and chosen. Four, monthly conference calls with medical offices that volunteered for the project to discuss timeline and implementation of the BFMO plan were planned. First call- timeline, policy, office set up. Second call- Lunch and Learn BF education ppt. Third call- BF room/area, billing, tracking. Fourth call- Education tracking for staff and providers, unanswered questions, office self-assessment. Pre-test administered to pilot offices through the self-assessment from the toolkit. Launch BFMO plan in pilot offices. Post-test administered to pilot offices four months after launch. Statistical analysis of data the last month.



## Appendix I IRB QI Form and Approval



### Determination of Human Subjects Research Form for Quality Improvement/Quality Assessment Activities

Project Description: Making Breastfeeding Work for Medical Offices: A Six-Point Plan by Kathleen Seckinger and the Boulder County Public Health, Breastfeeding Friendly Environments.

1. Submit a summary (one page or less) within IRBNet describing the project goals. The abstract must:

- 1) describe the reasons for conducting the proposed project,
- 2) provide a brief description of the project including objectives, and
- 3) describe the proposed activities for the project.

2. What organization or department will be reviewed during the quality improvement or quality assessment project? (If the organization or department is unaffiliated with Regis University, a site approval letter is required.)

\_\_\_\_\_Boulder County Department of Public Health\_\_\_\_\_

3. Answer the questions below in either the Quality Improvement/Professional Development Projects section or the Program Evaluation Projects section to determine if your project is actually quality improvement or if it is program evaluation. ALL questions must be answered TRUE to be considered a Quality Improvement Project or a Program Evaluation Project.

Quality Improvement/Professional Development Projects	Program Evaluation Projects
The project is intended to improve or evaluate a practice or process within a particular institution, classroom, or specific program.  <input checked="" type="checkbox"/> True <input type="checkbox"/> False	The evaluation is being initiated based on the request and needs of a partner organization or department for internal purposes only.  <input type="checkbox"/> True <input type="checkbox"/> False
The primary intent of the project is not designed to expand knowledge of a scientific discipline or scholarly field of study.  <input checked="" type="checkbox"/> True <input type="checkbox"/> False	The intent of the evaluation is to improve a specific program and/or to meet funding agency requirements.  <input type="checkbox"/> True <input type="checkbox"/> False
All activities are "best practices", "routine care", or "standard practice" and conducted by staff where the project will take place. Untested methods and/or interventions are not being evaluated.  <input checked="" type="checkbox"/> True <input type="checkbox"/> False	The program or intervention being evaluated has been tested and is evidence based (already shown to be effective).  <input type="checkbox"/> True <input type="checkbox"/> False

<p>The project does not involve a control group or randomization of subjects or blinded interventions.</p> <p><input checked="" type="checkbox"/> True <input type="checkbox"/> False</p>	<p>The evaluation does not involve randomization of participants, but may involve comparison of variations in programs.</p> <p><input type="checkbox"/> True <input type="checkbox"/> False</p>
<p>The project is not funded externally (outside Regis) as a human subjects research project.</p> <p><input checked="" type="checkbox"/> True <input type="checkbox"/> False</p>	<p>The project is not funded externally (outside Regis) as a human subjects research project.</p> <p><input type="checkbox"/> True <input type="checkbox"/> False</p>
<p>The project will not involve testing of an experimental intervention, methodology, drug, device (including medical software or assays), or biologic.</p> <p><input checked="" type="checkbox"/> True <input type="checkbox"/> False</p>	<p>The project will not involve testing of an experimental drug, device (including medical software or assays), or biologic.</p> <p><input type="checkbox"/> True <input type="checkbox"/> False</p>

#### Making Breastfeeding Work for Medical Offices: A Six-Point Plan

- 1) Describe the reasons for conducting the proposed project: To evaluate medical office staff and providers acceptance and use of the educational intervention of the breastfeeding friendly medical office tool kit.
- 2) Provide a brief description of the project including objectives: The Making Breastfeeding Work for Medical Offices: A Six-Point Plan, is a breastfeeding friendly educational tool kit based on the Baby-Friendly initiative, for medical offices and clinics that treat breastfeeding women and children. The toolkit is an educational resource devised to guide providers in using evidence based breastfeeding and lactation support. The objective of this project is to increase provider knowledge, comfort level, and use of evidence based lactation and breastfeeding education and support for the breastfeeding dyad.
- 3) Describe the proposed activities for the project: Implement The Making Breastfeeding Work for Medical Offices: A Six-Point Plan into four pilot offices. Assess the providers opinions on ease of use, and increased breastfeeding knowledge through four-six surveys. A quasi-experimental quantitative design utilizing a Likert style scale, statistically evaluated with before-after t-test.

Reviewed and approved by doctoral supervising faculty:

Patricia L. Cullen, PhD, CPNP-PC

January 22, 2019

Patricia L. Cullen

Revised: January 22, 2019



## Institutional Review Board

REGIS.EDU

DATE: March 1, 2019

TO: Kathleen Seckinger, MS  
FROM: Regis University Human Subjects IRB

PROJECT TITLE: [1394929-1] Making Breastfeeding Work for Medical Offices: A Six-Point Plan  
SUBMISSION TYPE: New Project

ACTION: DETERMINATION OF NOT RESEARCH  
DECISION DATE: March 1, 2019

Thank you for your submission of New Project materials for this project. The Regis University Human Subjects IRB has determined this project does not meet the definition of human subject research under the purview of the IRB according to federal regulations and qualifies as quality improvement.

We will retain a copy of this correspondence within our records.  
If you have any questions, please contact the Institutional Review Board at [irb@regis.edu](mailto:irb@regis.edu). Please include

your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Regis University Human Subjects IRB's records.

Appendix J  
Agency Approval for Project



## Child Health Promotion

November 15, 2018

To Whom it May Concern,

I am writing this letter in support of Kathleen Seckinger's participation in developing the Breastfeeding Friendly Medical Office toolkit and model. This is an initiative of Boulder County Public Health in conjunction with the Cancer, Cardiovascular, and Chronic Pulmonary Disease grants program through the State of Colorado (Colorado Department of Public Health and Environment). Our funding through this program has supported the development of several toolkits and other materials to build out Breastfeeding Friendly Environments in Boulder County and the rest of Colorado. The medical office portion of this project has been our most recent activity.

Kathleen Seckinger has been instrumental in providing a foundation of research for this project. She has identified best practices in developing clinic settings that are supportive of breastfeeding patients, and she has been a key player in developing the toolkit. She has been available in person, by phone, and by online communication to craft this one-of-a-kind toolkit, all contents of which are aligned with the American Academy of Pediatrics, the Academy of Breastfeeding Medicine, and the World Health Organization's recommendations.

This project owes a debt of gratitude to Kathleen Seckinger for her contributions in creating this model, with strong collaboration with the Boulder County Breastfeeding Coalition and other subject matter experts around the state.

Please contact me for clarification or more information.

Warmly,

A handwritten signature in black ink, appearing to read "Linda Kopecky".

Linda Kopecky, MPH  
Breastfeeding Friendly Environments Project Coordinator



## Appendix K Self-Assessments

### Making Breastfeeding Work: A Six-Point Plan Self-Assessment

Medical Office \_\_\_\_\_ Contact Person \_\_\_\_\_

Email \_\_\_\_\_ Phone \_\_\_\_\_

**Point 1: Policy:** *The medical office has/will:*

Progressing	Breastfeeding Friendly	Breastfeeding Advocate
<input type="checkbox"/> No lactation policy. <input type="checkbox"/> An informal lactation policy that is not written or communicated regularly. <input type="checkbox"/> Staff interested in breastfeeding promotion.	<input type="checkbox"/> A point person to oversee Breastfeeding Friendly Medical Office details. <input type="checkbox"/> A written, communicated, implemented lactation policy. <input type="checkbox"/> Formula coupons are out of view of patients. <input type="checkbox"/> No formula coupons allowed in the medical office. <input type="checkbox"/> Samples of formula given only when medically necessary, and only after a full breastfeeding assessment by a medical professional. <input type="checkbox"/> Few or no barriers to staff scheduling breaks and work patterns to express breastmilk. <input type="checkbox"/> A prioritized or designated space for employee milk expression.	<input type="checkbox"/> A written lactation policy that is routinely communicated, fully implemented, and displayed in public view. <input type="checkbox"/> No staff gifts/benefits accepted from formula companies. <input type="checkbox"/> An appointed breastfeeding champion in the office who drives improvement of all Breastfeeding Friendly policies and practices.

**Point 2: Provider Training:** *The medical office has/will:*

Progressing	Breastfeeding Friendly	Breastfeeding Advocate
<input type="checkbox"/> No staff lactation training, or training is provided inconsistently.	<input type="checkbox"/> Consistent and role-appropriate lactation training for ALL staff. <input type="checkbox"/> Training that follows guidelines from the Baby-Friendly Hospital Initiative™ the Academy of Breastfeeding Medicine, and/or the World Health Organization. <input type="checkbox"/> Identified cultural considerations related to staff training. <input type="checkbox"/> A triage protocol in place for patient phone calls about breastfeeding concerns.	<input type="checkbox"/> An IBCLC (International Board-Certified Lactation Consultant) on staff or available for direct referral. <input type="checkbox"/> Another type of lactation counselor on staff or available via direct referral. <input type="checkbox"/> Opportunities for staff to become a lactation management professional. <input type="checkbox"/> Cultural competency as part of breastfeeding support and training per recommended guidelines. <input type="checkbox"/> Lactation referral options included in the electronic medical record.

**Point 3: Patient Education:** *The medical office has/will:*

Progressing	Breastfeeding Friendly	Breastfeeding Advocate
<input type="checkbox"/> Little, inconsistent, or no breastfeeding education at any visit.	<input type="checkbox"/> Provide specific and clear points to be discussed at each visit during prenatal and early well-child checks.	<input type="checkbox"/> Encourage all patients to attend prenatal breastfeeding education classes. <input type="checkbox"/> Offer guidance and encouragement for partner/family breastfeeding support.



## Self-Assessment

**Point 4: Environment:** *The medical office has/will:*

Progressing	Breastfeeding Friendly	Breastfeeding Advocate
<input type="checkbox"/> Little or inconsistent display of support for breastfeeding. <input type="checkbox"/> Formula and formula company information in view of patients.	<input type="checkbox"/> Display and convey supportive breastfeeding educational materials and signage. <input type="checkbox"/> No formula in public view. <input type="checkbox"/> No formula company messaging on educational materials or free gifts to patients provided by formula companies. <input type="checkbox"/> Welcome signage to breastfeed in public areas or request a more private space.	<input type="checkbox"/> Breastfeeding Friendly workplace designation. <input type="checkbox"/> Stock breastfeeding supplies (pads, shells, shields, etc.). <input type="checkbox"/> Breastfeeding signage and educational materials include family/partners. <input type="checkbox"/> A private space and accompanying signage for patients to breastfeed.

**Point 5: Evaluation and Sustainability:** *The medical office has/will:*

Progressing	Breastfeeding Friendly	Breastfeeding Advocate
<input type="checkbox"/> Limited to no documentation of breastfeeding rates. <input type="checkbox"/> Inconsistent or no billing for lactation services.	<input type="checkbox"/> Documentation of breastfeeding rates among patients. <input type="checkbox"/> Create some financial sustainability through insurance billing for lactation services.	<input type="checkbox"/> Track breastfeeding rates and use data to improve breastfeeding outcomes. <input type="checkbox"/> Evaluate Breastfeeding Friendly policies and practices annually. <input type="checkbox"/> Breastfeeding services that are financially sustainable via reimbursement or other financial sources.

**Point 6: Continuity of Care:** *The medical office has/will:*

Progressing	Breastfeeding Friendly	Breastfeeding Advocate
<input type="checkbox"/> No supportive breastfeeding resource or referral materials available to patients. <input type="checkbox"/> A greater than 5-day delay of contact with breastfeeding mothers by neonatal care providers after delivery discharge from birthing facility.	<input type="checkbox"/> Assurance of a first follow-up visit to check on breastfeeding progress 3-5 days after birth. <input type="checkbox"/> A readily available list of lactation professionals to refer patients to when necessary. <input type="checkbox"/> Lactation reference and resource materials are available and utilized.	<input type="checkbox"/> A routine evaluation by an IBCLC to check on breastfeeding progress 3-5 days after birth.

## Appendix L

## CITI Training Certificate

**COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)****COMPLETION REPORT - PART 1 OF 2  
COURSEWORK REQUIREMENTS\***

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

- **Name:** Kathleen Seckinger (ID: 6170770)
- **Institution Affiliation:** Regis University (ID: 745)
- **Institution Email:** kseckinger@regis.edu
- **Institution Unit:** Nursing
- **Curriculum Group:** Human Research
- **Course Learner Group:** Social Behavioral Research Investigators and Key Personnel
- **Stage:** Stage 1 - Basic Course
- **Record ID:** 22334765
- **Completion Date:** 19-Feb-2017
- **Expiration Date:** 19-Feb-2020
- **Minimum Passing:** 80
- **Reported Score\*:** 93

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Belmont Report and CITI Course Introduction (ID: 1127)	14-Feb-2017	3/3 (100%)
History and Ethical Principles - SBE (ID: 490)	14-Feb-2017	5/5 (100%)
The Federal Regulations - SBE (ID: 502)	14-Feb-2017	5/5 (100%)
Assessing Risk - SBE (ID: 503)	14-Feb-2017	5/5 (100%)
Informed Consent - SBE (ID: 504)	19-Feb-2017	5/5 (100%)
Privacy and Confidentiality - SBE (ID: 505)	19-Feb-2017	3/5 (60%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: [www.citiprogram.org/verify/?k4fd7d8e4-b14e-4fb1-b099-895f39fb590a-22334765](http://www.citiprogram.org/verify/?k4fd7d8e4-b14e-4fb1-b099-895f39fb590a-22334765)

Collaborative Institutional Training Initiative (CITI Program)

Email: [support@citiprogram.org](mailto:support@citiprogram.org)

Phone: 888-529-5929

Web: <https://www.citiprogram.org>



**COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)****COMPLETION REPORT - PART 2 OF 2  
COURSEWORK TRANSCRIPT\*\***

\*\* NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Kathleen Seckinger (ID: 8170770)
- **Institution Affiliation:** Regis University (ID: 745)
- **Institution Email:** kseckinger@regis.edu
- **Institution Unit:** Nursing
- **Curriculum Group:** Human Research
- **Course Learner Group:** Social Behavioral Research Investigators and Key Personnel
- **Stage:** Stage 1 - Basic Course
- **Record ID:** 22334785
- **Report Date:** 19-Feb-2017
- **Current Score\*\*:** 93

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
History and Ethical Principles - SBE (ID: 480)	14-Feb-2017	5/5 (100%)
Belmont Report and CITI Course Introduction (ID: 1127)	14-Feb-2017	3/3 (100%)
The Federal Regulations - SBE (ID: 502)	14-Feb-2017	5/5 (100%)
Assessing Risk - SBE (ID: 503)	14-Feb-2017	5/5 (100%)
Informed Consent - SBE (ID: 504)	19-Feb-2017	5/5 (100%)
Privacy and Confidentiality - SBE (ID: 505)	19-Feb-2017	3/5 (60%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: [www.citiprogram.org/verify/?id=8170770&id=1127&id=502&id=503&id=504&id=505&id=22334785](http://www.citiprogram.org/verify/?id=8170770&id=1127&id=502&id=503&id=504&id=505&id=22334785)

Collaborative Institutional Training Initiative (CITI Program)

Email: [support@citiprogram.org](mailto:support@citiprogram.org)

Phone: 888-529-5929

Web: <http://www.citiprogram.org>

Appendix M  
Self-Assessment Aggregate SPSS

**Paired Samples Statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	aggpre	1.37	150	.484	.039
	aggpost	1.53	150	.501	.041

**Paired Samples Correlations**

	N	Correlation	Sig.
Pair 1 aggpre & aggpost	150	.389	.000

**Paired Samples Test**

		Paired Differences					t	df	Sig. (2-tailed)
			Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Mean	Lower			
Pair 1	aggpre - aggpost	-.160	.544	.044	-.248	-.072	-3.600	149	.000

Appendix N  
Site Statistics SPSS

**Paired Samples Statistics**

Site code			Mean	N	Std. Deviation	Std. Error Mean
9	Pair 1	aggpre	1.30	50	.463	.065
		aggpost	1.38	50	.490	.069
10	Pair 1	aggpre	1.38	50	.490	.069
		aggpost	1.48	50	.505	.071
11	Pair 1	aggpre	1.42	50	.499	.071
		aggpost	1.72	50	.454	.064

**Paired Samples Correlations**

Site code			N	Correlation	Sig.
9	Pair 1	aggpre & aggpost	50	.387	.006
10	Pair 1	aggpre & aggpost	50	.320	.023
11	Pair 1	aggpre & aggpost	50	.440	.001

**Paired Samples Test**

Site code			Paired Differences					t	df	Sig. (2-tailed)
			Mea n	Std. Deviati on	Std. Error Mean	95% Confidence Interval of the Difference				
						Lower	Upper			
9	Pair 1	aggpre - aggpost	-.080	.528	.075	-.230	.070	-1.071	49	.290
10	Pair 1	aggpre - aggpost	-.100	.580	.082	-.265	.065	-1.219	49	.229
11	Pair 1	aggpre - aggpost	-.300	.505	.071	-.444	-.156	-4.200	49	.000

## Appendix O

## Frequencies and Correlations SPSS

**Statistics**

		aggpre	aggpost
N	Valid	150	150
	Missing	0	0
Mean		1.37	1.53
Median		1.00	2.00
Mode		1	2
Std. Deviation		.484	.501
Percentiles	100	2.00	2.00

**Aggregate pre**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	95	63.3	63.3	63.3
	2	55	36.7	36.7	100.0
Total		150	100.0	100.0	

**Aggregate post**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	71	47.3	47.3	47.3
	2	79	52.7	52.7	100.0
Total		150	100.0	100.0	

**Statistics**

		aggpre	aggpost
N	Valid	150	150
	Missing	0	0
Mean		1.37	1.53
Median		1.00	2.00
Mode		1	2
Std. Deviation		.484	.501

Percentiles	100	2.00	2.00
-------------	-----	------	------

**Reliability  
Statistics**

Cronbach's Alpha	N of Items
.560	2

**Correlations**

sitecode			aggpre	aggpost
9	aggpre	Pearson Correlation	1	.387**
		Sig. (2-tailed)		.006
		N	50	50
	aggpost	Pearson Correlation	.387**	1
		Sig. (2-tailed)	.006	
		N	50	50
10	aggpre	Pearson Correlation	1	.320*
		Sig. (2-tailed)		.023
		N	50	50
	aggpost	Pearson Correlation	.320*	1
		Sig. (2-tailed)	.023	
		N	50	50
11	aggpre	Pearson Correlation	1	.440**
		Sig. (2-tailed)		.001
		N	50	50
	aggpost	Pearson Correlation	.440**	1
		Sig. (2-tailed)	.001	
		N	50	50

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

### Correlations

sitepoint			aggpre	aggpost
3	aggpre	Pearson	1	.503**
		Correlation		
		Sig. (2-tailed)		
		N	39	39
	aggpost	Pearson	.503**	1
		Correlation		
		Sig. (2-tailed)		
		N	39	39
4	aggpre	Pearson	1	.238
		Correlation		
		Sig. (2-tailed)		
		N	30	30
	aggpost	Pearson	.238	1
		Correlation		
		Sig. (2-tailed)		
		N	30	30
5	aggpre	Pearson	1	.120
		Correlation		
		Sig. (2-tailed)		
		N	12	12
	aggpost	Pearson	.120	1
		Correlation		
		Sig. (2-tailed)		
		N	12	12
6	aggpre	Pearson	1	.476**
		Correlation		
		Sig. (2-tailed)		
		N	30	30
	aggpost	Pearson	.476**	1
		Correlation		

		Sig. (2-tailed)	.008	
		N	30	30
7	aggpre	Pearson	1	-.062
		Correlation		
		Sig. (2-tailed)		.789
		N	21	21
	aggpost	Pearson	-.062	1
		Correlation		
		Sig. (2-tailed)	.789	
		N	21	21
8	aggpre	Pearson	1	.894**
		Correlation		
		Sig. (2-tailed)		.000
		N	18	18
	aggpost	Pearson	.894**	1
		Correlation		
		Sig. (2-tailed)	.000	
		N	18	18

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Appendix P  
Six-Point Plan SPSS

**Paired Samples Statistics**

Site point	Mean	N	Std. Deviation	Std. Error Mean
3 Pair 1 aggpre	1.46	39	.505	.081
aggpost	1.56	39	.502	.080
4 Pair 1 aggpre	1.30	30	.466	.085
aggpost	1.60	30	.498	.091
5 Pair 1 aggpre	1.33	12	.492	.142
aggpost	1.42	12	.515	.149
6 Pair 1 aggpre	1.33	30	.479	.088
aggpost	1.57	30	.504	.092
7 Pair 1 aggpre	1.29	21	.463	.101
aggpost	1.38	21	.498	.109
8 Pair 1 aggpre	1.44	18	.511	.121
aggpost	1.50	18	.514	.121

**Paired Samples Correlations**

sitepoint	N	Correlation	Sig.
3 Pair 1 aggpre & aggpost	39	.503	.001
4 Pair 1 aggpre & aggpost	30	.238	.206
5 Pair 1 aggpre & aggpost	12	.120	.711
6 Pair 1 aggpre & aggpost	30	.476	.008
7 Pair 1 aggpre & aggpost	21	-.062	.789
8 Pair 1 aggpre & aggpost	18	.894	.000



**Paired Samples Test**

sitepoint			Paired Differences				t	df	Sig. (2-tailed)	
			Mea n	Std. Deviati on	Std. Error Mean	95% Confidence Interval of the Difference				
						Lower				Upper
3	Pair 1	aggpre - aggpost	-.103	.502	.080	-.265	.060	-1.275	38	.210
4	Pair 1	aggpre - aggpost	-.300	.596	.109	-.523	-.077	-2.757	29	.010
5	Pair 1	aggpre - aggpost	-.083	.669	.193	-.508	.341	-.432	11	.674
6	Pair 1	aggpre - aggpost	-.233	.504	.092	-.422	-.045	-2.536	29	.017
7	Pair 1	aggpre - aggpost	-.095	.700	.153	-.414	.224	-.623	20	.540
8	Pair 1	aggpre - aggpost	-.056	.236	.056	-.173	.062	-1.000	17	.331

Appendix Q  
Level of Assessment

**Paired Samples Statistics**

					Std. Deviation	Std. Error Mean
Site	section		Mean	N		
12	Pair 1	aggpre	1.39	33	.496	.086
		aggpost	1.06	33	.242	.042
13	Pair 1	aggpre	1.57	63	.499	.063
		aggpost	1.81	63	.396	.050
14	Pair 1	aggpre	1.11	54	.317	.043
		aggpost	1.48	54	.504	.069

**Paired Samples Correlations**

			N	Correlation	Sig.
12	Pair 1	aggpre & aggpost	33	.315	.074
13	Pair 1	aggpre & aggpost	63	.478	.000
14	Pair 1	aggpre & aggpost	54	.367	.006

**Paired Samples Test**

Site   section			Paired Differences				t	df	Sig. (2-tailed)	
			Mea n	Std. Deviasi on	Std. Error Mean	95% Confidence Interval of the Difference				
						Lower				Upper
12	Pair 1	aggpre - aggpost	.333	.479	.083	.164	.503	4.000	32	.000
13	Pair 1	aggpre - aggpost	-.238	.465	.059	-.355	-.121	-4.061	62	.000
14	Pair 1	aggpre - aggpost	-.370	.487	.066	-.503	-.237	-5.584	53	.000