

BEST PRACTICES TO PROMOTE BREASTFEEDING IN HOME VISITING PROGRAMS

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Introduction

The health benefits of breastfeeding for infants and mothers are well-established. For infants, a history of breastfeeding is associated with a reduction in the risk for acute otitis media, asthma (young children), atopic dermatitis, childhood leukemia, necrotizing enterocolitis, non-specific gastroenteritis, severe lower respiratory tract infections, sudden infant death syndrome (SIDS), type 1 and 2 diabetes and childhood obesity.¹ For mothers, breastfeeding is associated with a reduction in the risk of type 2 diabetes, breast cancer and ovarian cancer.¹ Furthermore, early cessation of breastfeeding or not breastfeeding is linked to postpartum depression.¹ These improved outcomes associated with breastfeeding have important implications for lowering health care costs; a recent study determined that, if 90% of families in the United States (U.S.) could comply with medical guidelines to breastfeed exclusively for 6 months, the U.S. would save \$13 billion per year from reduced direct medical costs, indirect costs and the cost of premature death.^{2,3}

To protect, promote and support breastfeeding in maternity services – and, thus, to facilitate these beneficial health outcomes – in 1991, the World Health Organization (WHO) and UNICEF collaborated to create the Baby-Friendly Hospital Initiative (BFHI).⁴ Under this initiative, hospitals and birthing centers are awarded a Baby-Friendly designation if they successfully implement the Ten Steps to Successful Breastfeeding and the International Code of Marketing of Breast-milk Substitutes.⁵ Since the initiative's inception, more than 20,000 facilities in more than 150 countries, including 215 in the U.S., have earned the designation.^{6,7} However, there have been calls to build upon BFHI by offering additional breastfeeding support in the community and primary care to help sustain breastfeeding once mothers have been discharged from the hospital.^{8,9} This support may be particularly helpful in the U.S., where women are sometimes discharged within 48 hours, before they have successfully established breastfeeding.^{10,11}

Home visiting programs represent an important community-based service through which health professionals and lay workers may provide additional breastfeeding education and support. This support may be particularly important in the low-income or at-risk populations home visiting programs typically serve,¹² as these populations also often have the lowest rates of breastfeeding. In Illinois, for example, 70.9% of women in households with an annual income of less than \$10,000 reported ever breastfeeding or pumping breast milk to feed their baby after delivery, compared to 78.7% among \$10,000-\$24,999, 80.7% in \$25,000-\$49,999 and 88.5% in \$50,000 and over.¹³ However, despite the emphasis many home visiting programs place on enhancing the development of very young children, few home visiting models endorsed by the U.S. government have proven to have positive effects on breastfeeding outcomes.¹²

The Health Resources and Services Administration (HRSA) funds state home visiting programs through the Maternal, Infant, and Early Childhood Home Visiting Program (MIECHV).¹² Under these HRSA grants, 75% of funding must be spent on models that have been identified as effective by the Home Visiting Evidence of Effectiveness (HomVEE) review.¹⁴ Of the 14 approved models, only 5 included breastfeeding outcomes in the studies reviewed for approval. Furthermore, in the studies reviewed, only 2 of these models showed favorable effects on breastfeeding duration or attempts. In one study of the Maternal Early Childhood Sustained Home-Visiting Program, mothers in the intervention group breastfed for approximately 8 weeks longer on average (16.12 weeks vs. 8.24 weeks; mean difference = 7.8; p = 0.002); however, another study on the same program showed no significant effect on breastfeeding initiation or breastfeeding status (full or partial) at 4 weeks.¹⁵ A study on the Nurse Family Partnership found that program mothers were 1.9 times more likely to attempt breastfeeding (odds ratio [OR] = 1.9; p<0.01) than control group mothers, although rates were still low overall (26% vs. 16%).¹⁶ Early Start (New Zealand) produced no effect on the percentage of children who were breastfed

for 6 months or more,¹⁷ and Healthy Families America had no effect on whether the mother breastfed the infant or on the number of months the child was breastfed.¹⁸ The Healthy Steps program had a negative effect on breastfeeding in one study; on average, program mothers breastfed for 0.64 months less than control group mothers (means: 13.0 months vs. 13.9 months; mean difference = -0.64; $p < 0.05$) and were less likely to have ever breastfed their infant (OR = 0.96; $p < 0.05$).¹⁹ Other studies on the program showed no effect on breastfeeding outcomes.¹⁹ The dearth of breastfeeding outcomes in studies on the other 9 HomVEE-approved programs may indicate a lack of emphasis on breastfeeding education and support in these programs.

The focus of this paper is a project conducted in Chicago for the Consortium to Lower Obesity in Chicago Children (CLOCC). Of particular interest to CLOCC, not breastfeeding is associated with a 32% excess risk of childhood obesity.² For this project, CLOCC partnered with Children's Home + Aid – a child and family service agency in Chicago that provides home visiting services – to further CLOCC's obesity reduction goals. This partnership is mutually beneficial for Children's Home + Aid. As the Illinois state MIECHV coordinating agency, Children's Home + Aid will be required to spend the majority of its funds on these approved home visiting models. However, the agency has identified a need for additional support in incorporating more breastfeeding education and support into its curriculums. In May 2014, CLOCC's Early Childhood Division stepped forward to fill this knowledge gap by developing a breastfeeding training presentation and toolkit for home visitors.

Since the HomVEE-approved models do not have a strong evidence base for improving breastfeeding outcomes, there was need for further information on breastfeeding support and educational messages that have been effectively incorporated into other home-based interventions. To determine evidence-based best practices in home-based breastfeeding

education, the researcher conducted a literature review and incorporated the findings into the training presentation and toolkit. After completing the literature review, the researcher conducted a mini-focus group with home visitors from Children's Home +Aid. This activity served two purposes: 1) to assess the home visitors' baseline knowledge of breastfeeding, and thus determine the level of sophistication of the training presentation and toolkit, and 2) to gather home visitors' feedback on an outline of the training to ensure its contents met their needs.

Methods

Literature Review

The researcher identified studies through searches performed in the University of North Carolina library Articles+ database. If studies were not accessible through this system, a search for the study was performed in PubMed and then Google. Studies were not included if the full articles were not available through the university system, PubMed or Google searches. Search terms were: 1) "breastfeeding" and "home visiting," results for which were searched until 100 studies in a row, ranked by relevance, were not relevant to the present review or were duplicates; 2) "breastfeeding" and "home visit"; and 3) "breastfeeding" and "home support." Additionally, articles included in citations and systematic reviews about breastfeeding education were reviewed for inclusion. After an extensive search and review of titles and abstracts for relevance, 29 studies were identified for more thorough review.

Study inclusion criteria were as follows:

- Randomized controlled trials published in peer-reviewed journals on any date;
- Majority of the intervention must be *required* home visits that incorporate breastfeeding education or support (i.e. participants may not have simply been given

the option of home visits; if multiple intervention methods were included, home visits must compose more than 50% of the intervention);

- If perinatal hospital visits were included in the intervention, prenatal visits must have been a component, as well, ensuring that hospital visits were simply a continuation of home visits, not a separate component of the intervention;
- Primary outcomes must concern breastfeeding attempts, duration or initiation;
- Studies must have been performed in countries not included on the United Nations least developed countries, landlocked developing countries or small island developing states lists to ensure relative similarity to a U.S. context²⁰ and;
- Infants must be healthy and full-term to ensure results could be generalized.

Or:

- Must be a published systematic review of breastfeeding education studies (inclusion criteria above not applied).

After excluding studies based upon these criteria, 9 studies and 4 systematic reviews were included in the final literature review.

Mini-Focus Group

Focus groups are a qualitative interviewing technique in which the researcher interviews people in a group rather than individually.²¹ The benefit of this format is that group members have the opportunity to relate to one another and to interact to form a well-rounded picture of the topic at hand.²¹ Typically, focus groups are appropriate to use when the research question focuses on “cultural norms, attitudes or reactions of group to some aspect of their environment,” versus a sensitive topic that people may only be comfortable speaking about in a more private, one-on-one interview environment.^{21p44} In this project, the researcher hoped to

solicit feedback from home visitors about the cultural acceptability of training home visitors about breastfeeding and educating their participants about breastfeeding, as well as to assess their baseline knowledge about breastfeeding; thus, a focus group was deemed an appropriate method to gather this information.

Generally, for noncommercial topics, focus groups range from five to eight people.²² However, “mini-focus groups” with four to six group members are becoming more widely used because they are easier to recruit for and people are often more comfortable in smaller groups.²² The drawback of smaller groups is that, because there are fewer people, the range of experiences will likely be limited.²² Nonetheless, in this instance, due to recruiting and scheduling needs, as well as the relative sensitivity of the topic and large number of questions that needed to be addressed, a mini-focus group was logistically necessary and methodologically appropriate.²²

Leaders from Children’s Home + Aid recruited home visitors for participation in the mini-focus group and provided a convenience sample of three home visitors and one home visiting supervisor to attend the session. The researcher developed a comprehensive guide with which to conduct the mini-focus group (Appendix A). Questions during the first part of the session addressed the home visitors’ knowledge and opinions about breastfeeding, sources from which they obtained this knowledge, any experiences they had with breastfeeding and how their participants might react to being educated about breastfeeding. In the second half of the session, the researcher shared an outline of the training presentation (developed based upon the literature review findings and textbooks about breastfeeding) and solicited the home visitors’ feedback; specifically, what they thought about the topics included in the outline, whether they thought anything was missing and if they would make any changes to the

structure of the training. The session lasted approximately one hour. The researcher transcribed the discussion and coded it using an inductive coding scheme (Appendix B).

Results

Literature Review

A variety of home visiting models have been tested for effectiveness on breastfeeding outcomes. The intervention periods that have been studied include: 1) prenatal plus postpartum, 2) prenatal plus hospital plus postpartum, and 3) postpartum alone. Generally, approaches combine education, peer or professional guidance, technical breastfeeding support and/or emotional support. The review of trials below is organized by intervention time period to allow for more easy comparison between approaches. First, however, an examination of systematic reviews about general breastfeeding education tactics is included to lay the groundwork for why home visiting is effective and which types of approaches may be most effective.

Systematic reviews

A 2007 Cochrane Review by Dyson, McCormick and Renfrew evaluated the effectiveness of interventions in 11 trials that aimed to encourage women to breastfeed (in terms of changes in the number of women who initiate breastfeeding) through breastfeeding promotion interventions.²³ Five of these studies, all of which evaluated outcomes in low-income U.S. women with typically low breastfeeding rates, found breastfeeding education had a significant effect on increasing breastfeeding initiation rates compared to standard care (risk ratio [RR] 1.57; 95% confidence interval [CI], 1.15 to 2.15; $p = 0.005$).²³ A subgroup analysis led the researchers to assert that larger breastfeeding initiation increases are likely to result from one-to-one, needs-based, informal repeat education sessions than more generic, formal antenatal

sessions.²³ Similarly, a review by Sikorksi et al. concluded that face-to-face supplementary breastfeeding support appears to be more effective than support by telephone.²⁴

Hannula, Kaunonen and Tarkka reviewed 36 articles to describe how breastfeeding is supported in pregnancy, at maternity hospitals and postpartum, as well as to determine the effectiveness of these interventions.²⁵ They found that interventions that extend continuously from pregnancy throughout the postnatal period were more effective than interventions concentrating on a shorter period of time.²⁵ In addition, they found that multi-tactic interventions delivered by well-trained professionals were more effective than single-method interventions.²⁵ Within each period (pregnancy, in hospitals and postpartum), the researchers found different tactics to be more effective: during pregnancy, effective interventions were interactive and involved mothers in conversation; in hospitals, the Baby-Friendly Hospital Initiative and practical, hands-off teaching combined with support and encouragement were found to be effective; postnatally effective were home visits, telephone support and breastfeeding centers combined with peer support.²⁵

Similarly, de Oliveira, Camacho and Tedstone found that home visits that identified mothers' concerns with breastfeeding, assisted with problem solving and involved family members in breastfeeding support were effective at increasing breastfeeding duration during the postnatal period or both the prenatal and postnatal periods.⁹ They, too, found that long-term interventions (across both periods) tended to be most effective, and also found that effective interventions typically combined information, guidance and support.⁹ In the effective studies, the most common topics discussed with pregnant women, mothers and sometimes family members were as follows: the benefits of breastfeeding for mother and baby; early initiation; how breast milk is produced; hazards of bottle-feeding or providing teats to babies; breastfeeding on demand; exclusive breastfeeding up to 4, 5, or 6 months; prolonged

breastfeeding for at least 2 years; family planning and the lactational amenorrhea method; guidance on positioning and attachment; expression and storage of breast milk; combining breastfeeding and work; and overcoming problems such as engorgement, colic, and crying.⁹ Generally, breastfeeding educators or health care practitioners provided emotional support, encouragement and reassurance to promote maternal confidence.⁹

An ineffective practice of note was delivering brief breastfeeding messages at the same time as several other topics; the researchers comment that this was possibly because women were given a variety of information without taking into account the women's current needs.⁹

Because of the diversity of methods used – across and even within studies – all authors urged readers to use caution when interpreting the effectiveness of interventions.^{9,23,24,25} For this reason, the full studies reviewed below only focus on interventions that were entirely or nearly entirely home visiting programs. The majority (7) of the full studies reviewed span across the prenatal and postpartum periods. They have been divided into two categories below: 1) prenatal plus postpartum interventions, and 2) prenatal plus hospital plus postpartum interventions. The final 2 studies focused on interventions that took place in the postpartum period only.

Prenatal plus Postpartum

In 1999, Morrow et al. published the first reported community-based randomized controlled trial on breastfeeding promotion.²⁶ The researchers aimed to study the efficacy of a home-based peer counseling program to increase exclusive breastfeeding and breastfeeding duration in mother-infant pairs in Mexico City.²⁶ There were 2 intervention groups and 1 control group:

- Intervention group (6-visit): visited in mid and late pregnancy, in the first week and weeks 2, 4 and 8 postpartum
- Intervention group (3-visit): late pregnancy, in the first week and week 2 postpartum
- Control group: referred to physicians²⁶

The home visiting curriculum was based on existing La Leche League materials and the results of an ethnographic study undertaken before the intervention was developed.²⁶ Prenatal topics included the benefits of exclusive breastfeeding, especially during illness; basic lactation anatomy and physiology; positioning of the infant and “latching on”; common myths; typical problems and solutions; and preparation for birth.²⁶ Postpartum topics included establishing a healthy breastfeeding pattern; addressing maternal concerns; and providing information and social support.²⁶ Family members who could provide support were included in visits, as well.²⁶

The researchers concluded that early and repeated home visits with peer counselors were associated with a significant increase in breastfeeding exclusivity and duration; at 3 months postpartum, 67% of 6-visit, 50% of 3-visit and 12% of control mothers (intervention groups vs controls, $p < 0.001$; 6-visit vs 3-visit, $p = 0.02$) were breastfeeding exclusively, and duration of any breastfeeding at 3 months was higher amongst intervention group mothers versus control group mothers (95% vs 85%, $p = 0.039$).²⁶

Gijsbers et al. (2006) studied the effectiveness of an educational breastfeeding program in promoting exclusive breastfeeding for 6 months in a population of Dutch women with infants with a predisposition for asthma.²⁷ Intervention group mothers received 2 prenatal home visits and 1 postpartum home visit, and control group mothers received usual care.²⁷ At the first home visit, a trained research assistant provided the mother with an educational breastfeeding booklet that reinforced the information delivered orally at all of the visits; overall, the assistant emphasized preparation behavior to motivate mothers to breastfeed exclusively and delay the

introduction of complementary solids for 6 months.²⁷ Topics covered in the booklet and during the visits included: why “breast is best” for the mother and the infant; specific health benefits for families predisposed to asthma; breastfeeding and the use of asthma medication; the special role of the father as a coach for the mother; what to do when no breastfeeding support is available in the hospital; how breastfeeding works: good breastfeeding positioning, infant latching, frequency of feeding; breastfeeding myths; how to check if the child receives enough breast milk; how to check urine output and weight gain before and after feeding to see whether the child receives enough breast milk; how to manage sore and inverted nipples, breast engorgement and mastitis; cow milk allergy and diet of the mother; what to expect from health professionals regarding advice on breastfeeding; how to express milk when returning to work and how to store it; and phone numbers of lactation organizations/consultants and useful web sites.²⁷

At 6 months, 48% of the intervention group mothers breastfed exclusively compared with 27% of the control group mothers ($p = 0.03$, OR = 2.91, 95% CI, 1.10–7.71) after correcting for maternal age, educational level and breastfeeding experience.²⁷ Limitations of the study included a small sample size (intervention $n = 44$, control $n = 45$) and a homogenous population of well-educated mothers with low smoking incidence.²⁷

Wen et al. (2011) published the first randomized controlled trial to test the effectiveness of a home-based early childhood obesity intervention in the first 2 years, the Sydney-based Healthy Beginnings Trial.²⁸ Primary outcomes for the first 12 months of the trial were breastfeeding duration and timing of the introduction of solids.²⁸ Trained community nurses delivered the intervention to women from socially and economically disadvantaged areas of Sydney; the intervention consisted of 1 home visit at 30 to 36 weeks’ gestation and 5 home

visits at 1, 3, 5, 9, and 12 months after birth.²⁸ Control group mothers received usual care, which consisted of 1 home visit within a month of birth if needed.²⁸

Nurses spent 1-2 hours with intervention group mothers and infants at each visit and addressed 4 key areas: 1) infant feeding practices, 2) infant nutrition and active play, 3) family physical activity and nutrition, and 4) social support.²⁸ Key intervention messages were: “breast is best,” “no solids for me until 6 months,” “I eat a variety of fruits and vegetables every day,” “only water in my cup,” and “I am part of an active family.”²⁸ Consistency of messages regarding breastfeeding and complementary food introduction was a key component of the intervention; each visit was delivered according to a pilot-tested protocol in which the nurses discussed standard discussion points within each key area and used specific resources to reinforce the orally delivered information.²⁸ Nurses used a checklist for each visit to ensure they discussed all of the information required at that visit.²⁸ Checklists and other visit resources are available on the trial’s website: <http://www.healthybeginnings.net.au>.²⁹

The researchers found significant improvements in breastfeeding duration and appropriate timing of the introduction of solids.²⁸ At both 6 and 12 months, breastfeeding rates were significantly higher amongst the intervention versus control group (42.2% vs 32.1% and 21.0% vs 14.9%, respectively).²⁸ Additionally, at 12 months, the median breastfeeding duration in the intervention group was 17 weeks (95% CI, 13.9-20.4 weeks) compared with 13 weeks (95% CI, 10.1-15.6 weeks) in the control group ($p = 0.03$, log-rank test).²⁸ The intervention also reduced the proportion of mothers who introduced solids before 6 months by 12% (95% CI, 4%-20%, $p < 0.001$ for trend), from 74% to 62%.²⁸

The researchers also performed a post hoc subgroup analysis to determine whether the effect of the intervention differed between those who received the prenatal visit and those who only received visits after giving birth (due to study error).²⁸ For mothers who received a prenatal

visit, the intervention effect on breastfeeding was significant ($p = 0.009$) and appeared early, at around 2 weeks, with a 25% reduced risk of stopping breastfeeding in the intervention group (hazard ratio = 0.75; 95% CI, 0.60-0.93).²⁸ For mothers who only received the postpartum intervention, the intervention effect appeared later, at around 12 weeks, and was not significant during the entire year (hazard ratio, 0.96; 95% CI, 0.74-1.24; $p = 0.74$).²⁸

Prenatal plus Hospital plus Postpartum

Chapman et al. (2004) executed a peer counselor home visiting intervention in a population of low-income Latinas (mainly Puerto Ricans) in an urban area of Hartford, Connecticut.³⁰ The main outcomes were breastfeeding at birth and 1, 3 and 6 months postpartum.³⁰ Participants were randomized to receive either routine breastfeeding education provided at the hospital or routine breastfeeding education plus peer counseling services.³⁰ The routine breastfeeding education provided to both groups included individualized education, educational materials about breastfeeding, access to an International Board Certified Lactation Consultant (IBCLC) and a warm line after birth.³⁰ The breastfeeding peer counseling services included 1 prenatal home visit, daily hospital visits after birth, 3 postpartum home visits and telephone contact, as needed.³⁰

Specific topics and activities included in the visits were as follows:

- Prenatal home visit: peer counselors reviewed the benefits of breastfeeding, screened for inverted nipples, provided written materials about breastfeeding, discussed common breastfeeding myths, reviewed infant positioning, and provided anticipatory guidance. If possible, a breastfeeding “Breastfeeding Your Baby: A Mother’s Guide” (Medela Inc, McHenry, Ill; 1987) was viewed. Mothers had the option of additional prenatal visits if further support was deemed necessary.

- Postpartum hospitalization: peer counselors provided hands-on assistance to demonstrate correct breastfeeding technique (e.g., positioning, latch-on) and educated mothers about infant cues, expected breastfeeding frequency, signs of adequate breastfeeding and management of breastfeeding problems.
- Postpartum home visits: first occurred within 24 hours of discharge from hospital. Typically, peer counselors provided assistance with positioning and latch-on, verbal support and encouragement. They also provided free mini electric breast pumps to mothers who needed them. Mothers were able to reach a peer counselor by pager and additional visits (beyond the minimum 3) were provided, if necessary.³⁰

The researchers found that intervention group mothers had a 61% lower relative risk of not initiating breastfeeding, as compared to control group mothers (8.9% [8/90] vs 22.7% [17/75]; RR = 0.39; 95% CI, 0.18-0.86).³⁰ At 1 and 3 months, the intervention provided a marginally significant advantage; the intervention group had 28% and 22% lower relative risks (as compared to controls) for not breastfeeding at 1 and 3 months, respectively (1 month: 35.7% [30/84] vs 49.3% [36/73]; RR = 0.72; 95% CI, 0.50-1.05; 3 months: 55.6% [45/81] vs 70.8% [51/72]; RR = 0.78; 95% CI, 0.61-1.00).³⁰ The intervention did not affect breastfeeding at 6 months or exclusive breastfeeding.³⁰ The researchers note that, their results were likely dampened by intervention group mothers often not receiving the required number of visits due to understaffing, mothers' access to free formula through the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) and accidental contact between peer counselors and controls during the study period.³⁰

Due to the limitations of the Chapman trial, Anderson et al. (2005) executed another trial to determine the effects of a similar, yet more extensive, intervention in the same population on *exclusive* breastfeeding at hospital discharge and at 1, 2 and 3 months

postpartum.³¹ The control group received routine breastfeeding education provided at the hospital, and the intervention group received routine education plus home visits by a peer counselor.³¹ The intervention group received 3 prenatal visits, daily hospital visits and 9 postpartum visits.³¹

Prenatal visits were delivered 1-2 weeks after enrollment, before the 36th week and during the 36th week.³¹ Prenatal topics and activities included: the benefits and reasons for exclusive breastfeeding; reasons for the avoidance of feeding bottles and pacifiers; explanations of why exclusively breastfed babies do not need water for the first 6 months of life; a review of infant cues for readiness to breastfeed; proper latch-on techniques and infant positioning; testing for inverted nipples; and screening for behaviors that impede early initiation and successful breastfeeding.³¹ Postpartum visits 1-3 were delivered during the first week postpartum, visits 4-5 were delivered the second week postpartum and the final 4 visits were delivered weekly from weeks 3-6.³¹ Postpartum visit content was based upon the specific needs of the mother-infant pair.³¹

At hospital discharge, 9% of intervention mothers had not initiated breastfeeding, compared with 24% in the control group (Relative Risk [RR] = 2.48; 95% CI, 1.04-5.90); 41% of intervention mothers and 56% of control mothers were nonexclusively breastfeeding (RR = 1.35; 95% CI, 0.94-1.93).³¹ At 3 months, 73% of intervention mothers and 97% of control group mothers had not exclusively breastfed (RR = 1.33; 95% CI, 1.14-1.56) during the previous 24 hours.³¹ The likelihood of nonexclusive breastfeeding throughout the first 3 months was significantly higher for the control group mothers than the intervention group mothers (99% vs 79%; RR = 1.24; 95% CI, 1.09-1.41).³¹ These results were confirmed by prevalence of lactational amenorrhea, and the researchers noted their results were strong considering the strong preference for formula amongst the Latina population.³¹

Sandy et al. (2009) looked at an intervention's effects on any or exclusive breastfeeding in a low-income urban Latina population during a shorter time period: the first week postpartum.³² Family support workers delivered Healthy Family America model home visits to both the intervention and control groups, but added breastfeeding "enhancements" to the intervention group visits.³² Intervention group mothers received weekly prenatal home visits (versus 1-2 in the control group) in which the family support worker explored the mother's previous experience, if any, with feeding an infant; explained the mechanics of breastfeeding using charts and written materials; provided pamphlets, manuals and handouts about breastfeeding; and discussed the benefits and challenges of breastfeeding.³² None of the educational or instructional materials depicted bottles or pacifiers.³² In contrast, control group mothers received informational materials prenatally, including ones about infant feeding, but the family support worker did not discuss the materials or promote breastfeeding.³²

In the hospital, intervention group mothers received a visit in which the family support worker assisted with any breastfeeding difficulties.³² They also continued receiving weekly visits postpartum (for an unspecified amount of time) and were referred to WIC lactation clinic if they experienced consistent difficulties.³² Additionally, a pediatric resident visited families at home within a week after birth, partly to motivate mothers to breastfeed.³²

Exposure to the intervention was not significantly associated with any breastfeeding (ABF), with 86% of intervention group mothers and 78% of control group mothers reporting any breastfeeding in the first week postpartum (OR = 1.73; 95% CI, 0.88- 3.40).³² However, intervention group mothers were significantly more likely to exclusively breastfeed (EBF) in the first week than control group mothers (32% vs 20%, respectively; OR = 1.92; 95% CI, 1.05- 3.52).³² ABF and EBF were significantly positively associated with a measure of household income, and ABF was significantly negatively associated with maternal acculturation level,

leading the researchers to conclude that future breastfeeding interventions in the U.S. should not only target recent immigrants, but also more acculturated Latinas (i.e., English-speaking, first-generation U.S.-born).³²

Edwards et al. (2013) studied the effects of a community doula home visiting intervention on breastfeeding attempts and duration, as well as complementary food introduction, in low-income African-American mothers less than 22 years of age (n = 248).³³ Intervention group mothers received an average of 10 prenatal visits and 12 postpartum visits from peers of similar racial and cultural background who were trained as doula childbirth educators and lactation counselors.³³ Additionally, 81.5% of intervention group mothers' births were attended by their assigned doula.³³ Control group mothers received usual prenatal care.³³

The doulas focused on building relationships with the mother and her family throughout the visits.³³ Prenatal topics and activities included: educating the mothers about pregnancy health, childbirth preparation, bonding with the unborn infants and the benefits of breastfeeding, sometimes using print or video supplemental materials; engaging the mothers in ongoing conversations about infant feeding; listening to mothers' ideas and concerns about breastfeeding; working to dispel myths about breastfeeding; and doulas sometimes sharing their personal experiences of breastfeeding or the experiences of others in their community to help normalize the idea of breastfeeding for women from their cultural and community backgrounds.³³ Visits included fathers and mothers' family members in discussions about the benefits of breastfeeding and helped mothers gain family acceptance for decisions around feeding.³³

Doulas were present at the births to provide emotional support, assist with physical comfort techniques, encourage the mothers to breastfeed and help the infants latch.³³ During the postpartum hospital stay and after discharge, doulas continued to provide encouragement

and guidance as the mothers encountered initial challenges with breastfeeding (such as breast discomfort, infant latch and positioning problems).³³ They also encouraged feeding on demand and reassured mothers that the infants were getting enough milk, as well as discouraged formula use.³³ Postpartum topics and activities included: helping mothers adjust to parenthood and get to know their infant; how to care for their infants; and discouragement of cereal in bottles, solid food and formula.³³ Doulas were available 24 hours a day by phone and also provided pumps to moms returning to work.³³

The researchers found that 64% of intervention group mothers compared to 50% of control group mothers attempted breastfeeding ($p = 0.02$), and they were also more likely to breastfeed for more than 6 weeks (29% vs 17%; $p = 0.04$).³³ Few mothers breastfed for 4 months.³³ Additionally, fewer intervention group mothers fed their infants complementary foods before 6 weeks (6% vs 18%, $p = 0.008$) and more waited at least 4 months to introduce complementary foods (21% vs 13%) compared with control group mothers.³³

Postpartum Only

Di Napoli et al. (2004) assessed infant feeding habits by 24-hour recall after implementing one midwife home visit (at least 30 minutes) within the first 7 days after hospital discharge in a population of Italian women.³⁴ Supplementary telephone counseling was also available.³⁴ The control group did not receive any services, and no further information was provided about the intervention.³⁴

The researchers did not find any significant difference in protective breastfeeding factors between the intervention and control groups (hazard ratio [HR] = 1.04; 95% CI, 0.85–1.26).³⁴ They did note that the lack of results were likely not due to home visiting itself, but to

the lack of thoroughness of the intervention; they state that two or more visits spread across pregnancy and after hospital discharge would have likely produced better results.³⁴

Coutinho et al. (2005) evaluated the rate of exclusive breastfeeding from birth to 6 months in a group of urban, low-income Brazilian women who received a series of 10 home visits (mean duration = 30 minutes) from community health agents.⁸ The intervention took place in a hospital-based system in which all maternity staff were trained with BFHI course content; both groups were exposed to the BFHI-trained system and staff, and the intervention group also received home visits.⁸ Visitors were required to visit 4 times during the first month (on days 3, 7, 15 and 30), every 2 weeks during the second month and once a month during the third through sixth months.⁸ Each mother was given an illustrated breastfeeding booklet to be used during the visits as a basis for discussions of key topics, as determined by the infant's age.⁸ The home visitors were also expected to encourage exclusive breastfeeding for 6 months and continued breastfeeding for at least 2 years, to answer the mother's questions and discuss her doubts and, whenever possible, to observe infant positioning, flow of milk and infant satisfaction.⁸ Mothers were referred to a specialist at the hospital if there were difficulties that the home visitor could not resolve.⁸ If family members were present, the home visitor assessed their attitudes towards exclusive breastfeeding and sought their support for the mother.⁸

The researchers found that the BFHI hospital training resulted in high rates of exclusive breastfeeding in the hospital (70%), but these rates were not sustained in the community; at 10 days postpartum, only 30% of infants were exclusively breastfed, overall.⁸ They did, however, find a significant difference in mean aggregated prevalence of exclusive breastfeeding between the intervention and control groups from days 10-180, with the intervention group at 45% compared with 13% for the control group.⁸ The researchers concluded that, while BFHI is effective in hospitals, rates drop dramatically after discharge, at least in Brazil.⁸

Table 1. Summary of Literature Review Key Findings

Literature Category	Key Findings
Systematic Reviews	<ul style="list-style-type: none"> • Larger breastfeeding initiation increases are likely to result from one-to-one, needs-based, informal repeat education sessions than more generic, formal antenatal sessions • Face-to-face supplementary breastfeeding support appears to be more effective than support by telephone • Interventions that extend continuously from pregnancy throughout the postnatal period have been more effective than interventions concentrating on a shorter period of time • Multi-tactic interventions delivered by well-trained professionals have been more effective than single-method interventions; specifically, successful interventions combine information, guidance and support/encouragement (to increase maternal confidence) • Effectiveness of interventions may vary depending on the stage of intervention: during pregnancy, interactive interventions that involve mothers in conversation have been effective; in the postpartum period, home visits, telephone support, and breastfeeding centers combined with peer support have been effective • Specifically, prenatal and postnatal home visits that identify mothers' concerns with breastfeeding, assist with problem solving and involve family members in breastfeeding support have been effective at increasing breastfeeding duration • Delivering brief breastfeeding messages at the same time as several other topics has been found ineffective
Prenatal plus Postpartum	<ul style="list-style-type: none"> • A mixture of prenatal and postpartum home visits increased breastfeeding initiation, duration and/or exclusivity in all studies • In one study, home visits that began earlier and occurred more often were associated with a higher rates of breastfeeding exclusivity and longer duration • Supplemental breastfeeding materials and personal, motivational emphasis on preparation behavior increased breastfeeding exclusivity • In one trial, in mothers who missed their prenatal home visit due to study error (and, thus, only received postpartum visits), protective effects of the intervention emerged later and were not significant
Prenatal plus Hospital plus Postpartum	<ul style="list-style-type: none"> • Overall, this type of intervention had positive effects on breastfeeding initiation and duration (stronger effect on shorter durations), but effects were mixed for breastfeeding exclusivity; may have been a function of flawed studies and populations with low breastfeeding acceptance • More intensive breastfeeding interventions had positive effects, particularly on exclusive breastfeeding up to 3 months • Exposure to a Healthy Families America home visiting intervention with breastfeeding "enhancements" was not significantly associated with any breastfeeding in the first week, but it was associated with

	<p>exclusive breastfeeding in the first week</p> <ul style="list-style-type: none"> • A doula peer counselor intervention increased breastfeeding initiation, increased breastfeeding duration (up to 6 weeks) and delayed introduction of complementary foods in low-income African-American mothers in Chicago • Use of supplemental materials was common across studies
Postpartum Only	<ul style="list-style-type: none"> • One postpartum home visit did not affect protective breastfeeding factors • In one study, BFHI hospital training resulted in high rates of exclusive breastfeeding in the hospital (70%), but rates were not sustained in the community; at 10 days postpartum, only 30% of infants were exclusively breastfed, overall • However, in the same study, there was a significant difference in mean aggregated prevalence of exclusive breastfeeding between the group that received home visits (intervention) and the group that did not (control) from days 10-180, with the intervention group at 45% compared with 13% for the control group

Mini-Focus Group

Findings from the mini-focus group fell into 8 different categories, as outlined by the subheads below. Please refer to Appendix B for descriptions of these categories, as they align with the inductive codes used in analysis of the mini-focus group transcript.

Breastfeeding Knowledge

Overall, the home visitors have positive perceptions of breastfeeding. When it comes to specific breastfeeding knowledge, the home visitors know that breastfeeding is healthier for babies and mention immune system and brain development benefits for the child, but beyond those specific benefits, they do not appear to know why breastfeeding is healthier for the child or the long-term health outcomes exclusive breastfeeding may produce. On the maternal front, the home visitors know that breastfeeding helps the mother lose weight and bond with her child. The home visitors discussed that breastfed babies eat more often than formula-fed babies, but, based on the conversation, it appears they may also believe that breastfed babies eat a larger quantity of milk, which is incorrect. Finally, when providing feedback to the

presentation outline, the home visitors noted it included a lot of information they already knew; based on the surface-level depth of the conversation, it appears they may have a basic level of knowledge about breastfeeding's benefits and the technical aspects of breastfeeding, but not in-depth knowledge that would allow them to advise new mothers adequately.

Breastfeeding Challenges

Despite the home visitors' positive perceptions of breastfeeding, the conversation focused heavily on the barriers their participants face when trying to breastfeed or challenges they face when trying to convince participants to breastfeed or continue breastfeeding. The specific barriers to breastfeeding that the home visitors mentioned were:

- Embarrassment about breastfeeding in public and lack of private spaces for breastfeeding
- Pain from breastfeeding
- Inability of the infant to latch
- Lack of education on the mother's part about the benefits of breastfeeding (and a lack of willingness to listen about the benefits)
- Lack of education on the mother's part about how to properly bottle-feed (i.e. safe handling and preparation, not putting cereal in the bottle, not propping bottle); this leads to the misconception that formula-feeding saves time or is easier
- Going back to work and difficulty pumping (i.e. finding time for it, milk storage problems)
- Lack of familial support (i.e. grandmother did not do it, no one to help time-wise)
- WIC coupons making formula feeding more appealing
- Special conditions that make it difficult to breastfeed (acid reflux in the infant)

- It is common to see mothers who are using illicit drugs and cannot breastfeed for that reason

Education Need

This code revealed two types of education needs: 1) a need for education amongst the home visitors, and 2) the home visitors' perceptions about the education needs amongst their participants.

Home Visitors

As mentioned above, the home visitors appear to have a basic level of knowledge about the health benefits of breastfeeding, such as brain development and immune system benefits, but do not appear to know the long-term benefits of breastfeeding for children or mother, or have significant knowledge about the technical aspects of breastfeeding. Furthermore, the home visitors have never had specific training about breastfeeding or about how to speak to mothers about it. The home visitors were also not aware of the insurance change that no longer allows women to get a free pump with the birth of each child – pumps can only be replaced for free every 5 years – which may impose a burden on the low income population they serve.

Additionally, the home visitors noted they were not familiar with and curious about the following topics included in the outline:

- Medications that women cannot take while breastfeeding
- Colostrum
- Exclusive breastfeeding up to 6 months (particularly not feeding water to babies)
- Potential difficulty with breastfeeding with cesarean births
- Babies' small stomachs

- Infant weight loss after birth and differences in growth patterns between breastfed and formula-fed babies
- Changes in breast milk composition as a baby grows
- Certified lactation counselors and lactation consultants – what they do and the differences between them

Participants

The home visitors indicated that many of their participants do not know the benefits of breastfeeding, the harms of bottle-feeding, the harms of putting cereal in the bottle (“the baby is greedy”) or how to properly bottle-feed. They emphasized the need for family members to be included in education due to their influence on feeding practices; for example, grandmothers should be educated about changes in practice since they had babies and fathers about how they can support mothers in the home.

Misconceptions

Much like the “education need” code, this code revealed two types of misconceptions: 1) those held by the home visitors, and 2) the home visitors’ perceptions about the misconceptions amongst their participants.

Home Visitors

Three main misconceptions stood out from the discussion:

1. One home visitor appeared to think it was acceptable to breastfeed in restrooms. There is a need to educate the home visitors that this is not sanitary and about the increasing availability of lactation rooms.

2. The home visitors appear to think that physicians always have expertise in lactation or that they have outside lactation expertise at their disposal. There is a need for education about where to get IBCLC assistance and the potential barriers to obtaining this expertise.
3. One home visitor may believe that breastfed babies eat a larger quantity (versus just more often).

Participants

Two main misconceptions on the behalf of participants came from the discussion:

1. The home visitors noted that their participants have many misconceptions about bottle-feeding: they believe bottle-feeding is easier than breastfeeding, that it is ok to prop the bottle and leave the infant alone and the home visitors sometimes also see their participants putting cereal in the bottle (sometimes even before 6 weeks). This is tied to the education need for how to properly bottle-feed.
2. The participants appear to believe that crying always means the baby is hungry.

Topics to Include

The “include” code encompasses topics from the presentation outline (shared with home visitors during the focus group) that home visitors noted would be helpful and should be included in the presentation and/or toolkit. This list also includes the topics the home visitors specifically asked be included and were not on the original outline:

1. Diaper and feeding charts – home visitors noted that many parents do not understand which diaper and feeding patterns are “normal”
2. The potential breastfeeding barriers with cesarean births

3. Baby behavior handouts – the many meanings of crying
4. Number of times it may take a child to accept food
5. Illustration depicting the size of newborns' stomachs
6. It's Only Natural videos about breastfeeding for African American mothers
7. Breastfeeding information tailored for family members

Information Sources

Throughout the discussion home visitors noted they get their information about breastfeeding from the following sources:

1. Their participants (i.e. the mothers)
2. Word of mouth from family members, friends or “people who work in hospitals”
3. Their own physicians
4. Pamphlets they get from physicians and free clinics
5. Trainings they attend for work (not specific to breastfeeding)
6. Television (promotional messages about infant feeding)

This variety of sources reveals the varying reliability and accuracy of the information the home visitors receive and indicates a need for some sort of standardization of information.

Resources

Throughout the discussion, the home visitors noted a variety of community resources that are available to them and their participants. Specifically, the home visitors said that the local free clinics provide breastfeeding educational materials (pamphlets, posters), and one clinic in the Englewood neighborhood has a free breastfeeding class. One of the managers from Children's Home + Aid noted that they also have information available about La Leche League

breastfeeding classes, and they have a certified lactation counselor (CLC) on staff. Finally, she mentioned that the Ounce Educare center partners with Children’s Home + Aid to provide doula services.

Basics

This section encompasses characteristics of the program participants, as well as the tactical aspects of the Children’s Home + Aid home visiting program. The home visitors noted that their participants’ ages typically range from 18 to mid-30s, with a few outliers. Their participants who choose to breastfeed (many choose not to breastfeed at all) typically breastfeed for no more than a few weeks and return to work after about 5 to 8 weeks at home, which further complicates and discourages breastfeeding. Overall, the participants are not well educated about breastfeeding, but the home visitors believe they would be open to education about the topic.

From a program tactics perspective, the home visitors shared that they see pregnant women 1-2 times per month and then once a week for three years after birth (with the children). Visits last 90 minutes and the home visitors bring laptops to their visits, so they have the ability to show video. Finally, they provide their phone numbers to their participants and answer calls after working hours (depending on the situation), but not very late into the evening.

Table 2. Summary of Mini-Focus Group Key Findings

Coding Category	Key Findings
Breastfeeding Knowledge	<ul style="list-style-type: none"> • Home visitors have positive perceptions of breastfeeding • Home visitors know that breastfeeding is healthier for babies and mothers, but do not appear to know many details about why breastfeeding is healthier or the long-term health outcomes it may produce • Home visitors appear to have a basic level of knowledge, but not enough

	to allow them to advise new mothers adequately
Breastfeeding Challenges	<ul style="list-style-type: none"> The conversation focused heavily on barriers participants face when trying to breastfeed or challenges home visitors face when trying to convince participants to breastfeed or continue breastfeeding Some challenges included: breastfeeding in public, pain, latching problems, going back to work, lack of familial support, lack of education
Education Need	<ul style="list-style-type: none"> In addition to the need to increase their baseline level of knowledge (mentioned above under Breastfeeding Knowledge), home visitors noted that they were not familiar with many topics on the outline, including: colostrum, babies' small stomachs, CLCs and IBCLCs, changes in breast milk composition Home visitors emphasized that participants do not know the benefits of breastfeeding, the harms of bottle-feeding, the harms of putting cereal in the bottle ("the baby is greedy") or how to properly bottle-feed Home visitors noted the need to educate family members, as well as mothers
Misconceptions	<ul style="list-style-type: none"> Home visitor misconceptions: it is acceptable to breastfeed in restrooms, physicians are always lactation experts, breastfed babies eat a larger quantity Participant misconceptions: bottle-feeding is easier, it is ok to prop the bottle, it is ok to put cereal in the bottle, crying always means the baby is hungry
Topics to Include	<ul style="list-style-type: none"> Topics that home visitors indicated would be helpful to include in the training presentation included: diaper and feeding charts, handouts on the meaning of crying, illustration depicting the size of newborns' stomachs, It's Only Natural videos, breastfeeding information for family members
Information Sources	<ul style="list-style-type: none"> Home visitors get their information about breastfeeding from: participants, word of mouth from family members or friends, their physicians, pamphlets from clinics, trainings (not specific to breastfeeding), television Variety of sources highlights the need for standardization of information
Resources	<ul style="list-style-type: none"> Home visitors and supervisors noted a few local resources: free clinics provide breastfeeding materials and classes; La Leche League breastfeeding classes; CLC on staff at Children's Home + Aid; Ounce Educare partnership with Children's Home + Aid to provide doula services
Basics	<ul style="list-style-type: none"> Participant ages range from 18 to mid-30s, with a few outliers Participants typically do not breastfeed for more than a few weeks, if at all Participants return to work after about 5-8 weeks; discourages breastfeeding Home visitors believe participants would be open to breastfeeding education Home visitors see pregnant women 1-2 times per month and postpartum women once a week for 3 years after birth; visits last 90 minutes Home visitors bring laptops to visits and have the ability to show video

Discussion

It is clear from the literature that a variety of approaches and delivery personnel are effective in home visiting interventions, and much of this success is likely contextual and dependent on the population being served. Generally, approaches stretch from pregnancy through the postpartum period and include some combination of the following: education (sometimes with supplemental materials), peer or professional guidance, technical breastfeeding support and emotional support. Conclusions from the systematic reviews examined hold promise for the effectiveness of repeated one-to-one home visits in encouraging breastfeeding initiation and duration, as compared to other education methods; interactive home visits during pregnancy that then extend into the postpartum period and are combined with other support methods may be particularly effective.

One theme that stood out (specifically in the studies by Morrow, Chapman, Anderson and Edwards) was whether results could be attributed to the home visits themselves or the peer counselors delivering them. Specifically, Edwards et al. noted that their intervention's success might lie in "the relationship that develops between doula and mother based on shared cultural background, months of home visits and the doula's presence at birth where she supports early breastfeeding experiences."^{33p5160} Overall, while it is difficult to determine the relative effect of peer counselors versus home visits, it appears that home visits have the potential to encourage continuity and relationship building that is beneficial for breastfeeding outcomes. The success demonstrated in these studies highlights the importance of continuity of breastfeeding support not only prenatally and postpartum, but also in the hospital, if possible.

The study by Wen et al. holds particular promise for this project and CLOCC's organizational goals. As mentioned above, the Healthy Beginnings Trial is the first randomized controlled trial to test the effectiveness of a home-based early childhood obesity intervention in

the first 2 years.²⁸ Not only did the intervention improve breastfeeding duration and appropriate timing of the introduction of solids in the first 12 months,²⁸ but the two-year update paper on the Healthy Beginnings Trial published in *BMJ* in 2012 reported that that mean child BMI was significantly lower in the intervention group than in the control group.³⁵ As reduction of childhood obesity is CLOCC's central goal, these results demonstrate that this project could provide return on investment to the organization.

A number of the trials targeted – and were successful in – populations similar to that of Children's Home + Aid's home visiting programs, which are largely low-income African-American and Latina. Specifically, the study by Edwards et al. took place in Chicago and showed improvements in breastfeeding initiation, duration and appropriate timing of introduction of complimentary foods in low-income African-American mothers.³³ Furthermore, the study used peer counselors from similar background of the women, an approach that mirrors that of Children's Home + Aid.³³ Finally, the Sandy, Chapman and Anderson trials showed improvements in breastfeeding outcomes amongst Latina women; Anderson et al., in particular, noted their results were strong considering the strong preference for formula amongst the Latina population.^{30,31,32} These trials provide evidence that similar interventions could be successful in the Children's Home + Aid population, which has comparably low breastfeeding rates.

Finally, researchers from a number of studies acknowledged the success of BFHI, but noted that their findings should be used to extend BFHI principles into primary care and communities to ensure consistent care across all settings, as well as extended support.^{8,9} This recommendation, in addition to the positive findings from the home-based breastfeeding interventions reviewed above, form the rationale for this project.

A limitation of this project is that it is difficult to predict which methods will work best in the present situation due to the variety of interventions and targeted populations. Additionally, due to the small number of participants in the mini-focus group, the perspectives included in the findings may be limited; however, due to the low level of knowledge about breastfeeding exhibited by the group, the content in the training presentation and toolkit likely does not overestimate home visitor knowledge at the population level. Based on the evidence reviewed, the best practices below emerged. Despite these limitations, they have strong chances of producing satisfactory results and were incorporated into the present program either as “tips” dispersed throughout the training presentation and toolkit or as standalone topics.

A noteworthy caveat is that CLOCC does not have control over how Children’s Home + Aid structures its home visiting program (e.g. number of visits, length of visits). As you will see below, the majority of the program design best practices fall into this category. That said, how Children’s Home + Aid has structured its program already aligns very well with these best practices (in terms of visit length, visit timing, peer home visitors delivering the intervention, program philosophy), indicating that the organization is a good fit for this type of training and that the CLOCC-Children’s Home + Aid partnership has strong potential to be successful. To attempt to educate the home visitors and their supervisors about ways to improve the design of their home visiting program, program design tips were included throughout the training at appropriate spots. For example, on the training slides that address birthing practices, a tip box notes that hospital visits have served as effective extensions of home visits (with the hope that Children’s Home + Aid will consider this enhancement). Additionally, the finding that provision of supplementary breastfeeding resources that reinforce orally delivered information supported the decision to develop a toolkit with handouts for participants in addition to the training.

Program Design Best Practices

- Visits should begin prenatally and continue into the postpartum period, ideally through 6 months, when mothers should begin introducing complementary foods
- Perinatal hospital visits have served as effective extensions of home visits in which home visitors may support early breastfeeding experiences
- Generally, more visits over a longer period of time produce better outcomes
- Visits lasting 30 minutes to 2 hours have been successful
- Success does not appear to be dependent on the personnel delivering the intervention, although visitors who can also be considered peers are used most commonly and consistently deliver strong results
- Approaches that combine breastfeeding education, peer or professional guidance and technical breastfeeding or emotional support are common and have been successful
- Involvement of family members, such as fathers, in breastfeeding education is common and has been successful
- It may be helpful to develop a referral relationship with the local WIC lactation clinic or an IBCLC for mothers who need lactation assistance, particularly when home visitors are not trained breastfeeding experts
- Provision of supplementary breastfeeding resources (either in print, website or video form) that reinforce orally delivered information has been successful; these materials should not depict bottles or pacifiers
- Provision of breast milk pumps is common
- Availability of home visitors by phone between visits is common
- Pilot testing of interventions in the target population may be useful

- Provision of breastfeeding education and support should be culturally competent and take place regardless of the client’s racial, ethnic, socioeconomic or national origin
- It may be beneficial for home visitors to foster a personal relationship with the mother and family members

The literature review also yielded a list of messages included in successful studies. All topics were included in the training presentation and toolkit. The first two bullets regarding message consistency and isolation were included in tip boxes in the training presentation.

Program Messaging Best Practices

- Messages should be consistent
- Messages should not be combined with many non-breastfeeding messages to ensure they do not “get lost”
- Messages and topics used in study interventions (ordered generally from prenatal to postpartum):
 - Benefits of exclusive breastfeeding for mother and baby for 6 months, particularly in preventing infant illness (“breast is best”)
 - Benefits of prolonged breastfeeding for at least 2 years
 - Preparation for birth
 - Importance of the early initiation of breastfeeding
 - What to do when no breastfeeding support is available in the hospital
 - Breastfeeding guidance mothers can expect to receive from health care professionals
 - Proper timing of introduction of complementary foods (6 months)
 - Discouragement of formula and cereal in the bottle

- Hazards of bottle-feeding or providing teats to babies
- Breastfeeding myths
- How breast milk is produced: the anatomy and physiology of lactation
- Guidance on infant cues, positioning and latch
- Establishing a healthy breastfeeding pattern: breastfeeding on demand
- Signs the infant is receiving enough breast milk
- Overcoming problems such as engorgement, sore or inverted nipples, mastitis, colic and crying
- Expression and storage of breast milk
- Combining breastfeeding and work
- Family planning and the lactational amenorrhea method
- How to adjust to parenthood and get to know the infant
- The importance of and how to solicit family support
- In a peer situation, sharing personal breastfeeding experiences may be beneficial

Mini-Focus Group

Findings from the mini-focus group drove the level of sophistication of the training presentation and the toolkit. Due to the basic nature of the home visitors' knowledge about breastfeeding, the materials included an intermediate level of detail to educate the home visitors to a significant extent and prepare them to advise mothers and family members, but refrain from overloading them with information outside of their expertise. This balance was particularly important considering the fact that breastfeeding is one of many topics they are required to focus on during their visits.

Due to the emphasis on breastfeeding challenges in the focus group discussion, the training and toolkit focus heavily on information and resources that will equip the home visitors to help mothers and family members overcome breastfeeding barriers. In particular, due to the fact that many participants return to work after a short period of time, the materials focus particularly heavily on balancing work with breastfeeding and emphasize that any breastfeeding is better than none. This non-judgmental tone is important considering the hesitancy to breastfeed in the Children's Home + Aid population.

The findings about community resources available to the home visitors and the population they serve were communicated to Children's Home + Aid program managers during a meeting with CLOCC. CLOCC recommended that they educate their home visitors more about these resources and encourage them to promote them to their participants more consistently to normalize breastfeeding in their population.

Finally, all topics included in the "education need" and "misconceptions" codes were included in the training presentation and extra resources were included in the toolkit, as these concepts clearly required additional education efforts, and the home visitors asserted that they would be of most benefit. Please see Appendices C and D for the full training presentation and toolkit (separate files).

Next Steps

CLOCC and Children's Home + Aid are in the process of preparing for a pilot test of the training and toolkit with a subset of the home visitors. The two organizations recently submitted a grant for funding the project and hope to move forward in the coming months.

Appendix A – Mini-Focus Group Guide

INTRODUCTION

Good morning, everyone. My name is Allie, and this is my colleague Katelyn. We are from the Consortium to Lower Obesity in Chicago Children, or CLOCC, which is a program of Lurie Children’s Hospital, and we would like to thank you for attending this discussion. We’re here today because CLOCC is currently working with your organization to develop an educational presentation for you and your fellow home visitors about breastfeeding and how to incorporate breastfeeding education into your visits. Your participation today will help us develop a presentation that is useful for you and your colleagues, so we greatly appreciate your candid thoughts and opinions – be they positive or negative.

PROCEDURE

1. We will be recording and taking notes on this conversation today so that we can accurately gather the feedback you share, but please remember this discussion is completely confidential, and you will not be identified in any way.
2. You should have received and signed an informed consent form – did anyone not receive this or not turn it in yet?
3. This is a group discussion, so you do not have to wait for us to call on you. Please just speak one at a time, refrain from interrupting each other and speak slowly and clearly so that the recorder can easily pick up what you say.
4. Our session will last about one hour. We will not take a break, but please feel free to get up and use the restroom at any time.
5. Are there any questions before we get started?

INTRODUCTIONS

Let’s start by introducing ourselves. Please tell us your name and how many years you’ve worked as a home visitor. As I said before, my name is Allie. *[go around the room]*

DISCUSSION QUESTIONS

Knowledge

1. Can you tell me what you know about breastfeeding?
 - a. Potential probes:
 - i. What have you heard from others about breastfeeding?
 - ii. In your opinion, are these things true?
 - iii. Can you describe perceptions of breastfeeding in your community?
 - iv. Can you tell me anything you know about how breastfeeding affects the health of mothers and babies?

Information Sources

2. Where did you learn these things about breastfeeding?
 - a. Potential probes:
 - i. How did you happen to begin discussing it?
 - ii. What did this person/website/etc. say about it?
 - iii. Where else do you see breastfeeding being discussed these days?

Opinions

3. What do you think are the advantages of breastfeeding?
4. What do you think are the disadvantages of breastfeeding?
 - a. Potential probes for 3 and 4:
 - i. Why do you say that?
 - ii. Can you talk more about the advantages for mothers (or babies)?
Depending on focus of conversation

Experiences

5. Do you know anyone who has breastfed or have you breastfed yourself?
 - a. Potential probes:
 - i. Why did you/this person choose to breastfeed/not breastfeed?
 - ii. Who influenced your decision?
 - iii. What was it like breastfeeding/formula feeding for you/this person?
 - iv. Were you glad or sorry that you tried breastfeeding/formula feeding?
 - v. What made you glad or sorry?

Application

6. Can you describe how you think your home visiting participants would react to being educated about breastfeeding during their visits?
 - a. Potential probes:
 - i. Why do you think they would react that way?
 - ii. Can you describe how prevalent breastfeeding is in the community you serve?
 - iii. Can you describe how knowledgeable your participants are about infant feeding?
7. Do you make yourselves available to your participants by phone between visits?
 - a. Potential probes:
 - i. Why or why not?

OUTLINE FEEDBACK

Now I'm going to share with you the outline of the presentation we are developing. It lists all of the topics we plan to include in the presentation in the order in which they will appear. Please take 5-10 minutes to review this outline and then we will reconvene to discuss your feedback.

8. Can you tell me what you think about the topics included in the outline?
 - a. Potential probes:
 - i. How beneficial would the topics in the outline be to your work?
 - ii. How relevant are they to your work?
9. Can you discuss which topics you think are more interesting or may be most valuable to you and your work?
10. Can you discuss which topics you think are less interesting or may be less valuable to you and your work?
11. Can you share any topics that you think are missing from this outline, if any?
12. Can you share any suggestions you have for the structure or flow of the presentation, if any?
13. Does anyone have any final thoughts before we wrap up?

CLOSING

Those are all the questions we have for you today. Once again, please remember that everything you said here today is completely confidential. Thank you again for your participation – your feedback will be very helpful as we develop this presentation. We will be around for a little while longer, so please feel free to come ask Katelyn or me any questions you'd like to discuss one-on-one. Thank you!

Appendix B: Codebook

CODE	DEFINITION	EXAMPLE
Basics	Basic information about the home visitors' participants and tactical aspects of their visits	"My participants age ranges from teens, like 18, up to like, my oldest is 36, like in their mid-30s."
Challenges	Home visitors discuss the challenges their participants have with breastfeeding, why they do not breastfeed, why they stop breastfeeding or personal reasons they themselves did not breastfeed	"Most moms, when they start to breastfeed, they have good intentions, but once they actually start breastfeeding then they don't feel comfortable with doing it out in public, or it hurts really bad and they can't continue to do it, or 'I just don't have time.'"
Education Need	Important breastfeeding topics about which the home visitors or their participants do not have strong knowledge or any knowledge	Participants: "You hold that baby close to you when you breastfeeding, you bonding with your baby, you building that attachment and everything, they don't realize that. They don't realize the importance of it." Home visitors: "What's colostrum?"
Include	Topics from the presentation outline that the home visitors think are helpful and should be included in the presentation or toolkit; ideas the home visitors have for inclusion that are not on the outline	"I definitely think the one about the baby not always being hungry just because he cries, I think that should definitely be included because a lot of these moms are just overfeeding these little babies."
Info Source	People, websites and other sources home visitors learn information about breastfeeding	"I work with a lot of moms and I do research and just then things I've heard from other people, things that I've heard from people that actually work in hospitals. So that's where I get all my information from about breastfeeding."

Knowledge	Correct knowledge that home visitors have about breastfeeding	"I know breastfeeding is much healthier and much more natural for the mom and the baby, it's also good for helping the baby as far as a healthier immune system, it helps mom get her figure back."
Misconceptions	Incorrect information the home visitors or their participants believe to be true about breastfeeding	Participants: "My participants think bottle-feeding is easier. It's so easy to mix that milk up and lay that baby in the bed and prop that bottle up in their mouth, and that's the easy way out." Home visitors: "A lot of them don't know that breastfed babies eat more."
Resources	Breastfeeding resources in the communities the home visitors serve	"I know the Board of Health does a breastfeeding class."

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² The American Academy of Pediatrics. Breastfeeding and the Use of Human Milk. *Pediatrics*. 2012;129(3): e827-e841. <http://pediatrics.aappublications.org/cgi/doi/10.1542/peds.2011-3552>. Accessed July 23, 2014.

³ U.S. Department of Health and Human Services. *The Surgeon General's Call to Action to Support Breastfeeding*. Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General; 2011.

⁴ Baby-friendly Hospital Initiative. The World Health Organization Website. <http://www.who.int/nutrition/topics/bfhi/en/>. Accessed May 19, 2014.

⁵ Baby-Friendly Hospital Initiative. Baby-Friendly USA Website. <https://www.babyfriendlyusa.org/about-us/baby-friendly-hospital-initiative>. Accessed July 23, 2014.

⁶ BFHI Worldwide. Baby-Friendly USA Website. <https://www.babyfriendlyusa.org/about-us/baby-friendly-hospital-initiative/bfhi-worldwide>. Accessed July 23, 2014.

⁷ Find Facilities. Baby-Friendly USA Website. <https://www.babyfriendlyusa.org/find-facilities>. Accessed November 14, 2014.

⁸ Coutinho SB, Cabral de Lira PI, de Carvalho Lima M, Ashworth A. Comparison of the effect of two systems for the promotion of exclusive breastfeeding. *Lancet*. 2005;366: 1094-1100.

⁹ Couto de Oliveira, MI, Camacho, LAB, Tedstone, AE. Extending Breastfeeding Duration Through Primary Care: A Systematic Review of Prenatal and Postnatal Interventions. *J Hum Lact*. 2001;17(4): 326-343.

¹⁰ The American Academy of Pediatrics. Hospital Stay for Health Term Newborns. *Pediatrics*. 2010;125: 405-409. <http://pediatrics.aappublications.org/content/125/2/405.full>. Accessed July 23, 2014.

¹¹ Lauwers J, Swisher A. *Counseling the Nursing Mother: A Lactation Consultant's Guide*. Sudbury, MA: Jones & Bartlett Learning; 2004:285.

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