

# Community interventions to promote optimal breastfeeding

EVIDENCE ON EARLY INITIATION, ANY BREASTFEEDING, EXCLUSIVE BREASTFEEDING, AND CONTINUED BREASTFEEDING

JANUARY 2012



Photos clockwise from top right: PATH/Evelyn Hockstein, Rajal Thaker/Courtesy of Photoshare, Ayiti Foto, Min Zaw/Courtesy of Photoshare





# Community interventions to promote optimal breastfeeding

**EVIDENCE ON EARLY INITIATION, ANY BREASTFEEDING,  
EXCLUSIVE BREASTFEEDING, AND CONTINUED BREASTFEEDING**

JANUARY 2012

LITERATURE REVIEW



CAROLINA GLOBAL  
BREASTFEEDING INSTITUTE



--Supporting the Mother/Child Dyad--  
Nurturing our Future

**IYCN** USAID's Infant  
& Young Child  
Nutrition Project

This document was produced through support provided by the United States Agency for International Development, under the terms of Cooperative Agreement No. GPO-A-00-06-00008-00. The opinions herein are those of the author(s) and do not necessarily reflect the views of the United States Agency for International Development.

IYCN is implemented by PATH in collaboration with CARE;  
The Manoff Group; and University Research Co., LLC.  
455 Massachusetts Avenue NW, Suite 1000  
Washington, DC 20001 USA  
Tel: (202) 822-0033  
Fax: (202) 457-1466  
Email: [info@iycn.org](mailto:info@iycn.org)  
Web: [www.iycn.org](http://www.iycn.org)

## Acknowledgments

---

The Infant & Young Child Nutrition (IYCN) Project wishes to thank Dr. Miriam Labbok for writing this report and contributing insight gained from years of experience in the policy, planning, implementation, and evaluation of a wide variety of breastfeeding and birth spacing interventions worldwide.

Dr. Labbok wishes to thank Jean Baker, Angela Burton, Bette Gebrian, Mary Lung'aho, Luann Martin, Ellen Piwoz, Tina Sanghvi, Maryanne Stone-Jimenez, Emily Taylor, and colleagues at the United Nations Children's Fund, the United States Agency for International Development, and the World Health Organization, who helped ensure the availability and coverage in the identification of the studies to be considered in this review, and Nathan C. Nickel for editing support.

Miriam Labbok, MD, MPH, IBCLC, FABM, FACPM  
Director, Carolina Global Breastfeeding Institute  
Professor, Department of Maternal and Child Health  
Gillings School of Global Public Health  
University of North Carolina  
Chapel Hill, NC 27599-7445

## Table of contents

---

Acknowledgments.....	ii
Acronyms and definitions.....	iv
Executive summary.....	vii
Introduction.....	1
Review of published literature.....	7
A. Re-analyses of systematic randomized controlled study meta-analyses.....	7
Meta-analyses included in this monograph.....	7
Re-analyses of the studies included in the five meta-analyses.....	8
B. Exploration of selected large-scale community-based programs.....	15
C. Review of published individual studies.....	16
Limitations.....	18
Key findings.....	19
Program/Intervention definition/description.....	19
Program impact.....	20
Program setting.....	21
Programmatic and policy recommendations.....	22
General recommendations.....	22
Recommendations concerning implementation.....	23
Training-specific recommendations.....	24
Areas for future research.....	25
Health impact questions.....	25
Program introduction and planning questions.....	27
Program component selection questions.....	27
Program scale-up questions.....	27
Conclusions.....	28
What does this review tell us about planning a successful community intervention?.....	28
What does this review tell us about which type of community intervention is most ‘successful’?.....	29
Next steps.....	29
References.....	30
Appendix 1. Findings from meta-analyses.....	33
Appendix 2. Overview of case studies.....	36
Appendix 3. Bibliography of intervention studies.....	40

## Acronyms and definitions

---

**ABF:** Any breastfeeding describes the occurrence of any breastfeeding based on 24-hour recall for the age group specified.

**AIDS:** Acquired Immune Deficiency Syndrome.

**AIN-C:** *Atencion Integral a la Ninez en la Comunidad* (Integrated Community Child Health Program, Honduras).

**ANM:** Auxiliary nurse midwife.

**BCC:** Behavior change communication; a systematic behavior change methodology based on initial data-gathering, adaptation of change message, and agreement to change.

**BFCI:** Baby-Friendly Community Initiative.

**BFHI:** Baby-Friendly Hospital Initiative.

**Bilateral:** Programs that are supported by one nation to serve other nations.

**CHW:** Community health worker.

**CI:** Confidence interval.

**C-IMCI:** Community integrated management of childhood illness is modified from integrated management of childhood illness to address community prevention as well.

**Community-based programs:** Those generated from community organization with the purpose of creating in-community support, generally for behavior and social change in support of improved health-related local activities.

**Community outreach programs:** Those generated from the health facility or system, sending health workers out into the community.

**CRS:** Catholic Relief Services.

**DHS:** Demographic and Health Survey.

**Duration of breastfeeding:** Generally expressed in months; however, several studies truncate data based on duration of follow-up.

**EBF:** Exclusive breastfeeding; defined as nothing but breastfeeding over the previous 24 hours.

**EBFX:** Exclusive breastfeeding for the first X months; based on 24-hour recall by mothers of all children from birth to six months of age (generally a cross-sectional picture of all children within this age group, rather than the percentage achieving a full six months of exclusive breastfeeding; in indicated studies, EBF at X month was reported).

**EFF:** Exclusive formula-feeding/Exclusively formula fed is when there is no breastfeeding or human milk feeding.

**EI:** Early initiation; generally refers to observation or report of breast contact and infant suckling within the first hour of life. It does not necessarily demand that the feeding was assessed as an effective feed.

**ENA:** Essential Nutrition Actions.

**ENC:** Essential Newborn Care; generally birth preparedness, clean delivery and cord care, thermal care (including skin-to-skin care), breastfeeding promotion, and danger sign recognition.

**Forest plot:** Presentation of data such that the findings of multiple studies may be displayed as a risk ratio with a 95 percent confidence interval as a single graphic figure. These figures include a line to emphasize the risk ratio of 1; any findings above the line indicate statistically significant findings. A weighted summary finding is presented.

**HIV:** Human immunodeficiency virus.

**IEC:** Information, education, and communication.

**IMCI:** Integrated management of childhood illness; a World Health Organization approach to ensure proper treatment, primarily in health facilities.

**IMR:** Infant mortality rate.

**KMC:** Kangaroo Mother Care; includes immediate postpartum skin-to-skin contact and continued skin-to-skin contact approaching 24/7 in the early days.

**LAM:** Lactational Amenorrhea Method; an introductory postpartum method of family planning based on the association of full breastfeeding and amenorrhea, combined with physiological infertility.

**LBW:** Low birth weight.

**LHW:** Lay health worker.

**MCH:** Maternal and child health.

**Mixed feeding:** Partial breastfeeding supplemented with other foods or caloric liquids.

**MMR:** Maternal mortality rate; the number of maternal deaths per 100,000 births.

**MOH:** Ministry of Health.

**Multilateral:** Programs supported by many nations that serve many nations.

**NGO:** Nongovernmental organization.

**NMR:** Neonatal mortality rate; deaths in the first 28 days of life per 1,000 births.

**OR:** Odds ratio.

**PATH:** Program for Appropriate Technology in Health.

**RCT:** Randomized controlled trial.

**RR:** Risk ratio; generally presented with a 95 percent confidence interval.

**SIDA:** Swedish International Development Cooperation Agency.

**Sig.:** Significant/Significance.

**SNNPR:** Southern Nations, Nationalities, and People's Region (Ethiopia).



**Socio-ecological framework:** This concept indicates that health improvements and behavior change are mediated by several levels of influence; and therefore, an intervention should consider at least these five levels: person, family, community structure, service structures, and political/governmental.

**The Code:** International Code of Marketing of Breast-milk Substitutes.

**UNICEF:** United Nations Children's Fund.

**USAID:** United States Agency for International Development.

**WHO:** World Health Organization.

# Executive summary

---

## Introduction

Improvements in early initiation of and exclusive breastfeeding have been noted as major contributors to the improvements in child survival seen over the last two decades. These improvements also provide optimal nutrition for early life. Optimal infant feeding includes early initiation of breastfeeding in the immediate postpartum period and exclusive breastfeeding for six months, followed by continued breastfeeding with gradual introduction of age-appropriate complementary foods, initially those high in protein and micronutrients.

Major US and multilateral strategies for nutrition and health in less developed settings have included increased support for optimal breastfeeding in the last two decades. Multilateral and bilateral strategies have called for comprehensive approaches, addressing all levels of the socio-ecological framework.

However, given the need for support that may occur at any time, day or night, in the early weeks postpartum, health facilities alone cannot provide all the support that may be needed at the exact times of need. Further, breastfeeding is a 24/7 activity and must be built into the social fabric of a community for it to succeed. Because of this, breastfeeding protection, promotion, and support must be available and acceptable in the community, and therefore, an important part of a comprehensive support approach.

Support in the community can take several forms, from health facility outreach, to community-mobilized programming, to national social marketing. Given the importance of optimal breastfeeding for survival, health, nutrition, and development, it is essential that protection, promotion, and support for breastfeeding be available for all women wherever and whenever it is needed.

## Purpose

To carry out a review of available literature on community breastfeeding support to inform program and policy planning.

## Methods

A systematic review of the literature published from 1999/2000 through 2011 was conducted, which included electronic and professional network searches, including the terms “community,” “breastfeeding,” “infant feeding,” “early initiation,” “timely initiation,” and “exclusive breastfeeding.” Nearly 200 studies were identified through these search engines and from interviews with colleagues engaged in these programs. The articles were then accessed and reviewed. There were nine systematic reviews with meta-analyses on related issues, of which five included studies from developing country settings. The relevant studies were re-analyzed



Photo: Ayiti Foto

and new forest plots were created. There were also one case study and one review that included ten case studies, and 28 individual articles that included work in 19 countries.

## Findings

The essential findings in this review are that community programs vary widely, but there are some comparable elements and selected consistent findings. The following general findings are supported by this analysis of the literature:

1. Programs that are either built upon the shoulders of existing breastfeeding programs, or are integrated into other accepted interventions, appear to perform better than single-purpose programs that are introduced in isolation.
2. A wide variety of program approaches are seen in the community; those that emerge from the community, or in which there is active involvement of community-based change agents, appear to have greater impact.
3. The content and quality of the training and supervision of community workers makes a significant difference.

The key findings can be further grouped into three general areas: (1) program/intervention definition/description, (2) program impact, and (3) program setting. The ‘community-based’ programs in these reports included several very different strategic and programming approaches. ‘Community’ may have included outreach interventions, with health systems sending personnel out to the community; community-emergent activities, wherein the community decided on the activity; or nongovernmental organization-coordinated programs in which a local or international partner designed the intervention, generally with community and/or government involvement. Often, there was a mixture of these, with and without paid workers with various levels of basic training. Studies differed widely in terms of the actual design and intervention, as well as the level of detail provided for the different elements of the intervention (e.g., selection criteria, specifics of training and achievement, supervision, etc.).

All studies included a positive impact on the breastfeeding variable under study, although not all achieved statistical significance. The least likely variables to show change: ‘any breastfeeding’ and ‘duration of any breastfeeding’. Early initiation and exclusive breastfeeding appeared to be very responsive to community efforts in developing country settings where ambient breastfeeding levels and duration may already have been substantial. The impacts that seemed to be greatest among the interventions that built upon established clinical programs had been carefully and fully incorporated into other accepted health or nutrition packages, or were part of comprehensive interventions that also included substantive political will, the health system, targeted nutrition interventions, and/or social marketing/behavior change.

Program settings vary by geographic location and by pre-existing programming. The setting may dictate what is possible, and which variables are most likely to be impacted. Nearly all interventions described in the literature were designed to complement or follow upon the progress of previous or ongoing health system, nutrition, or other breastfeeding efforts. This adds to the difficulty of establishing the potential of any one study design in another setting.



Photo:PATH/Evelyn Hockstein

## Programmatic recommendations

General recommendations include:

1. The breastfeeding-specific protection, promotion, and support approaches outlined in the World Health Organization (WHO)/United Nations Children's Fund (UNICEF)/United States Agency for International Development (USAID)/Swedish International Development Cooperation Agency 1990 *Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding* and the WHO/UNICEF 2002 *Global Strategy for Infant and Young Child Feeding*, and in USAID documents, are good and effective models.
2. Other comprehensive program approaches, such as primary health care, Essential Newborn Care, and Essential Nutrition Actions, which are implemented in a manner that includes comprehensive changes at all levels of the socio-ecological framework also consistently show excellent results.
3. In settings where there is currently breastfeeding promotion within other programs, an intervention may be built by acting to strengthen one aspect of that project. For example:
  - a. Redefining and expanding Step 10 of the Ten Steps to Successful Breastfeeding (foster the establishment of breastfeeding support groups) to include active outreach and engagement of the community, with good dialogue and flexibility or linkage with community-emergent activities.
  - b. Intensifying breastfeeding promotion efforts to include breastfeeding support skills.
  - c. Expanding beyond the life-period of a program; for example, Essential Newborn Care concentrates only on the periparturient period in many programs, but workers could be trained in the skills to support exclusive breastfeeding for the first six months.
4. For any community support for breastfeeding to succeed, there must be supportive action by the health system.
5. Until more is known about cost-effectiveness, a wide variety of approaches may reasonably be considered in program planning, if supported by the culture and social leadership of the community.

Recommendations concerning implementation include:

6. Initial assessment is vital to inform the intervention.
7. Outreach programs need to include activities to fully engage community leaders and change agents.
8. Comprehensive programs probably benefit from being introduced in a phased manner. In the studies reviewed, the phasing may have contributed to sustainability.
9. Multifaceted program designs with clear, well-taught, understandable messages appropriate to the cultural context should be considered.
10. Where feasible:
  - a. Build upon existing successful programs in a phased manner.
  - b. Have a clear, small set of activities.
  - c. Develop culturally appropriate, easy-to-use job aids.
  - d. Support the intervention with social marketing.



Photo: Yeside Pikuda

Training-specific recommendations include:

11. The quality and content of the training and supervision of the health worker merit considerable planning and sufficient allotment of time and resources.
12. In training workers, no matter what their background, adult learning techniques, job aids, reinforcement, and celebration are essential.

## Research recommendations

The research recommendations are derived from the findings. The findings show us that in areas of high ambient breastfeeding levels, the major changes that might be achieved are increases in early initiation and exclusive breastfeeding. Given the diversity of approaches that have been shown effective, and multiple countries and settings involved in these studies, and accepting that the most successful programs build upon either previous breastfeeding support or ongoing accepted nutrition or health interventions, little can be generalized concerning specifics of community-based programs. Therefore, an important research need to inform future program planning would be a series of comparable cost-effectiveness studies.

There is some inconsistency in the definitions of exclusive breastfeeding, timely initiation, community, and other measures across the studies reviewed, making comparisons more difficult. Additional questions are provided in four groupings: (1) health impact questions concerning the

unexpected lack of morbidity and mortality impact associated with breastfeeding improvements in many of these studies; (2) program introduction and planning questions, such as best training and best approaches; (3) program component selection questions given that all approaches in the literature showed positive impacts; and (4) program scale-up questions.

## **Conclusions**

The term “community-based” encompasses a wide variety of program approaches, and it is clear from these studies that (1) increasing support to the population at large, (2) including communities in decisions and actions to improve their well-being, and (3) providing comprehensive support for breastfeeding that encompasses policy, health system, and community protection, promotion, and support for breastfeeding and for breastfeeding mothers can result in significant synergy and, on occasion, highly significant increases in early initiation, exclusive breastfeeding, and exclusive breastfeeding duration. Increasing any breastfeeding duration in areas where sustained breastfeeding is common practice may be more difficult to achieve due to high ambient levels. The articles covered by this review provide considerable information about many approaches that may be used to plan a successful community breastfeeding intervention. However, they tell us less about which type of community intervention would be most successful in selected settings, and still less about the cost-effectiveness and sustainability of the approaches used. Nonetheless, the richness of the articles reviewed provides a solid overview of what has been tried in the last decade, and the reality that, in general, breastfeeding practices, when properly supported with skills and community encouragement, will improve.

While issues of sustainability of impact and affordability of certain approaches merit additional study, it is clear that a complex behavior such as breastfeeding is best addressed when there is a multilevel and multisectoral approach that includes attention to the community and its social/cultural and population coverage needs.

## Introduction

---

There has been a shift in global health activity in recent decades, with an emphasis on a return to support for community-based interventions for child survival. The Alma-Ata conference in 1978 confirmed the need to strive for health for all<sup>1</sup> and stated that achieving this demands that “the first level of contact of individuals, the family and community with the national health system bringing health care as close as possible to where people live and work, and constitutes the first element of a



Photo: PATH/Evelyn Hockstein

continuing health care process.” Since that time, there has been back and forth between an emphasis on concentrating on support for systems and facility-based health care—with their emphasis on curative care—and concentrating on community-based primary care and prevention, starting with attention to the individual within a family and community. Clearly, both are needed to ensure optimal health outcomes. As a result, more recent multilateral and bilateral strategies have called for comprehensive approaches to breastfeeding protection, promotion, and support that address all levels of the socio-ecological framework.

Maternal and child health is a special case within this discussion. Infant mortality rates are considered an excellent proxy marker for the health of a nation.<sup>2</sup> In recent decades, nearly all new interventions were maternal/newborn health interventions and were concentrated on preserving the lives of infants. The programs that resulted included attention to birth attendance and infant care, including immunizations, growth monitoring, and the development of integrated management of childhood illness (IMCI) to improve clinical health practices for treating common, potentially fatal ailments such as pneumonia and malaria.<sup>3</sup> These approaches included some dissemination to the community through outreach, including training of community health workers in some cases. Concurrently, the field of birth spacing and family planning was following the same path. Initially concentrated in clinics, community distribution increased throughout the end of the last century. However, the longer duration of the clinical methods, such as surgical sterilization, intrauterine devices, and implants demanded continued active support for improved levels of facility-based clinical care.

Today, perhaps due to the fact that many more countries have an increasing number of facilities and care sites, the attention to the capability of community-level programming to both provide preventive interventions and referral to facilities for curative care is of heightened interest. Examples of this are the development and implementation of community integrated management of childhood illness (C-IMCI), increased support for behavior change communication (BCC),

community health worker training, and funding for local nongovernmental organizations (NGOs) to increase community outreach.

The question of the effectiveness and cost-effectiveness of such efforts has been debated in the maternal and child health field. The training of traditional birth attendants in the community, long a mainstay of many maternal and infant survival efforts, lost favor among some groups around the turn of the 21<sup>st</sup> Century, following research that indicated that skilled clinical care was the only effective option to save women's lives.<sup>4</sup> Subsequently, there has been increasing recognition that skilled clinical care is only as useful as the efficacy of the referral system, meaning that a trained worker in the village is also necessary. The subsequent marriage of the old and new has been successful in selected settings, as was observed in the John Snow, Inc., Safe Motherhood project in Egypt, Nepal, and others, where improved relationships between the traditional and the modern increased trust and referral.



Photo: Manju Kumar Shrestha, Courtesy of Photoshare

Breastfeeding is a special case even within the complexity of maternal and child health interventions. Is it a nutrition intervention? a child survival intervention? a newborn care intervention? or even a maternal health intervention? Since it falls into so many subcategories, it is often the stepchild of all, the beloved of none.

Over the last two decades, the major bilateral and multilateral aid agencies began or strengthened breastfeeding promotion and support efforts. The United States Agency for International Development (USAID) was a major participant and supporter of the processes that led up to the World Health Organization (WHO)/United Nations Children's Fund (UNICEF)/USAID/Swedish International Development Cooperation Agency (SIDA) *Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding* (1990).<sup>5</sup> The four operational targets from the Innocenti Declaration are:

1. Appoint a national breastfeeding coordinator with appropriate authority, and establish a multisectoral national breastfeeding committee composed of representatives from relevant government departments, NGOs, and health professional associations.
2. Ensure that every facility providing maternity services fully practices all of the "Ten Steps to Successful Breastfeeding" set out in the WHO/UNICEF statement on breastfeeding and maternity services.
3. Give effect to the principles and aim of the International Code of Marketing of Breast-milk Substitutes (The Code) and subsequent relevant Health Assembly resolutions in their entirety.
4. Enact imaginative legislation to protect the breastfeeding rights of working women, and establish means for its enforcement.



In 2002, WHO/UNICEF published the *Global Strategy for Infant and Young Child Feeding*.<sup>6</sup> Subsequently, five additional operational targets were added to the Strategy, based on the emerging HIV/AIDS pandemic and the recognition that the original declaration included areas not fully covered in the four original targets:

5. Develop, implement, monitor, and evaluate a comprehensive policy on infant and young child feeding within the context of national policies and programs for nutrition, child, and reproductive health, and poverty reduction.
6. Ensure that the health and other relevant sectors protect, promote, and support exclusive breastfeeding (EBF) for the first six months and continued breastfeeding up to two years of age or beyond, while providing women access to the support they require—in the family, community, and workplace—to achieve this goal.
7. Promote timely, adequate, safe, and appropriate complementary feeding with continued breastfeeding.
8. Provide guidance on feeding infants and young children in exceptionally difficult circumstances, and on the related support required by mothers, families, and other caregivers.
9. Consider what new legislation or other suitable measures may be required, as part of a comprehensive policy on infant and young child feeding, to give effect to the principles and aim of The Code and to subsequent relevant Health Assembly resolutions.



Photo: PATH/Evelyn Hockstein

In 2006, The Innocenti Research Center published the outcomes of a conference held to review progress on the Declaration and the Global Strategy.<sup>7</sup> The outcomes of this meeting, attended by representatives of the original Innocenti meeting, including WHO, UNICEF, USAID, SIDA, and a dozen of the original attendees, included emphasis on implementation of all nine operational areas. The policies of USAID, UNICEF, and WHO are presented below; they reflect an increased interest in community-based work.

USAID's nutrition strategy, which is publically available on the USAID website, includes breastfeeding support, such as provision of culturally acceptable technical assistance to health practitioners, including those working at the community level, on how best to educate mothers about breastfeeding and child health; technical assistance in breastfeeding programming, social marketing, support networks, and policy guidance for a variety of sectors and programs; support for national and regional breastfeeding programs and centers, integrating them with other maternal/child health and reproductive health programs; and support for research and national assessments that aid in the planning and development of country program activities.<sup>8</sup> Over the

last two decades since the Innocenti Declaration, USAID has implemented program strategies to promote breastfeeding, optimal feeding practices related to weaning, and complementary feeding. These have included<sup>9</sup>:

- Providing technical assistance in 34 countries for breastfeeding programming, social marketing, support networks, and policy guidance.
- Supporting national assessments in 15 countries to help plan and develop country program activities.
- Providing technical assistance to health practitioners on educating mothers about breastfeeding, complementary feeding, and child health.
- Developing national and regional breastfeeding programs and centers and integrating them with other programs in maternal/child and reproductive health.
- Conducting groundbreaking research that has led to the recognition of breastfeeding's many positive effects on mothers and infants and to the use of the Lactational Amenorrhea Method for birth spacing.

In recent years, renewed support for EBF has emerged from the global policy based on the research that found that EBF reduces the passage of HIV via breastfeeding when compared to mixed feeding, and that two-year HIV-free survival rates for the children of HIV-positive women were as high as, or higher than, the rates for those children who were fed formula.<sup>10</sup> USAID-supported projects work with host country governments to incorporate the WHO Consensus Statement on HIV and Infant Feeding (2006) into national policies and guidelines. USAID works with country partners to develop or revise nutrition training curricula and courses that address the latest WHO guidance. The resulting materials are used to train health workers at prevention of mother-to-child transmission of HIV sites, as well as community workers and volunteers, to counsel HIV-positive pregnant women and mothers on improving nutrition during pregnancy and lactation and to ensure optimal and safe infant and young child feeding practices.<sup>11</sup>

Although it is not highlighted in USAID's program descriptions, above, USAID has taken a keen interest in community-based breastfeeding support interventions, incorporating breastfeeding messages, BCC, and Essential Nutrition Actions (ENA) into HIV and child survival interventions.

WHO and UNICEF concurrently developed their strategies to implement the Innocenti Declaration. Actions that followed included changes in UNICEF's Child Survival Strategy,<sup>12</sup> which prioritizes:

- Newborn care, taking into consideration the lifecycle approach and continuum of care.
- Infant and young child feeding, including micronutrient supplementation and deworming.
- Provision of maternal and childhood immunization and promotion of new vaccines.
- Prevention of mother-to-child transmission of HIV.
- Prevention of malaria using insecticide-treated mosquito nets and intermittent preventive treatment.

- Management of common childhood illnesses and severe acute malnutrition, including community management where applicable using the IMCI strategy.
- Management and care of HIV-exposed or infected children.

The approach calls for identification of behavioral, institutional, and environmental impediments with an in-depth understanding of these obstacles, as well as of the strategies for circumventing them.

In the example above, some of the delays in reaching skilled clinical support have been circumvented by the development of referral transport plans. With the multiple issues of breastfeeding support, however, circumventing the obstacles is very complex; obstacles include commercial pressures, the realities of women's lives, and the pressures of 'modernization', which often require women to behave as men do in the workplace. In addition, recent confusion about feeding in the era of HIV has become a further obstacle. These types of behavioral, institutional, and environmental issues are not as readily circumvented, and truly demand comprehensive programming.

UNICEF noted within its nutrition strategy that "positive outcomes are achieved when countries implement, at scale, a comprehensive approach to improving infant feeding practices. This could include efforts at the level of policy and legislation, health system strengthening and capacity building, community-level action and behavior change communication initiatives."<sup>13</sup>

This definition of a "comprehensive approach," then, is multisectoral and addresses all levels of the socio-ecological framework. Within this approach, UNICEF support for infant and young child feeding actions within community-based health and nutrition care through lay counselors, community health workers, and other community cadres, creating a shift in norms and local support for optimal feeding, can begin to overcome the complex obstacles noted above. Therefore, there is an emphasis on community social support for mothers (e.g., mother-to-mother support groups) and the ability to refer for medical support when needed, and on family and societal support for an optimal infant and young child feeding norm, as well as ensuring improved hospital practices through the Ten Steps of the Baby-Friendly Hospital Initiative (BFHI).

Less clear in some of these policies is the distinction between programs that include health system outreach to the community and programs that are community based in terms of emerging from work with community leaders. Many projects include elements of both, and nearly all include efforts to link the community with the greater health system to smooth referral and mutual support.



Photo: PATH/Evelyn Hockstein

Within this context, it remains clear that improvements in early initiation and exclusivity could profoundly impact infant and young child outcomes. The two biggest killers of children younger than five years remain pneumonia (18 percent) and diarrheal diseases (15 percent).<sup>14</sup> And the evidence is clear that increased rates of EBF could significantly positively impact these two causes of death.

In sum, with this renewed interest in multi-intervention community-based programming, and the ongoing recognition that EBF is an essential child survival intervention, and given that the last comprehensive review was carried out under the LINKAGES Project,<sup>15</sup> it is timely to re-assess which aspects of work in the community might best achieve short-term and long-term impact, and to consider what additional research may be needed to ensure the best



Photo: Ayiti Foto

use of limited resources. Studies were collected using key word searches and from interviews with known experts in the field of community-based breastfeeding programming. All studies were reviewed and summarized, and re-analyses of available data were carried out to reflect the findings from only those studies carried out in less developed settings. In addition, overall lessons learned are presented and recommendations are offered for future work in the community to protect, promote, and support early initiation of, exclusive, and continued breastfeeding. This review included a search of the terms “community,” “breastfeeding,” “infant feeding,” “early initiation,” “timely initiation,” and “exclusive breastfeeding”; yielded six systematic reviews with meta-analyses on breastfeeding or related issues; and 22 related studies. Selected additional articles that used the same basic study findings are included in the appendices and noted as such, including 16 covered in the meta-analyses and case studies. Approaches used to further review and analyze each type of article are presented below.

## Review of published literature

---

This review covers publications from 1999/2000 through 2011 on community interventions to promote optimal breastfeeding, with attention to early initiation of breastfeeding, EBF, and continued breastfeeding, and includes:

- A. Review and re-analyses of data from five recent meta-analyses. These meta-analyses generally include both industrialized and less developed country settings. The re-analyses were carried out to create weighted pooled data for only those studies carried out in less developed settings (also see Appendix 1 and Figures 1 through 11).
- B. Exploration of data presented as case studies (also see Appendix 2).
- C. Additional systematic review of available literature (also see Appendix 3).



Photo: PATH/Nguyen Ba Quang

### A. Re-analyses of systematic randomized controlled study meta-analyses

#### Meta-analyses included in this monograph

This monograph includes review and re-analysis of data from five relevant meta-analyses. A recent Cochrane meta-analysis, *Support for Breastfeeding Mothers* (Britton et al., 2007), explored the impact of various breastfeeding support approaches.<sup>16</sup> A second meta-analysis, *Lay Health Workers in Primary and Community Health Care for Maternal and Child Health and the Management of Infectious Diseases* (Lewin et al., 2010), examined the impact of lay health workers in primary and community health care for maternal and child health and the management of infectious diseases.<sup>17</sup> A third meta-analysis, *Effective community-based interventions to improve exclusive breast feeding at four to six months in low- and low-middle-income countries: a systematic review of randomized controlled trials* (Hall, 2011), was designed to examine randomized controlled trial studies of community-based interventions to improve EBF at four to six months that were carried out in less developed settings.<sup>18</sup>

The fourth and fifth meta-analyses were not specifically designed to measure community breastfeeding, but rather to assess the impact of programs on neonatal issues, and some include a component in support of early initiation of breastfeeding. The fourth meta-analysis, *Home visits of community health workers to prevent neonatal deaths in developing countries: a systematic review* (Gogia and Sachdev, 2010), assessed the impact of antenatal and neonatal care on neonatal survival, with a subset that included support for early initiation.<sup>19</sup> A fifth meta-analysis, *Community-Based Intervention Packages for Reducing Maternal and Neonatal Morbidity and Mortality and Improving Neonatal Outcomes* (Lassi et al., 2010), examined community-based intervention packages for reducing maternal and neonatal morbidity and improving neonatal outcomes, some of which included breastfeeding.<sup>20</sup>

Three of these meta-analyses include data on early initiation, three include any breastfeeding (ABF), four include EBF, and five include duration of breastfeeding.

### **Explanation of the development of the forest plot figures** (Figures 1 through 11)

The forest plots presented in Figures 1 through 11 were created for this monograph in order to illustrate and compare the findings of the interventions across studies and by specific outcome for the indicated community intervention approaches in less developed settings only. The five meta-analyses reviewed for this monograph were undertaken for different reasons, and only one was restricted to developing country settings. Therefore, to examine only those studies with implications for less developed settings, these forest plot re-analyses include only those studies conducted in such settings, and that also included identifiable breastfeeding outcomes, using the data and the weightings provided in the meta-analyses. Forest plots were created for selected groups of studies using Excel and PowerPoint software.

In order to present all data such that  $>1$  indicates a positive impact of the intervention, the data were interpolated when necessary; the risk ratio and 95 percent confidence interval values were used as the denominator with a numerator of 1. Data were plotted using the Y axis to indicate the risk ratio and confidence interval values. “1” is darkened on the plots to allow for easy visualization of the level of impact.

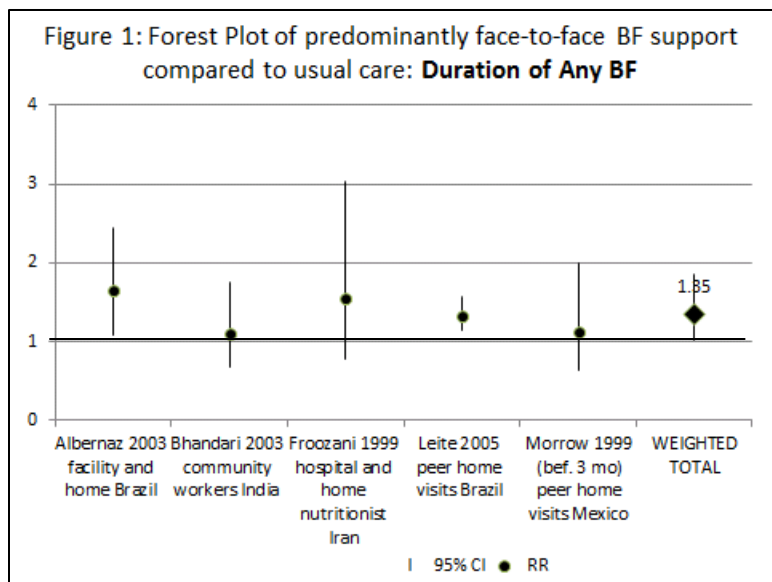
All studies included in this set of figures included at least one intervention group and one control group. These results represent the differences seen between the arms of each study (intention to treat), not the impact on individuals.

Please note: The Y axis values differ among the figures.

### **Re-analyses of the studies included in the five meta-analyses**

Britton et al. addresses whether support would help mothers who are breastfeeding to continue breastfeeding. The forest plots presented in Figures 1 through 5 use data and weightings from the Britton meta-analysis.

The general finding from the Britton meta-analysis of the 34 studies from 14 countries was that both professional and lay support can be effective, individually or together, in areas where initiation and continuation are low. Of the nine studies from less developed settings, seven included a community-based component. Figure 1 re-analyzes the five studies from developing country settings that included a measure for “duration of any breastfeeding.” While the studies all reflect a positive impact, it is of note that the magnitude of the impact was relatively modest, and the weighted total at 1.35 as a confidence interval nearly reached 1 (1.01, 1.86).



The studies covered in the Britton meta-analysis also included those reflecting impact on achievement of at least four months of EBF. These findings, shown in Figure 2, reflect a greater impact than was seen on the duration of ABF. Figure 2 presents a forest plot illustrating the impact of community breastfeeding support on EBF for at least four months across the six studies that included this outcome, as well as a weighted sum of impact.

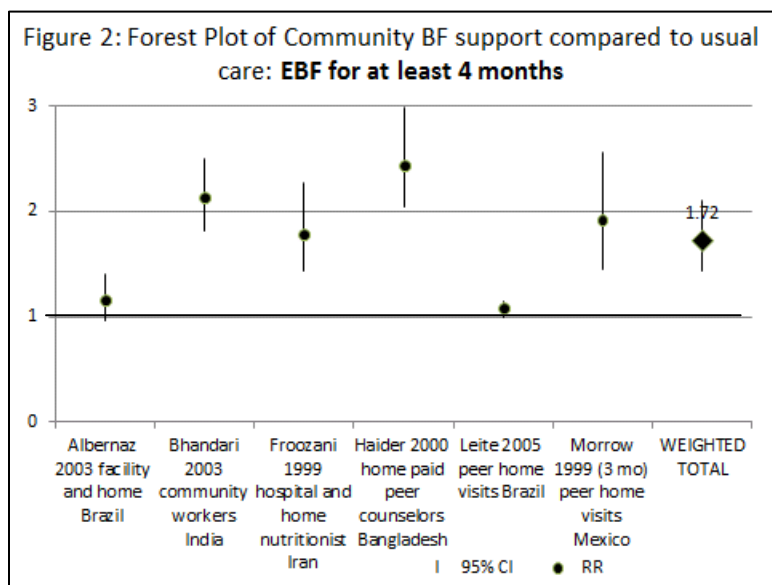
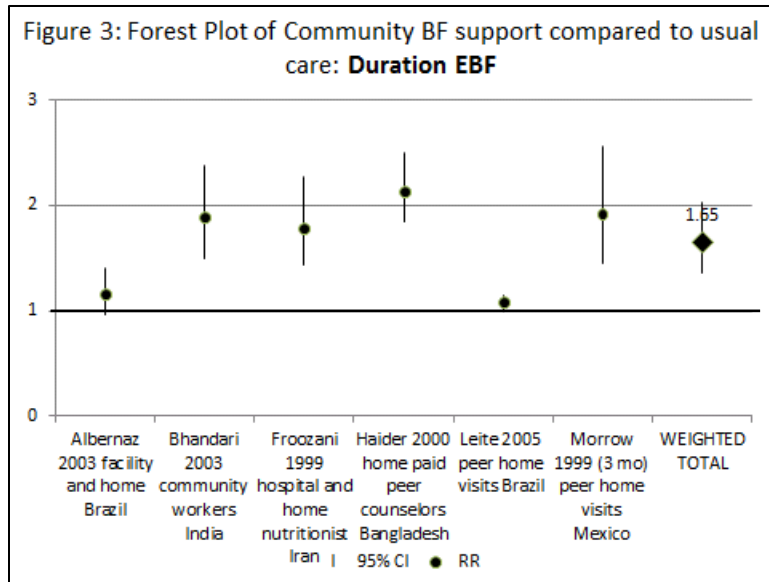


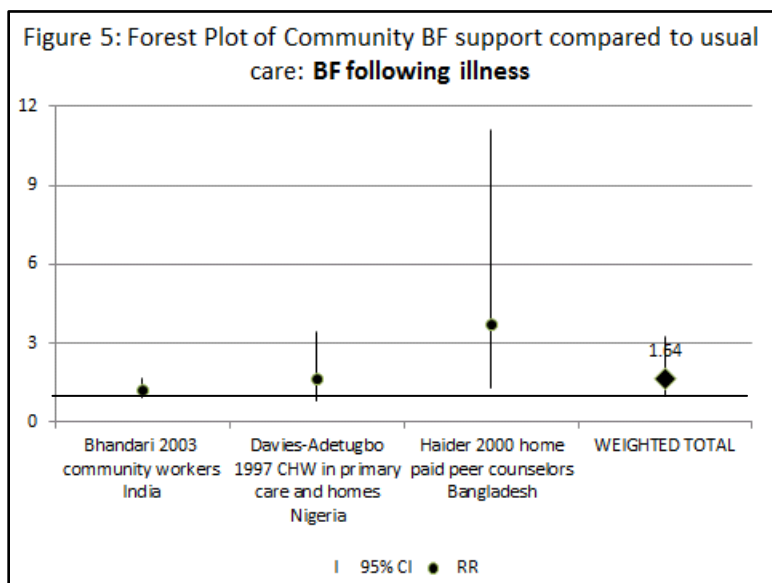
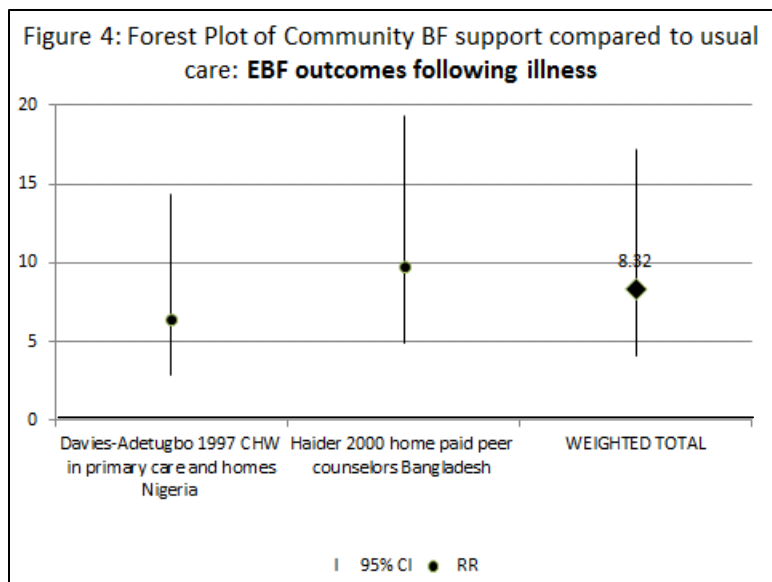
Figure 3 presents a forest plot also derived from data from the Britton meta-analysis, illustrating the impact of community breastfeeding support on EBF duration across the same six studies illustrated in Figure 2, and a weighted sum of impact. Two of the six studies that included duration of EBF, as shown in Figure 3, have confidence intervals that cross 1. Nonetheless, the weighted average is highly significant. There is a stronger impact noted when the continuum of duration of EBF is studied, rather than picking one point in time. This would seem to imply that the potential impact of these studies on increasing the duration of EBF may not be as impactful

when studies are limited to the examination of EBF for at least a single point in time, such as four months or beyond. All increases in EBF contribute to improved health, so it may be advisable to study both increase and achievement of optimal breastfeeding as possible outcome variables.



Figures 4 and 5 present forest plots illustrating the impact of community breastfeeding support on EBF following child illness and ABF following child illness. In general, those where the workers were paid may be seen to have a greater impact. There was little difference between those that used different types of tested training (WHO versus La Leche League International). It is of interest that there is an apparent strong response to the encouragement to exclusively breastfeed following an illness, with lesser impact shown on ABF. Those with visits to inform them of the need to exclusively breastfeed following illness were nearly nine times as likely to practice EBF as were those who did not receive visits. However, as seen in Figure 5, the impact of the visits on ABF was less pronounced, reflecting, in all likelihood, a high ambient level of ABF with or without any intervention in these settings.



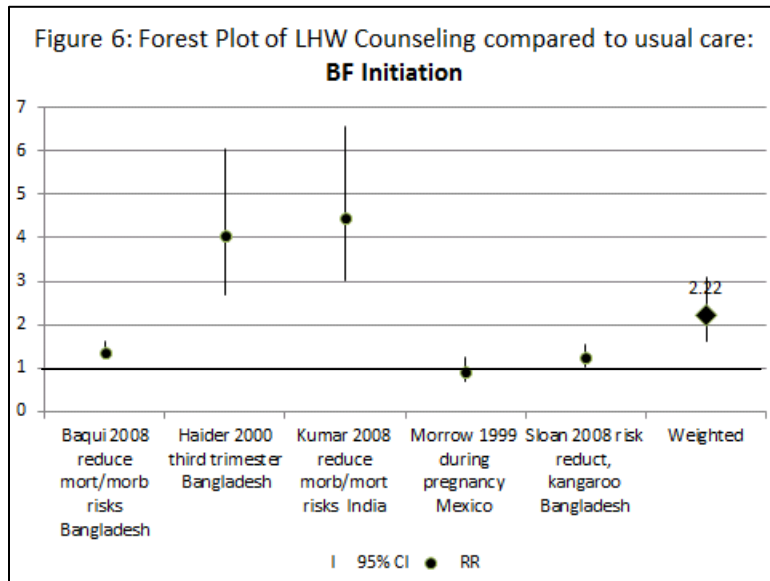


In sum, the findings across studies suggest that while intervention may not have a large impact on already prevalent ABF practices, intervention likely has a large impact on EBF practices following illness.

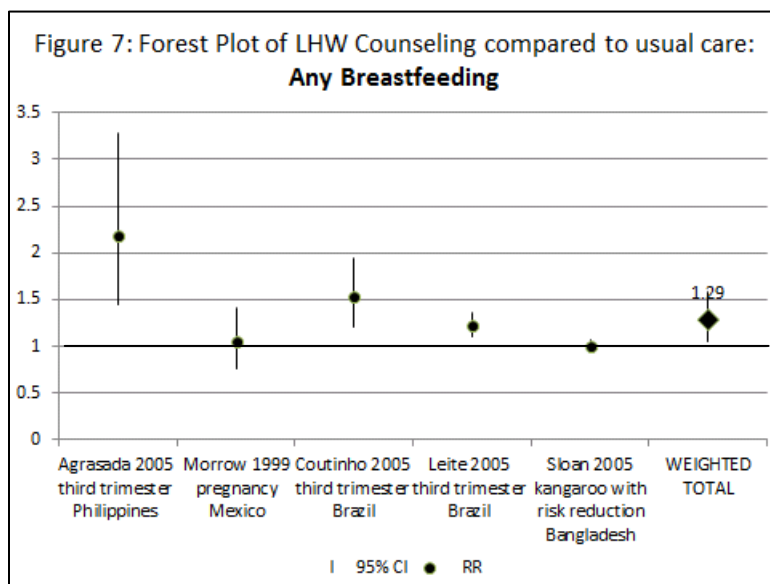
The meta-analysis of Lewin et al. includes studies wherein lay health workers supported a variety of interventions. Of the 27 studies, three were from low-income countries and five were from middle-income countries. These eight studies were separated from the others and re-analyzed using the weighting from the meta-analysis, as described in the forest plot box above and as presented in Figures 6 through 8, to examine the impact of lay health worker interventions to promote breastfeeding initiation, ABF, and EBF.

The findings for developing settings only did not differ substantially from any of the studies as far as impact on ABF, which included more developed settings (data including developed

countries are not illustrated here). In the group of studies that included those from more developed settings, the risk ratio for ABF was 1.24, while it was 1.29 for those in only less developed settings. However, there was some difference seen in impact on initiation, in that the data from all settings revealed a risk ratio for initiation of only 1.36, while in less developed settings, the risk ratio for initiation was 2.22 (see Figures 6 and 7).

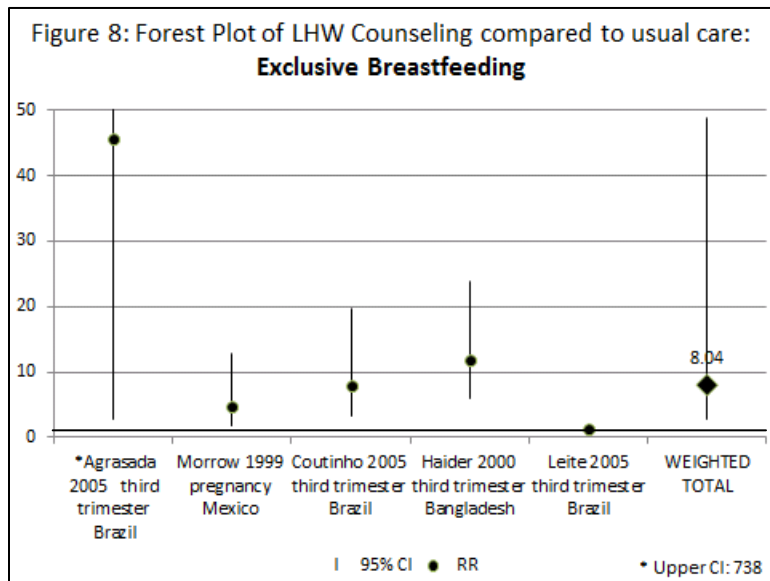


In Figure 6, the two studies that included a strong community maternity care provider role yielded a much greater impact than those that did not. This suggests that the link of the lay worker with community maternity care services may be a key element in achieving measurable impact.



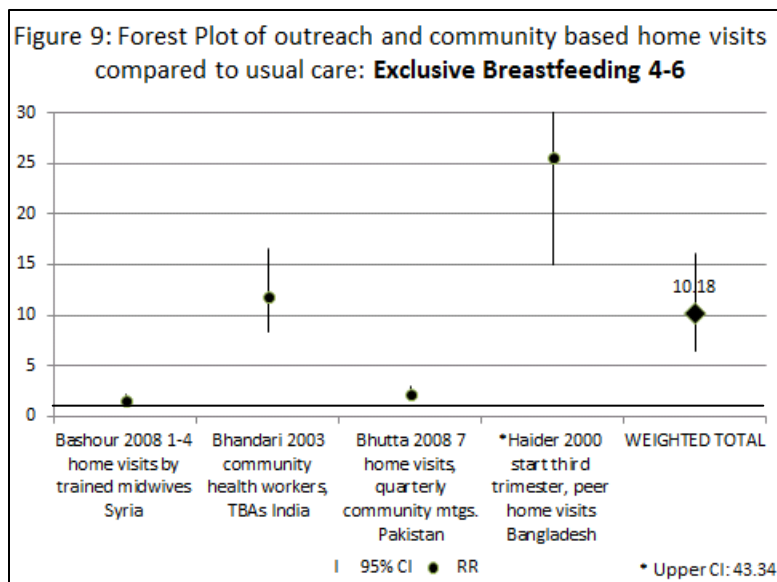
Again, the impact on ABF seen in Figure 7 is not as great; this finding mirrors the results presented in Figures 1 and 5. The height of the Y axes in these figures is lower than the others, with most studies having a risk ratio and confidence interval much less than 4.

The impact of lay health worker counseling on EBF as opposed to ABF in these less developed countries was much greater, as seen in Figure 8. The EBF figures tend to have Y axes that range greater than 10 in order to include the much higher risk ratios. It is worth noting that although the risk ratios are large, the confidence intervals approach 1. Note that the Agradada study, which focused on supporting low-birth-weight infants with home-based postnatal peer counseling, had the largest impact on both EBF and ABF rates as compared with the other studies, which provided support to all mother-infant dyads. This may indicate the heightened felt need by the mothers in such high-risk situations. Overall, while Lewin et al. indicated a risk ratio of 2.79, when the data were restricted to only those studies carried out in less developed settings, the risk ratio was 8.04.

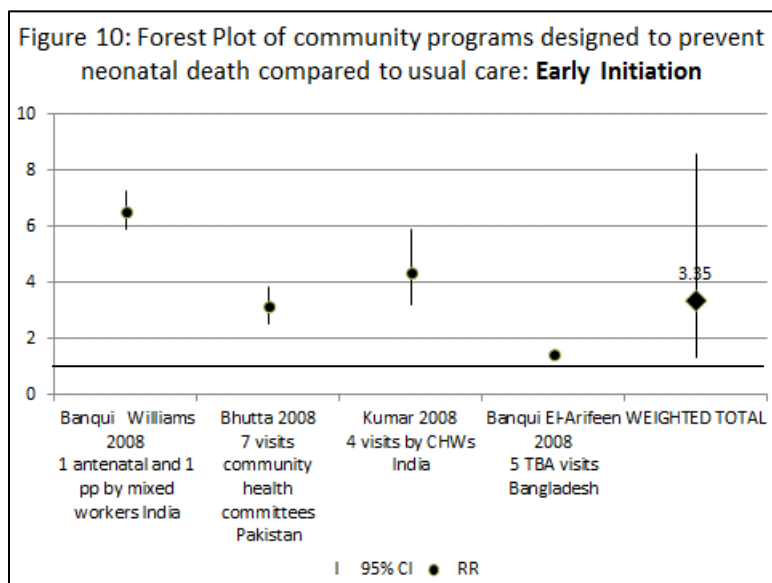


The Hall meta-analysis explored community-based interventions in less developed settings designed to improve EBF to four to six months. Of 11 studies identified, only four included initial contact in the community, reporting of EBF4-6, and unique data (not included in another study). As shown in Figure 9, all studies demonstrated significant increases in EBF from four to six months. However, the original meta-analysis also carried out intention-to-treat analyses to reduce over-estimation of the impact of the intervention, yielding a lower weighted odds ratio (OR) of 5.83 (95 percent confidence interval: 1.71, 18.59). In either case, the impact reflected in these four selected studies is large and significant.

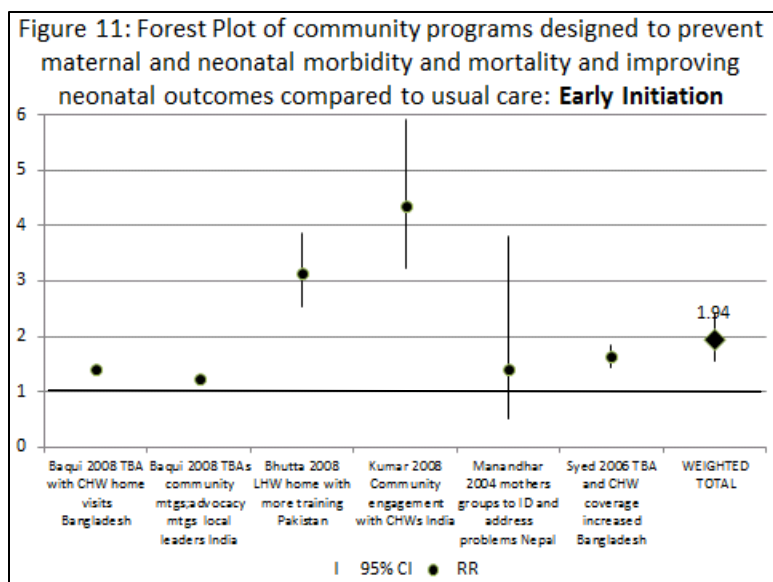
It is of note that the Bhandari and Haider studies are included in the Britton et al. meta-analyses as well; however, when the studies are restricted to those whose primary outcomes include breastfeeding, the overall impact is seen to have greater statistical significance.



The Gogia and Sachdev meta-analysis was designed to assess antenatal and neonatal care on neonatal survival. Although these studies included primarily comprehensive approaches with the major outcome of interest being neonatal deaths, some included a breastfeeding impact outcome. Nearly all of these were comprehensive approaches (e.g., included multilevel support prenatally, perinatally, and in the immediate postpartum period, supporting many health care changes) and were provided by trained workers. A clear impact on early initiation can be seen (Figure 10).



Lassi et al. examined community-based intervention packages for reducing maternal and neonatal morbidity and improving neonatal outcomes. The findings confirm that if such programs have antenatal components, they can increase early initiation of breastfeeding, as illustrated in Figure 11. They also comment on the wide variety of program approaches, and that only a small number of studies are available for each, limiting our ability to compare and to ensure generalization of the impact seen in one setting versus another.



Other meta-analyses were reviewed; however, these studies did not include data from less developed settings; where there was inclusion of a study from a developing country, that study was already covered elsewhere.

Overall, these figures reveal a strong impact of community interventions, especially home visits with either community or health facility backup and supervision, on EBF and EBF duration, but a lesser relative impact on ABF. Early initiation seems to show more variability.

## B. Exploration of selected large-scale community-based programs

WHO, in collaboration with UNICEF, USAID, and the Academy for Educational Development, published a review and exploration of ten large-scale community-based programs designed to improve breastfeeding practices.<sup>21</sup> The document reviewed large-scale programs undertaken in ten countries with extant relatively high levels of EBF (30 to 67 percent among infants from birth to six months). This review was undertaken to further explore community-based programming as called for in the WHO/UNICEF *Global Strategy for Infant and Young Child Feeding* (see Appendix 2). The programs reviewed included those that were primarily breastfeeding interventions with outreach from the health system into the community (Cambodia), as well as those in which breastfeeding was one element of a broader nutrition intervention strategy (e.g., ENA) or broader health or child survival intervention strategy (e.g., C-IMCI). BCC and mass media were additional components in several of these case studies.

General findings from this review of selected large-scale community-based programs:

1. The community offers indispensable resources for breastfeeding promotion and support, and these resources need continual mentoring and encouragement.
2. Multiple program frameworks offer opportunities for community-based breastfeeding promotion and support.
3. Breastfeeding practices can change over a relatively short period and need continued reinforcement to be sustained.

4. Effective communication and advocacy are vital to set policy priorities, influence community norms, and improve household practices.
5. More attention needs to be given during training to interpersonal counseling skills.
6. Program scale-up is facilitated by partnerships, leadership, proof of concept (i.e., evidence), and resources.
7. Monitoring and evaluation is critical to measure progress, identify successful and unsuccessful strategies, and make appropriate program adjustments.



Photo: PATH/Evelyn Hockstein

Appendix 2 presents a tabular summary of the breastfeeding support activities in these case studies, changes in EBF6, and related comments, as well as a summary from one additional case study from Bangladesh. As noted in the review, it is difficult to differentiate the impact of the community component in the countries that included other parts of the Innocenti Declaration and Global Strategy recommendations.

Results from the multiple case studies suggest that while breastfeeding practices can be changed in a fairly short period of time, any dramatic change should be carefully interpreted. While trends show steady progress, suboptimal practices are still the norm in many countries. Further, differences between countries and among regions necessitate tailored strategies. Finally, and perhaps most importantly for global planning, gains achieved during intensive pilot activities are not readily achieved with scaled-up activities, and are not necessarily sustainable.

### **C. Review of published individual studies**

Pubmed, Google Scholar, and the PATH Library search engines were employed to identify studies of breastfeeding and community support. Inclusion criteria for the additional systematic review were (1) less developed country setting; (2) availability of the original article or sufficient summary available to allow analysis; and (3) outcome variables that included at least one of the following: early initiation, ABF, EBF, and/or duration. Appendix 3 includes the citation as well as a summary for each article. The matrix provided includes the country, study purpose, study design, data collection, summary of the intervention, type of worker, the breastfeeding measure (early initiation, ABF, EBF, duration), study findings, and comments from the authors of the article and this monograph.

Of the nearly 200 studies that were identified through these search engines and by inquiry of colleagues engaged in these programs, accessed, and reviewed, six were found to be relevant meta-analyses (five available in English), one was a case study, one was a review that included

ten case studies, and 28 articles included work in 19 countries. This number includes the 15 studies from 1999/2000 through 2011 from the meta-analyses; these were included in the re-analyses and presented in Figures 1 through 11. Some of the 28 articles included more than one country setting; in addition, in some cases, more than one article utilized the same study data. Of these articles, 13 included measures of early initiation, six included ABF, 18 included EBF, and nine included duration. Where comparable data were available, the additional studies yielded similar findings to those included in the meta-analyses.

The studies were carried out in 19 countries across four regions, with some studies including multiple countries (three studies included more than one country, and others included some duplicate information), with some countries predominating:

- Central/South America and the Caribbean: Nine studies included five countries—three carried out in Brazil, one (reported in two articles) in Bolivia, one (reported in two articles) in Mexico, and one each in Guatemala and Haiti.
- Africa: Nine studies included six countries—two in South Africa, one (reported in two articles) in Madagascar, one (reported in two articles) in Uganda, and one each in Burkina Faso, Ghana, and Guinea-Bissau.
- Asia: 13 studies included five countries—five in Bangladesh, four in India, two in Philippines, one in Nepal, and one in China.
- Middle East: Three studies included three countries—Iran, Pakistan, and Syria.

One set of studies carried out in Africa—the PROMISE-EBF Study Group<sup>22,23</sup>—was not included in any of the meta-analyses or case reports. It was a peer counselor intervention with breastfeeding support in four to six household visits. The study was carried out in three countries in Africa, with EBF increasing to 79 percent in the intervention arm and 35 percent in the control arm. The findings on EBF increase in each country achieved statistical significance.

Another study, in Guatemala,<sup>24</sup> examined the impact of a La Leche League type approach. While there was no difference between the two arms of the study, the study noted that those individuals who may have sought out, or self-selected, to receive multiple contacts had significantly higher breastfeeding rates.

The findings from the studies that were not included in the meta-analyses do not differ in any major way from those that were included. Overall, the systematic review of these studies points to the following general summary statements:

- Where breastfeeding is already the normative behavior, as it is in most developing settings, community intervention is seen to have a significant impact on increasing exclusivity, but has more modest impacts on increasing ABF or ABF duration, as is also illustrated in Figures 1 through 5.
- The studies that included early initiation generally included support for this change as part of newborn survival interventions, or it was instituted in concert with the local system of birthing, whether clinic based or with a traditional birth attendant. The findings are extremely variable, but consistently positive.

- Studies that emphasize counseling as part of training and community acceptance of the home visitor as a result of engagement of community leadership appear to have more significant impacts on outcomes.
- Findings from these meta-analyses suggest that there seems to be a dose response in that the more visits that are made/more contacts that occur, the greater the impact. This is seen in several studies, including the Haider, Morrow, and Leite studies, among others, where a greater number of visits resulted in a greater impact.
- Community interventions appear to have the greatest impact when they follow after or are part of comprehensive breastfeeding interventions (e.g., those interventions that address multiple levels of the socio-ecological framework), building on a more comprehensive pre-existing campaign, whether aimed specifically at breastfeeding or at nutrition or health.

### **Limitations**

Many of the community studies that were not included in the meta-analyses, as well as many that were included, had possible biases that may have influenced the reported results. For example, although those who collected the data were often different individuals from those providing the breastfeeding support, in more than one study, it was reported that the population may have recognized that both the counselors and the data collectors were from the same or related programs. Further, not all studies achieved the same level of randomization, while others suffered from smaller sample sizes. Finally, the diversity of approaches, the various combinations of service packages and settings, and the high levels of pre-existing support in many studies made it extremely difficult to tease out the specific contribution of the community component. That said, the rapidity of change that was apparent with the implementation of a solid community component underscores that well-conceived community components synergize and increase the impact of pre-existing or concurrent programming at other levels in the socio-ecological framework.



## Key findings

---

### Program/Intervention definition/description

1. A wide variety of program approaches are seen in the community, and those that emerge from the community, or in which there is active involvement of community change agents, such as in the Haider and Kumar studies, appear to have greater impact. In general, ‘community’ may include outreach interventions, with health systems sending personnel out to the community; community-emergent activities, wherein the community decides on the activity; or NGO-coordinated

programs in which a local or international partner designs the intervention, generally with community and/or government involvement. Often, there is a mixture of these, with and without paid workers with various levels of basic training. Further, nearly all interventions described in the literature were designed to complement or follow upon the progress of previous or ongoing health system, nutrition, or other breastfeeding efforts.



Photo: PATH/Evelyn Hockstein

2. Comprehensive approaches, or those that build upon existing efforts—whether community, policy, or health system based, and whether the stated purpose is to improve survival, health, or nutrition—appear to have the greatest impact and to be more sustainable. Sustainable changes in breastfeeding practices are achieved through a comprehensive package that includes social mediation, health care worker support, and a credible policy environment. However, single-purpose programs may also have rapid and significant impact, very careful involvement of the community, and appropriate and sufficient training and supervision of community workers.
3. Community-based interventions include a wide variety of approaches that may have different outcomes in different settings. Community interventions reported in the literature included at least the following program types and components:
  - a. Directionality:
    - i. Outreach from established facility programs.
    - ii. Community-generated activities.
    - iii. NGO-generated activities with village leadership.
    - iv. Mother-to-mother groups.
    - v. Grandmother/Father support approaches.<sup>25</sup>
  - b. Level of worker:
    - i. Peer counselors.
    - ii. Community-based health workers.
    - iii. Midwives/Traditional birth attendants.

- iv. Nutritionists.
- v. Lay health workers.
- vi. Lay volunteers.
- c. Activity:
  - i. Home visits.
  - ii. Community meetings.
  - iii. Behavior change approaches with individual contacts.
  - iv. Social marketing at the community level.
- d. Paid, stipends, or unpaid.
- e. Many mixtures and permutations of the above.



Photo: PATH/Lesley Reed

- 4. There is little in the meta-analytic literature that makes the important differentiation between outreach and community-emergent interventions. The three basic subtypes are:
  - a. Truly community based: total involvement of the community in planning and staffing.
  - b. Outreach to the community: a facility or organization sends persons to the community.
  - c. Combination: a facility or organization reaches out to the community with a set plan.

## Program impact

All studies included a positive impact on the breastfeeding variable under study, although not all achieved statistical significance.

- 5. The potential impact of a community intervention is mediated by several additional factors. The program/intervention design, which may be one of the many listed above and more, will then interact with contextual issues that can affect impact. For example:
  - a. The mix of interventions being offered together.
  - b. The socio-cultural context.
  - c. Community “readiness” for the concepts introduced, as indicated by pre-existing accepted breastfeeding, health, or nutrition interventions.
  - d. Acceptability of the worker.
- 6. Consistently, interventions that build upon existing momentum, involve the community, and have training that includes skills and counseling and supportive supervision have shown to have a significant and rapid impact on early initiation and/or exclusivity among participants. Conversely, those that utilize low-level workers or community volunteers, without providing a clear connection to and support from the extant health system or other respected institution(s), seem to achieve less impact.
- 7. Breastfeeding may be a base upon which to build other interventions, or vice versa; however, it would seem vital to introduce additional components in a phased manner.
- 8. Training and supervision must be carefully planned and implemented, even if the project is research in nature. Excellent training in counseling skills to support both promotion and skilled support for breastfeeding, coupled with follow-up and monitoring by respected, supportive supervisors, are recognized components of the most successful projects.

9. In community-based or community outreach interventions designed to impact neonatal, infant, or child survival, support for early initiation and EBF is an essential and generally immediately effective part of a comprehensive package. This is underscored in the Gogia meta-analysis. It should be noted that in a few studies, where the breastfeeding component was successful, there was no measurable impact on child health and survival parameters. This may have been due to sample size or the manner in which these variables were measured (see appendices).
10. Given the wide diversity of programs that fall under this rubric, it is extremely difficult to specifically attribute the impact to the community program component alone, in isolation from other previous programming, or other ongoing programming. Nonetheless, the clear finding is that when offered within the context of ongoing government or facility-based support for breastfeeding, the community component promoting and supporting breastfeeding is additive, especially in terms of continued EBF.
11. Many of the studies of home visits or similar contacts seem to confirm a dose response: the more contacts, the greater the impact.

12. Understanding and involvement of the community can play a significant role in program success.



Photo: PATH/Evelyn Hockstein

- a. Full partnership with the community appears to have a significant impact on enhancing outcomes. Those programs that either emerged from the community or worked closely with some element of community leaders or units seemed to have greater impact on breastfeeding outcomes.
- b. Socio-cultural context and assessment of breastfeeding issues in the community in advance can support creation of more effective messages. It appears that projects that make the effort to adapt interventions following initial research, whether formative or baseline survey, have more traction.
13. Increasing early initiation of breastfeeding appears to be dependent on the involvement of the cadre that attends births, whether clinic based or traditional birth attendants.
14. As with any review limited to published literature, there is always the possibility of ‘publication bias’; i.e., that editors tend to accept for publication only those studies with significant and positive findings, which might account for the minimal number of negative findings.

## Program setting

15. The findings show us that in most developing country settings, where there are high ambient breastfeeding levels, the major changes that might be achieved are increases in early initiation and EBF, rather than in ABF or duration of ABF.

## Programmatic and policy recommendations

---

Several of the articles, meta-analyses, and case study reviews offer programmatic and policy recommendations, many of which are supported by the additional findings of this review. The listing below includes general recommendations, recommendations related to implementation, and training-specific recommendations supported by this review, with commentary.

### General recommendations

1. The breastfeeding-specific protection, promotion, and support approaches outlined in the WHO/UNICEF/USAID/SIDA Innocenti Declaration, the WHO/UNICEF Global Strategy, and in USAID documents are good and effective models. They include comprehensive approaches at all levels of the socio-ecological framework, including: (1) national policy and governmental support; (2) the BFHI or other skills-improvement strategies; (3) The Code or similar restriction on false and misleading claims that damage the health of mothers and infants; (4) maternity care and protection; (5) other national or regional committees and/or engagement; (6) community involvement through community outreach, community-based activity development, and social marketing for demand creation.
2. Other comprehensive program approaches (e.g., primary health care, Essential Newborn Care [ENC], and ENA) that are implemented in a manner that includes comprehensive changes at all levels of the socio-ecological framework also consistently show excellent results. Since this demands a much broader area of expertise and activities, this approach may demand additional human and fiscal resources.
3. Consideration must be given to the individual setting in design of program interventions. Pre-existing norms, beliefs, and programs may influence change, and multilevel, multisectoral support needs will differ by setting. In support of an intensive behavior such as breastfeeding, consideration must be given to ensuring breastfeeding support at many levels of the socio-ecological framework. The ability to create this continuity and comprehensiveness of approach will vary among countries and regions. Therefore, pre-assessment including all of these factors will aid in decisions around whether previously published models may be appropriate or appropriately adapted.
4. In settings where breastfeeding promotion currently exists within programs such as ENA, breastfeeding support groups, growth monitoring, or ENC, a program may be built to strengthen the breastfeeding knowledge, attitudes, and skill sets of workers and to include breastfeeding support activity monitoring and ongoing training among supervisory goals.
5. It is possible to change or expand an aspect of an accepted ongoing project. For example:
  - a. Step 10 of the Ten Steps to Successful Breastfeeding (foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic) in the maternity is designed to ensure continued support, whether the Ten Steps are introduced through the BFHI or through other efforts to support some or all of the practices.<sup>26,27,28</sup> However, as noted in reviews and case studies, this step is often poorly implemented. Redefinition and expansion of Step 10 to create greater community involvement and impact may include active outreach and engagement of the community, with good dialogue and flexibility or linkage with community-emergent activities.

- b. General breastfeeding promotion, as offered in many community efforts, includes only communication of best behaviors and encouragement to breastfeed based on health sequelae. Rather than initiating a new program, there could be active redefining of this aspect of the program; the ‘promotion’ of the breastfeeding package could be redefined and upgraded to include breastfeeding support skills and social marketing to protect breastfeeding against misleading commercial interests.
- c. ENC concentrates only on the immediate periparturient period in many programs. Where ENC is well established, this cadre could receive additional training not only on early initiation of breastfeeding and EBF, but also in the skills necessary to support mothers to continue EBF.

- 6. For community support for breastfeeding to succeed over time, there must be supportive action by the health system because the health system remains after program interventions are completed. If children who enter the health system for treatment of a disease return home on formula, this sends a very destructive message to the entire community: that formula makes a child healthy. Therefore, health system support of breastfeeding is an essential adjunct, even with the best community efforts.



Photo: PATH/Evelyn Hockstein

- 7. Once there is effective breastfeeding support within the health system, or other system, no single program approach (e.g., peer counseling, professional outreach from facilities, inclusion in C-IMCI, community health workers, traditional birth attendants) appears vastly superior to the others. Therefore, until more is known about cost-effectiveness, all approaches may be considered in program planning, if supported by the culture and social leadership of the community.
- 8. Ongoing supportive supervision, data collection, and monitoring that involves workers in interpretation and feedback is recommended; this emerged as a major component in several of the more successful interventions reviewed.

### **Recommendations concerning implementation**

- 9. Initial assessment is vital both to inform the intervention and to the success of the project. The initial assessment should include, at least, breastfeeding rates (early initiation, EBF, and ABF); supplemental food use; community structure and social systems; and ongoing health, nutrition, and breastfeeding programs.
- 10. Outreach programs, designed or implemented by those outside of the community, need to include activities to fully engage community leaders and change agents in the planning and selection of those workers who will carry out the activity in the community.
- 11. Logically, planning should be based on the selected desirable outcome. For example, the Lassi et al. meta-analysis underscored the importance of prenatal intervention for the outcome of increased early initiation.

12. Planning must include careful attention to the acceptability of the worker, whether an outreach worker from the health system or a community or peer worker.
13. Multifaceted program designs, including, for example, community- and home-based contacts; social marketing; referral to competent health facilities; and clear, well-taught, understandable messages appropriate to the cultural context should be considered. However, complex programs, such as those that include a variety of interventions, such as through the health system, political will, and inclusion of community change agents in the decision-making, probably benefit from being introduced in a phased manner. In the studies reviewed, phasing may have contributed to sustainability.
14. Where feasible:
  - a. Build upon existing successful programs in a phased manner.
  - b. Have a clear, small set of activities.
  - c. Develop culturally appropriate, easy-to-use job aids.
  - d. Support the intervention with social marketing.

### **Training-specific recommendations**

15. The quality and content of the training and supervision of health workers, no matter what their entry level, must include specifics not only on breastfeeding promotion, but also on protection and, perhaps most importantly, skilled support and counseling techniques. These merit considerable planning and sufficient allotment of time and resources. The content of the training must match the needs of the workers and the community; in many parts of the world, training in communication techniques can be equally as important as training in breastfeeding promotion and support.
16. Training must be adapted to the cadre of worker. For example, nutritionists and midwives may have pre-existing skills in communication and health message communication, while lay workers may not. Nonetheless, introduction of breastfeeding skills and support, which, perforce, must be introduced in a culturally appropriate and personal manner, merits special training in counseling for this purpose.
17. In training workers, no matter what their background:
  - a. Use adult education techniques.
  - b. Use job aids to ensure complete understanding, acceptance, and appreciation of how they can work in practice.
  - c. Train more workers than you immediately need, especially if they are volunteers.
  - d. Support your intervention with social marketing.
  - e. Celebrate achievements.
  - f. Reinforce education with follow-up training or supervisory trainings.
  - g. Celebrate progress.
18. The breastfeeding counseling courses developed by WHO/UNICEF were noted as useful by many of the projects studied. Most adapted them to their specific needs and cultural setting and many used related job aids, also adapted to fit local concerns.

## Areas for future research

---

The findings show us that in areas of high ambient breastfeeding levels, the major changes that might be achieved are increases in early initiation and EBF. Given the diversity of approaches that have been shown effective, and multiple countries and settings involved in these studies, and accepting that the most successful programs build upon either previous breastfeeding support or ongoing accepted nutrition or health interventions, little can be generalized concerning specifics of community-based programs. Therefore:

1. An important research need to inform future program planning would be a series of comparable studies that include attention to cost-effectiveness. Since apparently all of the approaches employed in the studies reported here have had a positive impact, it would be very helpful to have a better handle on costs in relation to level of impact and sustainability.
2. There is a need to reduce inconsistency in the definitions used in studies for terms such as EBF, timely initiation, community, and other measures, which makes comparisons more difficult. Therefore, an additional research need is to ensure the most accurate and useful definitions of these terms and that they be used consistently in studies planned for comparison purposes.
3. Conceptual models have been proposed to allow the teasing out of one component of an intervention from the others.<sup>29</sup> If we wish to understand the unique impact of a community intervention, research is needed on the application of such models to the question of community versus other programmatic support for breastfeeding.
4. Many of the reviews suggested the need to conduct research to compare which cadre of worker has the greatest impact. Given the many possible cadres, trainings, payment levels, supervision, and types of linkages to the health system, it seems that a better question might be asked, one that is site specific: Within the context of the other ongoing programs in health, nutrition, or breastfeeding, what cadre/additional cadre of health or lay worker is most likely to be additive, effective, and sustainable?



Photo: Arturo Sanabria, Courtesy of Photoshare

### Health impact questions

5. Another major question emerged from several of the studies that were designed to reduce mortality. In a few studies, where the breastfeeding component was successful, there remained no measurable impact on child health and survival parameters, despite the fact that there is much evidence to indicate that increased rates of early initiation and EBF result in decreased mortality. Therefore, it is recommended that large-scale studies be undertaken on the impact of improved breastfeeding on morbidity and mortality in less developed settings. The Promotion of Breastfeeding Intervention Trial<sup>30</sup> study in Belarus, a randomized cluster design with a health care system intervention to support maternity practices similar to the

Ten Steps to Successful Breastfeeding, was perhaps the only study of sufficient magnitude to allow the assessment of the impact of programmatic breastfeeding support on many morbidities. This series of studies, which followed the children for many years, found significant difference by intention to treat. In other words, although not everyone in the intervention group breastfed, there was a significant increase in breastfeeding, especially EBF at three months (43.3 percent versus 6.4 percent,  $p < 0.001$ ); this level of change impacted overall child health of the cohort. In these studies, the support for breastfeeding at the population level resulted in infants from the intervention sites significantly more likely than control-site infants to show a significant reduction in the risk of one or more gastrointestinal tract infections (9.1 percent versus 13.2 percent; adjusted OR, 0.60; 95 percent CI, 0.40-0.91) and of atopic eczema (3.3 percent versus 6.3 percent; adjusted OR, 0.54; 95 percent CI, 0.31-0.95). In later studies, the treatment arm children were found to be performing at a higher level in scholastic achievement. In contrast, most of the studies in this review included only one or two outcomes for breastfeeding, and, where included, for concomitant illnesses, such as diarrhea or respiratory disease, and the measures for these diseases may not have been optimal. Those that were of significant size, primarily reported in case studies, did not tend to study health outcomes per se. For example, the PROMISE studies examined only occurrence of diarrhea, not severity, which may have resulted in the lack of association seen in the cohort with higher breastfeeding rates. The verification of the link between the intervention for breastfeeding and the subsequent improvements in health remains a challenge to support for breastfeeding.

6. What is the measure of EBF, per se, that is most associated with survival? We often use a cross-sectional survey approach that records the percentage of all infants less than six months of age who were exclusively breastfed in the previous 24 hours. For research on survival, it may be more appropriate to measure duration of EBF in relation to later health issues, as this would better define the timing of cessation or diminution of EBF. The area charts used by UNICEF in child-info illustrate the differences that may be seen in EBF by age of the infant at the time of each survey. This allows cross-sectional data to be compared over time, and presents a more meaningful picture of where (i.e., at what ages) the increases or decreases in EBF have occurred. This age specificity may be important in assessing the impact on child survival. The measurement situation is further compounded by the definitions of partial, mixed, and predominant breastfeeding now in use. In some areas, partial breastfeeding may simply mean the addition of sips of water; while in others, this may mean significant amounts of various non-milk fluids. Few studies provide sufficient definitions of exclusivity or whether they include such predominant feeding within those definitions. Those that do offer such definitions vary in what is described. Finally, the definition of the illness under study may not be appropriate to reflect the impact of increases in EBF. For example, in the literature, breastfeeding often is seen to reduce severity of diarrhea more obviously than incidence, per se. Nonetheless, studies may report on incidence alone, with the misleading conclusion that breastfeeding did not have an impact on the illness. All in all, careful selection of measures, with full definitions and rationale for the definitions provided, would aid in the understanding of the findings. All of these issues might contribute to differences in findings and the limited reported impact on morbidity and mortality measures. Future research would benefit from careful consideration of all of the above.



## **Program introduction and planning questions**

7. At what stage of program phase-in is community breastfeeding support most effective in changing early initiation? EBF? ABF duration? Which measure is most impacted if the community component comes first or later in the phase-in of a comprehensive program? This becomes important if there is a specific country goal for one or another of the breastfeeding variables. It would appear that most programs have started with the BFHI or ENA or a primary health intervention, then ventured into the community. The question remains: If the community were the source of the change, would there be more rapid demand for change in the larger systems? Would it be more sustainable if the demand were already in place?
8. Which of the breastfeeding variables is most impacted by community intervention? From the studies presented, it would appear that the greatest impact is on early initiation and EBF, rather than duration of ABF. However, in fact, the majority of the studies were looking at early initiation or EBF, so this finding might be influenced by availability of a sufficient number of studies.

## **Program component selection questions**

There are many additional questions that could be addressed to choose among approaches within any single identified setting:

9. Which of two directional approaches has the greater impact in this setting: outreach from health facilities or community-emergent programs?
10. What are the essential components of training needed for each level of worker in order to achieve impact on early initiation and EBF?
11. Where approaches have similar outcomes, which are most cost-effective?
12. Where approaches have similar outcomes, which has the most sustainable impact?

## **Program scale-up questions**

13. Assuming comparable cost-effectiveness, which approaches are more amenable to scale-up? Scaling up to sustainable national action is the ultimate goal. Where several case studies illustrate the feasibility of large-scale program implementation, increased understanding of what is needed to ensure sustainable support at scale could be helpful in considering population coverage and scale of investment needed to achieve this goal.
14. What set of actions is necessary to ensure that the 'community' experiences the program as its own or as a true partnership, since virtually all projects studied were supported by outside funding and received external technical support? Would these change beyond a specific setting?
15. In terms of building upon successes in specific settings, could research be carried out to assess the three specific program recommendations in item 5 above under "General recommendations"? These include changes in the BFHI, in breastfeeding promotion, and in nutrition programs that inform or promote breastfeeding in the community but do not currently provide skilled support.

## Conclusions

---

### What does this review tell us about planning a successful community intervention?

In this review, we consider community interventions to promote optimal breastfeeding, with attention to early initiation, ABF, EBF, and continued breastfeeding. Nearly all reported interventions show some level of positive impact. But, just as with approaching an individual, this review underscores the need to fully understand context and to build upon existing strengths, whether in the health system, the community, or women's groups. There are no two identical individuals. Each person involved in a contact to protect, support, and promote breastfeeding comes to that encounter with different experiences, different normative thinking, different social and societal influences, and differing levels of education and training. Nonetheless, we provide protection, promotion, and support for many individuals using the same training information and the same counseling techniques. Similarly, no two communities (whether a community or a large target population) are identical; we must consider each community's experiences, normative thinking and social influences, ambient norms in terms of breastfeeding behaviors, and the factors that can influence women's mothering behaviors. Is there trust in the health system? in the community leaders? Where do families generally get their trusted information on normative behaviors? What other behaviors have changed recently and what can be learned from that change?

In sum, understanding the individuality of each setting is essential; however, this review also reveals many commonalities in successful community breastfeeding support. There is a clear and significant impact of

community programs on early initiation and EBF when certain steps are taken in the planning and implementation of a community breastfeeding support program. First, a thorough review of ongoing programs and policies as well as cultural/traditional issues related to breastfeeding can inform the approach and the materials to be used. Next, build a set of possible interventions that will capitalize on and build upon the shoulders of ongoing successful work. This is seen in the fact that the most successful projects either built upon significant existing work on breastfeeding, or add breastfeeding to significant existing health or nutrition programs. Concurrent with this step, involvement of community leadership and women's groups in the development of a project would appear to increase the impact of any intervention.

As discussed in the recommendations, it is clear that the studies that achieved the greater impact had paid a great deal of attention during design and planning to the selection and acceptability of the worker, whether an outreach worker from the health system or a community or peer worker.



Photo: PATH/Evelyn Hockstein

Next, the content of the training must match the needs of the workers and the community; in many parts of the world, training in communication techniques can be equally as important as training in breastfeeding promotion and support. Finally, ongoing supportive supervision, data collection, and monitoring that involves workers in the interpretation and feedback emerges as a major component in several of the more successful interventions reviewed.

### **What does this review tell us about which type of community intervention is most ‘successful’?**

The term “community-based” encompasses a wide variety of program approaches. In fact, the studies reviewed vary so widely, that little can be generalized concerning which type of program, whether outreach or community emergent, paid or volunteer, involving high-level or low-level work, would be best in any other setting. However, it is clear from these studies that (1) increasing support to the population at large, (2) including communities in decisions and actions to improve their well-being, and (3) providing comprehensive support for breastfeeding-encompassing policy, the health system, and community protection, promotion, and support for breastfeeding, and for breastfeeding mothers can result in significant synergy and, on occasion, highly significant increases in early initiation, EBF, and EBF duration. Increasing ABF duration in areas where sustained breastfeeding is common practice may be more difficult to measure due to high ambient levels. While issues of sustainability of the impact and affordability of certain approaches merit additional study, it is clear that a complex behavior such as breastfeeding is best addressed when there is a multilevel and multisectoral approach that includes attention to the community and its social/cultural and population coverage needs.

### **Next steps**

Future program planning can be informed by these lessons, and future research should be implemented, especially to better understand the costs and effectiveness of the various approaches presented in different settings. In sum, community interventions to support breastfeeding work, work best when building upon existing successful breastfeeding, health, or nutrition activities in the greater community, across the socio-ecological framework, including at least health and related systems and political will. Carefully planned community intervention should be considered a vital component in national, regional, and local efforts to improve breastfeeding rates for health, survival, nutrition, and child development.

## References

---

Full citations for the meta-analyses can be found in Appendix 1, for case studies in Appendix 2, and for published research in Appendix 3.

1. Declaration of Alma-Ata: International Conference on Primary Health Care, Alma-Ata, USSR, 6-12 September 1978. Available at: [http://www.who.int/hpr/NPH/docs/declaration\\_almaata.pdf](http://www.who.int/hpr/NPH/docs/declaration_almaata.pdf).
2. Reidpath D, Allotey P. Infant mortality rate as an indicator of population health. *Journal of Epidemiology and Community Health*. 2003;57:344–346.
3. Child and adolescent health and development page. World Health Organization website. Integrated Management of Childhood Illness (IMCI). Available at: [http://www.who.int/child\\_adolescent\\_health/topics/prevention\\_care/child/imci/en/index.html](http://www.who.int/child_adolescent_health/topics/prevention_care/child/imci/en/index.html).
4. World Health Organization (WHO), United Nations Children’s Fund (UNICEF), United Nations Population Fund (UNFPA). *Traditional Birth Attendants: A Joint WHO/UNFPA/UNICEF Statement*. Geneva, Switzerland: WHO; 1992.
5. World Health Organization, United Nations Children’s Fund, United States Agency for International Development, Swedish International Development Cooperation Agency. *Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding*. 1990. Available at: <http://www.unicef.org/programme/breastfeeding/innocenti.htm>.
6. World Health Organization (WHO), United Nations Children’s Fund. *Global Strategy for Infant and Young Child Feeding*. Geneva, Switzerland: WHO; 2002.
7. United Nations Children’s Fund (UNICEF) Innocenti Research Centre. *1990-2005 Celebrating the Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding: Past Achievements, Present Challenges and Priority Actions for Infant and Young Child Feeding, Second Edition*. Florence, Italy: UNICEF Innocenti Research Centre; 2006.
8. Nutrition page. United States Agency for International Development website. Available at: [http://www.usaid.gov/our\\_work/global\\_health/nut/techareas/breastfeeding.html](http://www.usaid.gov/our_work/global_health/nut/techareas/breastfeeding.html).
9. Maternal and child health page. United States Agency for International Development website. Available at: [http://www.usaid.gov/our\\_work/global\\_health/mch/ch/techareas/breastfeed\\_brief.html](http://www.usaid.gov/our_work/global_health/mch/ch/techareas/breastfeed_brief.html).
10. World Health Organization (WHO), Joint United Nations Programme on HIV/AIDS, United Nations Population Fund, United Nations Children’s Fund. *Guidelines on HIV and Infant Feeding 2010: Principles and Recommendations for Infant Feeding in the Context of HIV and a Summary of Evidence*. Geneva, Switzerland: WHO; 2010.
11. HIV/AIDS page. United States Agency for International Development website. Available at: [http://www.usaid.gov/our\\_work/global\\_health/aids/TechAreas/prevention/pmtctfactsheet.html#support](http://www.usaid.gov/our_work/global_health/aids/TechAreas/prevention/pmtctfactsheet.html#support).
12. Accelerated child survival page. United Nations Children’s Fund website. Available at: [http://www.unicef.org/health/index\\_childsurvival.html](http://www.unicef.org/health/index_childsurvival.html).

13. Infant and Young Child Feeding – UNICEF response page. United Nations Children’s Fund website. Available at: [http://www.unicef.org/nutrition/index\\_24819.html](http://www.unicef.org/nutrition/index_24819.html).
14. United Nations Children’s Fund (UNICEF), World Health Organization, World Bank, United Nations Department of Economic and Social Affairs/Population Division. *Levels and Trends in Child Mortality: Report 2010*. New York, NY: UNICEF; 2010.
15. Leon-Carva N, Lutter C, Ross J, Martin L. *Quantifying the Benefits of Breastfeeding: A Summary of the Evidence*. Washington, DC: Pan American Health Organization; 2002.
16. Britton C, McCormick F, Renfrew M, Wade A, King S. *Support for Breastfeeding Mothers*. Cochrane Database of Systematic Reviews. 2007;1:CD001141.
17. Lewin S, Munabi-Babigumira S, Glenton C, Daniels K, Bosch-Capblanch X, van Wyk BE, Odgaard-Jensen J, Johansen M, Aja GN, Zwarenstein M, Scheel IB. *Lay Health Workers in Primary and Community Health Care for Maternal and Child Health and the Management of Infectious Diseases*. Cochrane Database of Systematic Reviews. 2010;3:CD004015.
18. Hall J. Effective community-based interventions to improve exclusive breast feeding at four to six months in low- and low-middle-income countries: a systematic review of randomized controlled trials. *Midwifery*. 2011;27(4):497–502.
19. Gogia S, Sachdev H. Home visits of community health workers to prevent neonatal deaths in developing countries: a systematic review. *Bulletin of the World Health Organization*. 2010;88(9):658–666.
20. Lassi ZS, Haider B, Bhutta Z. *Community-Based Intervention Packages for Reducing Maternal and Neonatal Morbidity and Mortality and Improving Neonatal Outcomes*. Cochrane Database of Systematic Reviews. 2010;10(11):CD007754.
21. World Health Organization (WHO), United Nations Children’s Fund, Academy for Educational Development, United States Agency for International Development. *Learning from Large-Scale Community-Based Programmes to Improve Breastfeeding Practices*. Geneva, Switzerland: WHO; 2008.
22. Nankunda J, Tylleskär T, Ndeezi G, Semiyaga N, Tumwine JK; PROMISE-EBF Study Group. Establishing individual peer counselling for exclusive breastfeeding in Uganda: implications for scaling-up. *Maternal and Child Nutrition*. 2010;6(1):53–66.
23. Tylleskär T, Jackson D, Meda N, Engebretsen IM, Chopra M, Diallo AH, Doherty T, Ekström EC, Fadnes LT, Goga A, Kankasa C, Klungøy JI, Lombard C, Nankabirwa V, Nankunda JK, Van de Perre P, Sanders D, Shanmugam R, Sommerfelt H, Wamani H, Tumwine JK; PROMISE-EBF Study Group. Exclusive breastfeeding promotion by peer counsellors in sub-Saharan Africa (PROMISE-EBF): a cluster-randomised trial. *The Lancet*. 2011;378(9789):420–427.
24. Dearden K, Altaye M, De Maza I, De Oliva M, Stone-Jimenez M, Burkhalter BR, Morrow AL. The impact of mother-to-mother support on optimal breast-feeding: a controlled community intervention trial in peri-urban Guatemala City, Guatemala. *Revista Panamericana Salud Pública*. 2002;12:193–201.

25. Aubel J. *The Roles and Influence of Grandmothers and Men: Evidence Supporting a Family-Focused Approach to Optimal Infant and Young Child Nutrition*. Washington, DC: PATH; 2011.
26. Kramer MS, Chalmers B, Hodnett ED, Sevkovskaya Z, Dzikovich I, Shapiro S, Collet J-P, Vanilovich I, Mezen I, Ducruet T, Shishko G, Zubovich V, Mknuk D, Gluchanina E, Dombrovskiy V, Ustinovitch A, Kot T, Bogdanovich N, Ovchinikova L, Helsing E; for the Promotion of Breastfeeding Intervention Trial Study Group. Promotion of Breastfeeding Intervention Trial (PROBIT): a randomized trial in the republic of Belarus. *Journal of the American Medical Association*. 2001;285(4):413–420.
27. Hannula L, Kaunonen M, Tarkka M-T. A systematic review of professional support interventions for breastfeeding. *Journal of Clinical Nursing*. 2008;17(9):1132–1143.
28. Spiby H, McCormick F, Wallace L, Renfrew M, D’Souza L, Dyson L. A systematic review of education and evidence-based practice interventions with health professionals and breast feeding counsellors on duration of breast feeding. *Midwifery*. 2009;25(1):50–61.
29. Hawes P, Shiell A, Riley T. Complex interventions: how out of control can a randomized trial be? *BMJ*. 1004;328:1561–1563.
30. Kramer MS, Aboud F, Mironova E, Vanilovich I, Platt RW, Matush L, Igumnov S, Fombonne E, Bogdanovich N, Ducruet T, Collet J-P, Chalmers B, Hodnett E, Davidovsky S, Skugarevsky O, Trofimovich O, Kozlova L, Shapiro S; for the Promotion of Breastfeeding Intervention Trial Study Group. Breastfeeding and child cognitive development: new evidence from a large randomized trial. *Archives of General Psychiatry*. 2008;65(5):578–584.

## Appendix 1. Findings from meta-analyses

Citation	Purpose of study	Type of worker	Early initiation	ABF	EBF	Duration	Findings/Comments
Ahmed A, Sands L. Effect of pre- and postdischarge interventions on breastfeeding outcomes and weight gain among premature infants. <i>J Obstet Gynecol Neonatal Nurs.</i> 2010;39(1): 53–63.	To investigate the effect of pre- and post-discharge interventions on breastfeeding outcomes and weight gain among <38-week preterm infants.						Does not include less developed countries.
Albernaz E, Victora CG. Impact of face-to-face counseling on duration of exclusive breast-feeding: a review. <i>Rev Panam Salud Pública.</i> 2003;14(1):17–24. (Available in Portuguese. The only English-language information in this review comes from the abstract; therefore, may include studies from both developed and developing countries.)	To review the scientific literature on and evaluate studies of face-to-face counseling for the promotion of EBF for 1990-2001.	Face-to-face counseling			1		17/19 studies reported beneficial effect; magnitude differed widely. 2 reported dose-response effect regarding number of contacts, and the studies with no sig. impact had only 1-2 visits. The duration of follow-up, type of intervention performed, and ethnic, socioeconomic, and reproductive characteristics of the groups studied varied widely. Face-to-face counseling, given during different time periods, led to sig. changes in the rate of EBF. Suggests that support to mothers must continue after hospital discharge and must include guidance on breastfeeding techniques and ways to resolve problems that occur.
Britton C, McCormick F, Renfrew M, Wade A, King S. <i>Support for Breastfeeding Mothers.</i> Cochrane Database Syst Rev. 2007;1:CD001141.	To assess whether support provided to mothers, either by professionals or trained lay persons or both, helps mothers to continue to breastfeed. 14 countries including developed settings and others.	All		1	1	1	More breastfeeding support is needed in all routine health service provision; additional professional support can increase EBF duration. Recommend support offered by professionals and lay workers together for ABF.

Citation	Purpose of study	Type of worker	Early initiation	ABF	EBF	Duration	Findings/Comments
Chung M, Raman G, Trikalinos T, Lau J, Ip S. Interventions in primary care to promote breastfeeding: an evidence review for the US Preventive Services Task Force. <i>Annals of Internal Medicine</i> . 2008;149(8):565–582.	To systematically review evidence for the effectiveness of primary care-initiated interventions to promote breastfeeding.	All	1	1	1	1	Does not include less developed countries.
Gogia S, Sachdev H. Home visits of community health workers to prevent neonatal deaths in developing countries: a systematic review. <i>Bull World Health Org</i> . 2010;88(9):658–666.	To compare various intervention packages, one being home visits for neonatal care by community health workers.	CHW	1				High-coverage home visits work—if combined with community and other health efforts—to reduce neonatal mortality in India, Pakistan, Bangladesh. Pooled RR for EI 3.35 (95% CI 1.31, 8.59).
Hall J. Effective community-based interventions to improve exclusive breast feeding at four to six months in low- and low-middle-income countries: a systematic review of randomized controlled trials. <i>Midwifery</i> . 2011;27(4):497–502.	To assess the effectiveness of community-based interventions to improve the rates of EBF at 4-6 months in infants in low- and middle-income countries.	All			1	1	Includes 4 studies in less developed settings. After controlling for all factors, including lack of presentation by intention to treat using random effects, finds pooled OR of 5.80 (95% CI 1.81-18.6) for interventions that included outreach and community-based studies in areas with high ambient breastfeeding levels.
Lassi ZS, Haider B, Bhutta Z. <i>Community-Based Intervention Packages for Reducing Maternal and Neonatal Morbidity and Mortality and Improving Neonatal Outcomes</i> . Cochrane Database Syst Rev. 2010;10(11):CD007754.	To assess the effectiveness of community-based intervention packages in reducing maternal and neonatal morbidity and mortality and improving neonatal outcomes.	All	1				Packaged interventional care improved breastfeeding; a meta-analysis of studies reporting initiation of breastfeeding within an hour of birth (early breastfeeding) showed that interventions consisting of antepartum newborn care and breastfeeding education to mothers doubled rates of initiation of breastfeeding. EI: RR 1.94 (95% CI 1.56, 2.42).



Citation	Purpose of study	Type of worker	Early initiation	ABF	EBF	Duration	Findings/Comments
Lewin S, Munabi-Babigumira S, Glenton C, Daniels K, Bosch-Capblanch X, van Wyk BE, Odgaard-Jensen J, Johansen M, Aja GN, Zwarenstein M, Scheel IB. <i>Lay Health Workers in Primary and Community Health Care for Maternal and Child Health and the Management of Infectious Diseases</i> . Cochrane Database Syst Rev. 2010;3:CD004015.	To assess the effects of LHW interventions in primary and community health care on MCH and the management of infectious diseases.	LHW		1	1		Overall, this study, which included predominantly high-income country studies, found LHWs effective in promoting initiation (RR=1.36, 95% CI 1.14, 1.61), ABF (RR=1.24, 95% CI 1.10, 1.39), and EBF (RR=2.78, 95% CI 1.74, 4.44).
Renfrew MJ, Spiby H, D'Souza L, Wallace LM, Dyson L, McCormick F. Rethinking research in breast-feeding: a critique of the evidence base identified in a systematic review of interventions to promote and support breast-feeding. <i>Public Health Nutr.</i> 2007; 10(7):726–732.	To appraise critically the relevance and value of the evidence base to promote and support the duration of breastfeeding with a specific focus on disadvantaged groups.	All				1	No study of community-based intervention met the criteria for inclusion.
Spiby H, McCormick F, Wallace L, Renfrew M, D'Souza L, Dyson L. A systematic review of education and evidence-based practice interventions with health professionals and breast feeding counsellors on duration of breast feeding. <i>Midwifery.</i> 2009;25(1):50–61.	To examine the effects of training, education, and practice change interventions with health professionals and lay breastfeeding educators/counselors on duration of breastfeeding.	LHW				1	Does not include less developed countries.
		<b>Totals</b>	<b>3</b>	<b>3</b>	<b>5</b>	<b>5</b>	

## Appendix 2. Overview of case studies

\* Not regularly reported. Data incomplete. Small x indicates that there is some activity but not well clarified.

Country and year of large-scale community intervention	Latest EBF rate for 2000-2006	Active BFHI 1995-2005	The Code	National breastfeeding committee*	Community approach	Training	Impact	Comments
Bangladesh: early 2000s. From: UNICEF. <i>Infant and Young Child Feeding Programme Review: Case Study—Bangladesh</i> . New York, NY: UNICEF; 2009.	43	X	X	X	Comprehensive four-platform program: mother support groups, CHWs, community nutrition officers, promoters.	2.5 hours	EBF6 remained static; EI increased from 13% to 43%; ABF increased between 1999 and 2006.	Community work not evaluated separately from comprehensive program.
The 10 case studies that follow are from: WHO, UNICEF, Academy for Educational Development, USAID. <i>Learning from Large-Scale Community-Based Programmes to Improve Breastfeeding Practices</i> . Geneva, Switzerland: WHO; 2008.					Multiple: See below.		Offered experiences and lessons from community-based approaches and explored various models and their impact on EI, ABF, EBF, and duration.	Allows consideration of strengths/weaknesses of various approaches in multiple settings. All had significant ongoing complementary breastfeeding support and/or primary health care activities.
Benin: pilot in 1998; 1999-2000.	43	X	X	x	Volunteers; ENA with 6 interventions.	ENA: 3-5 days	EBF6 increased from 17% in 1996 (DHS) to 40% in 1999 (CRS) to 38% in 2001 (DHS).	Major increase occurred prior to project completion.
Bolivia: LAM in 1998; 2000-2003.	54	X	X	?	Home visits; community talks. BCC approach.	3-5 days	EBF6 1998 50%, 54% at baseline, 65% in the program area in 2003.	Decline in some parameters at follow-on.

Country and year of large-scale community intervention	Latest EBF rate for 2000-2006	Active BFHI 1995-2005	The Code	National breastfeeding committee*	Community approach	Training	Impact	Comments
Cambodia: 2002-2006.	60	X	X	X	Comprehensive linked facility and community team approach: village chief, model mothers, TBAs, volunteers. Monthly group education and individual counseling.	IMCI and C-IMCI training of facility workers and CHWs	EBF6 11% in 2000, 60% in 2006 (water use reduced from 64% to 22%). Timely initiation 11% in 2000, 35% in 2006.	Comprehensive health facility, policy, and community intervention. Much of increase associated with decreased use of water. Plan to continue BFCI and strengthen BFHI.
Ethiopia: ~2004 on.	49	0	X	X	MOH: 1,000 health facility workers, 30,000 health extension workers, starting in 2005.	10 months: covered 16 health topics and ENA	EBF6 2003/04–2006: Amhara 74-81%; Oromia 39-62%; SNNPR 58-64%. EI: Amhara 23-60%; Oromia 43-77%; SNNPR 45-50%.	2/3 regions achieved significant change in response to a combined health systems/paid community worker approach, with volunteer community workers.
					Volunteer CHWs: 50 households each (mostly 2005).	Half-day		
Ghana: 2000-2004.	54	X	X	X	Multiple: MOH, NGO, community volunteers. Mother support: clubs, child survival, income generation, etc.	Variable	Program area 1: EI increased 32-40%, EBF6 68-79%. Program area 2: 47-61% and 55-78%, respectively.	National EBF6 increased from 1993 (6%) to 1998 (31%) to 2003 (54%). BFHI/Code in place in late 1990s/early 2000s. Diversified community members and approaches.

Country and year of large-scale community intervention	Latest EBF rate for 2000-2006	Active BFHI 1995-2005	The Code	National breastfeeding committee*	Community approach	Training	Impact	Comments
Honduras: ongoing; expansion 2000-2003.	30	X	X	X	Women volunteers. Weighing, home visits, referral, data collection; integrated community child health with nutrition emphasis, by <i>monitoras</i> .	5-8 days	EBF: 1998 21%, 2000 39%; 2002 participants 56%, non-participants 40%; DHS 2005/06 30%.	AIN-C through 2004, possibly beyond. Understanding extant feeding practices coupled with individualized weighing and counseling was effective.
India: (also see Bhandari study, Appendix 3) 2001-2006.	46	X	X	X	Home visits with BCC. Volunteer change agents with stipend. ENA, antenatal, neonatal, nutrition, immunization, family planning.	5 hours	EI baseline range 7-44%, endline 52-74%; 10% change in EBF.	Anganwadi workers distributed rations during home visits. Built upon existing national program, with simple tools to help focus.
Madagascar: 1997-2004.	67	X	X	X	Volunteer nutrition promoters.	2 days	During intense community campaigns, EI from 34-69%; EBF6 from 46-83%.	Importance of shared vision among intersectoral nutrition action groups, mix of interventions, message saturation, and breastfeeding as common ground in all programs.
Mali: 2003-2007.	38	X	x	x	Health center staff, CHWs; 35 households per CHW for primary health interventions.	3-5 days	Early improvements continued. EI: 1995/96 10%; 2001 32%; 2006 46%. EBF: 8%, 25%, 38%, respectively.	Continued momentum.

Country and year of large-scale community intervention	Latest EBF rate for 2000-2006	Active BFHI 1995-2005	The Code	National breastfeeding committee*	Community approach	Training	Impact	Comments
Nepal.	53	X	X		Decentralized Action for Children and Women: community mobilizers; growth monitoring.	Primary health care	No comparable baseline data; 2006 DHS reported EBF6 of 53%.	Report emphasized that knowledge without an enabling environment may not lead to behavior change.

## Appendix 3. Bibliography of intervention studies

\* Indicates that this study (and/or data derived from this study) is included in at least one of the meta-analyses.

Country/Citation	Purpose of study	Study design	Data collection	Intervention	Type of worker	Paid=1 unpaid=0	Early initiation	ABF	EBF	Duration
<b>Bangladesh:</b> Ahmed S, Mitra SN, Chowdhury AM, et al. Community Kangaroo Mother Care: implementation and potential for neonatal survival and health in very low-income settings. <i>J Perinatol.</i> 2011;31(5):361–367. (Also see Sloan, below.)	To review existing data on community-based immediate KMC and its impact on health and survival.	Analyses of cluster RCT of continued KMC (also see Sloan, below) and others' experiences with immediate KMC.	n=1,875 control, n=1,931 intervention; 541 no KMC, 153 KMC 0<1 hour, 662 KMC 1<7 hours, 576 KMC >7 hours in first 2 days.	See Sloan, below.	See Sloan, below.	1			1	
<b>Findings:</b> 3.2% of control EBF; 3.1% of intervention non-KMC EBF. Dose response with KMC: >0<1h: 4.6% EBF; >1<7h: 7.1% EBF; >7h: 17.6% EBF.										
<b>Comments:</b> The dose response with EBF in the first month of life is sig. and striking. The similarity of control and non-KMC in intervention argues against self-selection bias. However, in this study, most women who were taught continued KMC did so in a token manner unlikely to improve health or survival. Serious challenges exist to providing effective training and postpartum support to achieve adequate skin-to-skin practices.										
<b>Philippines:</b> Agrasanda G, Gustafsson J, Kylberg E, Ewald U. Postnatal peer counseling on exclusive breastfeeding of low-birthweight infants: a randomized controlled trial. <i>Acta Ped.</i> 2005;94(0803-5253);1109–1115.	To provide home-based postnatal peer counseling.	Cluster RCT, 3 cells: breastfeeding counseling, childcare counseling, control.	n=204.	8 visits: days 3-5, 7-10, 21, 42; then monthly to 5.5 months.	LHWs: village volunteers who had breastfed; 40-hour interactive training.	0		1	1	1
<b>Findings:</b> ABF overall: RR 2.18 (1.45, 3.29); EBF6: 44% breastfeeding-counseled, 7% childcare-counseled, 0% control. RR 44.65 (2.82, 737.82). Remained sig. after adjusted for clustering.										
<b>Comments:</b> This study provided fundamental evidence of a successful intervention to achieve EBF6 among term LBW infants. By improving health outcomes, enhanced breastfeeding offers a distinct possibility of disrupting the intergenerational cycle of undernourished women giving birth to LBW infants.										
* <b>Brazil:</b> Albernaz E, Victora CG, Haisma H, et al. Lactation counseling increases breastfeeding duration but not breast milk intake as measured by isotopic methods. <i>J Nutr.</i> 2003;133(1):205–210.	To evaluate the effect of lactation counseling on breastmilk intake as assessed by deuterium dilution method.	Blind, randomized intervention trial of lactation counseling.	n=188 intervention; also, breastmilk intake on 68 infants at the age of 4 months.					1		1
<b>Findings:</b> Control group almost twice as likely to stop breastfeeding by 4 months (prevalence ratio 1.85; p=0.04). Velocity of decline confirmed in Cox regression.										
<b>Comments:</b> Breastmilk and total water intakes did not differ between the groups. The deuterium dilution technique proved to be a practical means of assessing breastmilk intake. Lactation counseling reduced early weaning, but breastmilk intake at 4 months was not affected.										

Country/Citation	Purpose of study	Study design	Data collection	Intervention	Type of worker	Paid=1 unpaid=0	Early initiation	ABF	EBF	Duration
<b>Bolivia (B), Madagascar (M):</b> Baker EJ, Sanei L, Franklin N. Early initiation of and exclusive breastfeeding: large-scale community-based programmes in Bolivia and Madagascar. <i>J Health Pop Nut.</i> 2006;24(4): 530–539.	To assess programs that supported breastfeeding in the community at scale.	Time series during intervention in both; control area in M.	Stratified cluster sampling for surveys at baseline and repeated follow-ups.	B: 17 NGOs trained 1,700+ CHWs, 200 doctors, 350 aux. nurses. M: comprehensive, multiple channels, pre-service health workers, MOH CHW training.	Multiple, including CHWs.	1	1		1	1
<b>Findings:</b> B: EI increased from 22-61%, early EBF from 81-88%. M: EI from 6%-60s/70s, early EBF from 86-91%.										
<b>Comments:</b> Both were comprehensive approaches, including national health worker training and support, media, and community outreach. B: BCC workshops regionally informed development of cloth flipchart, cards and manual, and media and materials, introduced in phases.										
* <b>Bangladesh:</b> Baqui A, el-Arifeen S, Darmstadt G, et al. Effect of community-based newborn-care package implemented through two service-delivery strategies in Sylhet district Bangladesh: a cluster-randomised controlled trial. <i>Lancet.</i> 2008;371(9628): 1936–1944. (Two intervention arms: home visits versus community versus control.)		Cluster RCT.	Baseline enumeration; interim sample surveys.	n=1,689 control. n=1,760 home visits. CHWs trained in BCC/ENC visited pregnant/postpartum women. n=1,661 community. Community meetings with pregnant women and family members; advocacy meetings with local leaders.	CHWs.	1	1			
<b>Findings:</b> Home care increased EI from 45-81%, p<0.0001; community care increased from 47-71%, p<0.0158; control: 49-57%. Remained sig. after adjustment for clustering.										
<b>Comments:</b> Both arms had TBA training in maternal/newborn care. Specific recruitment of volunteer community resource people to improve attendance at community meetings, and care-seeking for maternal/neonatal complications. The home care strategy reduced neonatal mortality and improved key maternal and newborn care practices. Improvements in care practices, but no mortality reduction, were noted in the community care arm.										

Country/Citation	Purpose of study	Study design	Data collection	Intervention	Type of worker	Paid=1 unpaid=0	Early initiation	ABF	EBF	Duration
<b>*India:</b> Baqui A, Williams E, Rosecrans A, et al. Impact of an integrated nutrition and health programme on neonatal mortality in rural northern India. <i>Bull World Health Org.</i> 2008;86(1):796–804.	To assess the impact of newborn health and NMR following a large-scale, community-based, integrated nutrition and health program.	Quasi-experimental design, 2 rural districts of Uttar Pradesh, mothers who had given birth in the 2 years preceding the surveys.	Baseline (n=14,952) and endline (n=13,826) surveys.	NGO (CARE)/Indian government program to increase training, monitoring, and supervision to increase antenatal and postpartum visits by CHWs providing integrated nutrition/health messaging.	Anganwadi workers/ CHWs with increased monitoring and improved supervision.	1	1			
<b>Findings:</b> EI: RR 6.54 (5.88, 7.27).										
<b>Comments:</b> Intervention led to increased visits by CHWs, antenatal (from 16-56%) and postnatal (from 3-39%). No improvement in control. NMR changed only with postpartum visits. 3/4 of the mortality reduction associated with visit in the first 3 days after birth. Limited program coverage did not enable an effect on neonatal mortality to be observed at the population level. A reduction in NMR in those receiving postnatal home visits shows potential for the program to have an effect on neonatal deaths.										
<b>*Damascus, Syria:</b> Bashour H, Kharouf M, Abdulslan A, et al. Effect of postnatal home visits on maternal/infant outcomes in Syria: a randomized controlled trial. <i>Public Health Nurs.</i> 2008; 25(2):115–125.	To assess whether a community-based intervention of postnatal home visits impacted morbidities.	Cluster RCT.	n=876; pre- and post-intervention.	0, 1, and 4 home visits.	Trained registered midwives.	1		1	1	
<b>Findings:</b> Sig. impact on EBF: 30% versus control 20%. ABF and planned outcomes showed no sig. impact.										
<b>Comments:</b> Outreach from health system. Intervention was information, education, and communication only.										
<b>*India:</b> Bhandari N, Rahl R, Mazumbar S, et al.; Infant Feeding Study Group. Effect of community-based promotion of exclusive breastfeeding on diarrhoeal illness and growth: a cluster randomised controlled trial. <i>Lancet.</i> 2003;361(9367): 1418–1423.	To assess the feasibility, effectiveness, and safety of an educational intervention to promote EBF6.	Cluster RCT.	n=1,115 in 8 pair-matched communities; feeding at 3 months; anthropometry, diarrhea assessed at 3 and 6 months.	Messages were developed for EI, EBF6, and frequency for all workers. Three-day course based on C-IMCI materials.	Anganwadi workers, ANMs in the community.		1		1	
<b>Findings:</b> EBF 79% in intervention, 48% in control at 3 months. 7-day diarrhea prevalence was lower in the intervention at 3 and 6 months.										
<b>Comments:</b> Intervention developed through formative research. Primary health care services, including health workers, ANMs, and CHWs, were involved so that impact of LHW alone on outcomes could not be assessed. Major finding was that in this setting, EBF reduced diarrhea morbidity.										



Country/Citation	Purpose of study	Study design	Data collection	Intervention	Type of worker	Paid=1 unpaid=0	Early initiation	ABF	EBF	Duration
* <b>Pakistan:</b> Bhutta ZA, Memon ZA, Soofi S, et al. Implementing community-based perinatal care: results from a pilot study in rural Pakistan. <i>Bull World Health Org.</i> 2008;86(6):452–459.	To assess the feasibility of delivering a package of community-based interventions for improving perinatal care with LHWs and TBAs.	Cluster RCT.	8 village clusters, total pop=138,600; intervention LHWs trained on essential maternal and newborn care; conducted group sessions; encouraged to link up with local <i>Dais</i> .	Added integrated MCH to standard care to intervention arm. Both arms already included promotion of antenatal care, iron/folate, EBF.	LHWs supported by community committee and TBAs.		1		1	
<b>Findings:</b> Control: EI 21.1%, EBF4 31.2%. Intervention: EI 66.1%, EBF4 48.1%.										
<b>Comments:</b> Strong implication that combined support has greater impact on breastfeeding than smaller package of interventions. Sig. reductions in stillbirth (65.9 to 43.1 per 1,000 births, p<0.001) and neonatal mortality (from 57.3-41.3 per 1,000 live births, p<0.001). The proportion of deliveries conducted by skilled attendants at public-sector facilities increased from 18-30%, home births decreased from 79-65%. These findings support previous studies, which found that community support strategies and the creation of demand in the community affect care-seeking behavior.										
* <b>Brazil:</b> Coutinho S, de Lira P, de Carvalho L, Ashworth A. Comparison of the effect of two systems for the promotion of exclusive breastfeeding. <i>Lancet.</i> 2005;366(9491):1094–1100.	To compare hospital intervention versus hospital with LHW to increase EBF.	Cluster RCT.	n=350; external researchers not aware of group allocation. Breastfeeding data collected days 1, 10, 30, 60, 90, 120, 150, 180.	Ten Steps training in hospitals, and counseling: 20 hours. 10 home visits by LHWs. 20-hour training and illustrated booklet.	Hospital and LHW community outreach.			1	1	
<b>Findings:</b> Home visits significantly increase EBF from day 10 onward, RR 8.00 (3.23, 19.79); ABF RR 1.53 (1.20, 1.95); remained sig after adjustment for clustering.										
<b>Comments:</b> Home visits benefited all SES groups, with huge impact on EBF.										
<b>Guatemala:</b> Dearden K, Altaye M, de Maza I, et al. The impact of mother-to-mother support on optimal breast-feeding: a controlled community intervention trial in peri-urban Guatemala City, Guatemala. <i>Rev Panam Salud Pública.</i> 2002;12(3):193–201.	To assess the impact of La Leche League mother-to-mother support on early initiation of breastfeeding and EBF.	Intervention/Control communities.	Baseline census and follow-up survey.	La Leche training was carried out and groups established. Home visits and La Leche meetings initiated in intervention areas.	Lay peers.	0	1		1	
<b>Findings:</b> No sig. improvement in intervention communities during study.										
<b>Comments:</b> It was suggested that partnership with the existing health care system may be needed to improve community EBF. Mothers who attended meetings and had home visits: 45% EBF, compared to 14% of all women in program communities. This may indicate self-selection or additive impact.										

Country/Citation	Purpose of study	Study design	Data collection	Intervention	Type of worker	Paid=1 unpaid=0	Early initiation	ABF	EBF	Duration
<b>Iran:</b> Froozani M, Permezhadeh K, Motlagh A, Gloestan B. Effect of breastfeeding education on the feeding pattern and health of infants in their first 4 months in the Islamic Republic of Iran. <i>Bull World Health Org.</i> 1999;77(5):381–385.	To assess the impact of hospital and home visits by lactation support staff.	Quasi-experimental study; n=120 primiparous mothers; 59 in study group, 61 in control group, from a maternity with rooming-in.	n=134. Data collected at contact.	Nutritionists trained in WHO Bring Counseling course (40 hours). Contact in hospital, then home visits days 10, 15, 30, 60, 90, 120 for study group; breastfeeding education, face-to-face, after delivery and during follow-up in MCH center or in home.	Nutritionists.	1			1	1
<b>Findings:</b> Intervention associated with increased EBF duration, RR 1.78 (1.43, 2.27); EBF4 sig. higher in study group (54%) than control (6.5%). Duration: 95% study, 82% control still breastfeeding at 4 months.										
<b>Comments:</b> The findings indicate that rooming-in is very important for promoting EBF, and that there is a need for ongoing breastfeeding education and support of mothers.										
<b>China:</b> Guldan G, Fan HC, Ma X, et al. Culturally appropriate nutrition education improves infant feeding and growth in Fural Sichuan, China. <i>J Nutr.</i> 2000;130:1204–1211.	To improve infant growth by improving infant feeding practices.	Intervention/Control.	n=500. Data gathered after 1 year of intervention.	Monthly growth monitoring to households of pregnant and postpartum women.	Nutrition educators.	1	1		1	1
<b>Findings:</b> EI and/or colostrum feeds sig. higher; 23% in intervention (versus 18% in control) reported initiating breastfeeding within 1 hour; EBF at 4-6 months 58% versus 47% in control; no change in duration.										
<b>Comments:</b> Feeding guidebook and growth charts for each mother.										
<b>*Bangladesh:</b> Haider R, Ashworth A, Kabir I, Huttly S. Effect of community-based peer counsellors on exclusive breastfeeding practices in Dhaka, Bangladesh: a randomised controlled trial. <i>Lancet.</i> 2000;356(9242):1643–1647. (See findings and comments under Haider, 2002, below.)	To provide mother support to promote and support EBF.	Cluster RCT.	n=40 zones, randomized; enrolled third trimester. 363 women in each group.	15 visits by women who had breastfed, 4+ years education, willing, in area, able to express and support, given 10-day training in WHO counseling course.	Local peer mothers with small stipends to include travel.	1	1		1	

Country/Citation	Purpose of study	Study design	Data collection	Intervention	Type of worker	Paid=1 unpaid=0	Early initiation	ABF	EBF	Duration
* <b>Bangladesh:</b> Haider R, Kabir I, Huttly S, Ashworth A. Training peer counselors to promote and support exclusive breastfeeding in Bangladesh. <i>J Hum Lact.</i> 2002;18(1):7–12.			Complementary paper includes training techniques.							
<b>Findings:</b> EI increased in intervention. All remained sig. after adjustment for clustering. 70% EBF5 versus 6% in control. RR 11.88 (7.4, 19.07).										
<b>Comments:</b> Peer counselors effectively increased EI and EBF at 4 days and 5 months. Recommend incorporation of peer counselors into MCH programs in developing countries. LAM was explained to help support EBF6. Peer counselors reported that it would have been impossible to promote EBF without trained supervisors and linkage to health facility staff. Careful selection of the counselors contributed to success; however, those with minimal education had data problems.										
* <b>Guinea-Bissau:</b> Jakobsen M, Sodemann M, Biai S, et al. Promotion of exclusive breastfeeding is not likely to be cost effective in West Africa: a randomized intervention study from Guinea-Bissau. <i>Acta Ped.</i> 2008;97(1):68–75.	To evaluate the impact of promotion of EBF on infant health.	Cluster RCT.	n=1,721; collected by field health workers providing IEC, biweekly home visits from after birth to 6 months by same worker.	Verbal health information based on focus group info plus concept of no water/food until 4-6 months; control received same feeding message.	Field assistant (no comment on training).				1	1
<b>Findings:</b> Introduction of water and foods slightly, but statistically significantly delayed. No impact on morbidity or mortality.										
<b>Comments:</b> Outreach from health system, based on community focus group information. Diarrhea (not sig.) measured only in number of episodes.										
* <b>India:</b> Kumar V, Mohanty S, Kumar A, et al. Effect of community-based behaviour change management on neonatal mortality in Shivgarh, Uttar Pradesh: a cluster-randomised controlled trial. <i>Lancet.</i> 2008;372(9644):1151–1162.	To assess the efficacy of a behavior change management intervention, focus on prevention of hypothermia.	Cluster RCT, 39 villages (population 104,123): control, preventive ENC, preventive ENC plus hypothermia indicator.	Tracking of all outcomes at 28 days after birth in the entire study area; done by independent evaluation team.	CHWs delivered packages via collective meetings and 2 antenatal and 2 postnatal household visitations.	CHWs.	1	1			
<b>Findings:</b> EI: 70.6 and 67.6% in interventions, 15.5% in controls. Overall: RR 4.48 (3.89, 5.16), p<0.0001. Remained sig. after adjustment for clustering. NMR reduced by 52-54%, p<0.0001.										
<b>Comments:</b> Interventions with and without hypothermia indicator similar. Socioculturally contextualized, community-based early newborn care intervention, targeted at high-risk newborn care practices, can lead to substantial behavioral modification and reduction in neonatal mortality. This approach complements the continuum of care, can harmonize vertical interventions, and build community capacity for sustained development.										

Country/Citation	Purpose of study	Study design	Data collection	Intervention	Type of worker	Paid=1 unpaid=0	Early initiation	ABF	EBF	Duration
<b>*Brazil:</b> Leite A, Puccini R, Atalah A, et al. Effectiveness of home-based peer counselling to promote breastfeeding in the northeast of Brazil: a randomized clinical trial. <i>Acta Ped.</i> 2005;94(6):741–746.	To evaluate the effectiveness of home-based peer counseling to increase breastfeeding for LBW babies.	Cluster RCT.	n=1003; researchers recruited in maternity service; follow-up data collection at 1, 4, and 6 months.	Home visits at days 5, 15, 30, 60, 90, 120 by LHWs who had breastfed and received 20-hour training.	LHWs.	1		1	1	1
<b>Findings:</b> Sig. increase in ABF: RR 1.22 (1.10, 1.36); and EBF: RR 1.27 (1.00, 1.61), adjusted for clustering.										
<b>Comments:</b> Built on an effective BFHI program, and added significantly to ABF and borderline sig. to EBF.										
<b>Haiti:</b> Lewis J, Gebrian B. No family left behind: the example of community-based pneumonia care in Haiti. <i>J Health Care for the Poor and Underserved.</i> 2009;20(4):22–30.	To describe an intervention approach to combat pneumonia; also used to address EBF.	Case study with before and after data from community family-based health information system.		NGO engaged community members and trained 20 rural, literate CHWs. Regular meetings with community leaders, healers.	CHWs.				1	
<b>Findings:</b> Sig. reduction in pneumonia-specific mortality. Same approach used for breastfeeding.										
<b>Comments:</b> NGO engages community members in new programs only when serve can be made routinely available, affordable, accessible and acceptable.										
<b>*Nepal:</b> Manandhar DS, Osrin D, Shrestha BP, et al.; Mother Infant Research Activities Makwanpur Trial Team. Effect of participatory intervention with women’s groups on birth outcomes in Nepal: cluster-randomised control trial. <i>Lancet.</i> 2004;364(9438):970–979.	To assess the impact of organized women’s groups on birth outcomes.	Cluster RCT.	24 geopolitical cluster, n=28,931 women, 8% joined groups;	Female facilitators convened 9 women’s group meetings monthly using an action-learning cycle in which they identified local perinatal problems and formulated strategies to address them.			1			
<b>Findings:</b> EI: RR 1.40 (0.52, 3.8); NMR: 26.2/1,000 compared with 36.9 per 1,000 in controls (adjusted odds ratio 0.70 [95% CI 0.53-0.94]). MMR was 69 versus 341 in control clusters (0.22 [0.05-0.90]).										
<b>Comments:</b> Birth outcomes in a poor rural population improved greatly through a low-cost, potentially sustainable and scalable, participatory intervention with women’s groups.										

Country/Citation	Purpose of study	Study design	Data collection	Intervention	Type of worker	Paid=1 unpaid=0	Early initiation	ABF	EBF	Duration
<b>*Mexico:</b> Morrow A, Guerrero M, Shults J, et al. Efficacy of home-based peer counselling to promote exclusive breastfeeding: a randomised controlled trial. <i>Lancet</i> . 1999;353(9160):1226–1231.	To promote breastfeeding among pregnant and lactating women.	Cluster RCT.	n=130: 44 with 6 home visits, 52 with 3, 34 controls.	3 versus 6 home visits versus none in controls; breastfeeding promotion and support; trained by La Leche League/Mexico.	LHWs.	1			1	1
<b>Findings:</b> EI and ABF: not sig.; EBF3 RR 4.69 (1.84, 11.99).										
<b>Comments:</b> LHWs previously employed as data collectors, high school educated, committed to breastfeeding. Dose response to number of visits re: EBF level and duration.										
<b>Uganda:</b> Nankunda J, Tylleskar T, Ndeezi G, et al.; PROMISE-EBF Study Group. Establishing individual peer counselling for exclusive breastfeeding in Uganda: implications for scaling-up. <i>Mat Child Nutr</i> . 2010;6(1):53–66. (Also see Tylleskar T et al., below.)	To describe the establishment of peer counseling for increasing EBF: 1 site of the PROMISE-EBF study.	12 women from each of 12 clusters trained for 6 days, with follow-up.	Observations, field notes, and records of interactions of peer counselors.	Peer counselor home visits to support EBF; EBF or EFF if HIV positive. Control: same number visits to discuss social welfare grants.	Community volunteer peer counselors and paid supervisors.					
<b>Findings:</b> Training and 10 months of follow-up improved knowledge, attitudes, and practices of peer counselors re: EBF.										
<b>Comments:</b> Training and follow-up with peer counselors is essential for retention and improved knowledge and practices. Husbands and grandmothers impacted infant feeding decisions. Involving the communities in selection helped to identify reliable breastfeeding peer counselors who were acceptable and retained.										
<b>South Africa:</b> Nor B, Zembe Y, Daniels K, et al.; PROMISE-EBF Study Group. “Peer but not peer”: considering the context of infant feeding peer counseling in a high HIV prevalence area. <i>J Hum Lact</i> . 2009;25(4):427–434.	To describe how women experienced infant feeding peer counselors in 3 settings.	Qualitative study imbedded in larger peer counseling intervention.	n=27 women purposively sampled; interviews or observation at 36, 12, and 24 weeks postpartum by researchers; incentive package of food or money.	Peer counselors trained in WHO/ UNICEF HIV and infant feeding counseling: 40 hours, 1 week observation. Intervention: 5 home visits to support EBF; EBF or EFF if HIV positive. Control: same number visits to discuss social welfare grants.	Peer counselors.	0			1	
<b>Findings:</b> HIV-positive women found this helpful; however, there was considerable distrust.										
<b>Comments:</b> Community selection of peer counselors is important. Even when data collectors are different individuals, they are perceived as part of the same study; this may bias responses.										

Country/Citation	Purpose of study	Study design	Data collection	Intervention	Type of worker	Paid=1 unpaid=0	Early initiation	ABF	EBF	Duration
* <b>India:</b> Pahwa S, Kumar G, Toteja G. Performance of a community-based health and nutrition-education intervention in the management of diarrhoea in a slum of Delhi, India. <i>J Health Pop Nut.</i> 2010;28(6): 553–559.	To carry out community-based health and nutrition education interventions to reduce diarrhea in slum conditions.	Cluster RCT.	n=370; before and after survey.	Personal discussions and community discussions. 5 contacts on diarrhea.	Peripheral health worker in the community Basti Sevika.					1
<b>Findings:</b> Increased continued breastfeeding during diarrhea; intervention from 47-90%, control from 42-40%.										
<b>Comments:</b> Trainings developed based on baseline findings.										
Bolivia (B), Ghana (G), Madagascar (M): Quinn V, Guyon A, Schubert J, et al. Improving breastfeeding practices on a broad scale at the community level: success stories from Africa and Latin America. <i>J Hum Lact.</i> 2005; 21(3):345–354.	To move to full-scale programming to reach large areas in 3 countries.	Time series.	Baseline and repeated follow-up using large surveys, both designed for the study and other.	Initiating and/or strengthening the community and other components of comprehensive, large-scale national breastfeeding support campaigns.	Multiple, including CHWs.	1	1		1	
<b>Findings:</b> Over 3 to 4 years, EI increased (B) from 56-74% (p<0.001); (G): 32-40% (p<0.05); (M): 34-78% (p<0.001). Marked increases in EBF6: (B): 54-65% (p<0.001); (G): 68-79% (p<0.001); (M): 46-68% (p<0.001).										
<b>Comments:</b> Large increases in EI and EBF6 noted with large population coverage in these comprehensive, large-scale national breastfeeding support campaigns. Difficulty in assessing impact of any one component, such as the community work, in isolation. However, in (G) and (M), there is a temporal association of community interventions and increases. In (G) and (M), sig. results were seen within 1 year of community interventions, allowing inference concerning the community component. Authors emphasized that large-scale programs designed to improve breastfeeding practices are feasible and should be a central component of any child survival strategy.										
<b>Philippines:</b> Salud M, Gallardo J, Diners J, et al. People's initiative to counteract misinformation and marketing practices: the Pembo, Philippines, breastfeeding experience, 2006. <i>J Hum Lact.</i> 2009;25(3):341–349.	To counter widespread misinformation and improve breastfeeding.	Time series (same as Baker 2006, above).	312 infants, baseline data at referral from routine immunization clinic; peer log from visits reviewed by health worker served as follow-up.	3 peer counselor visits targeted mothers identified by health centers with infants <2 months not EBF, or breastfeeding difficulty. Trained with WHO counseling modules.	Community-based peer counselor who received 23 weekly 3-hour trainings.	0			1	
<b>Findings:</b> EFF decreased 7-fold; EBF increased from 1-53.5%; mixed feeding decreased 37%, 67% improved over 3 home visits.										
<b>Comments:</b> Community-driven, coordinated by health system; came from the Barangays (smallest political unit), World Breastfeeding Week, and women turnout. Authors concluded that (1) project supported informed decisions and reduced impact of commercial marketing, and (2) project informed national scale-up in health services.										

Country/Citation	Purpose of study	Study design	Data collection	Intervention	Type of worker	Paid=1 unpaid=0	Early initiation	ABF	EBF	Duration
<b>*Bangladesh:</b> Sloan N, Ahmed S, Mitra S, et al. Community-based kangaroo mother care to prevent neonatal and infant mortality: randomized, controlled cluster trial. <i>Pediatrics</i> . 2008;121(5):1047–1059.	To assess whether community-based KMC reduced NMR, IMR, and LBW.	Cluster RCT.	n=4,165; baseline survey collected sociodemographic information. Newborns followed 30 to 45 days; infants followed quarterly for infant care, feeding, growth, health, and vital status.	Community-based workers were taught to teach community-based KMC to all expectant and postpartum women in the intervention villages.	CHWs.	1	1	1		
<b>Findings:</b> EI: 52.4% intervention, 41.4% control, RR 1.26 (1.17, 1.35), remained sig. after adjustment for clustering; breastfed 3.4 hours sooner (p<0.001); both sig. at p<0.001. Not sig. for ABF after adjustment for clustering.										
<b>Comments:</b> This single KMC intervention approach yielded no sig. impact on morbidity or mortality. The sig. increase in EI would be expected to support later breastfeeding and health, but did not appear to have either of these impacts. EBF not considered.										
<b>*Bangladesh:</b> Syed U, Asiruddin S, Helal SI, et al. Immediate and early postnatal care for mothers and newborns in rural Bangladesh. <i>J Health Popul Nut.</i> 2006;24(4):508–518.	To evaluate the impact of ENC interventions at the household level in Saving Newborn Lives project areas.		n=3,325 mothers with children <1 year, baseline; 3,110 endline; 10 subdistricts; 30-cluster sampling; structured questionnaire, 2002 (base), 2004 (endline).	Door-to-door visits by community health workers, using community registers as job aids.	CHWs.	1	1			
<b>Findings:</b> 76.2% of the newborns were put to the mother's breast within 1 hour of birth compared to 38.6% at baseline.										
<b>Comments:</b> ENC practices, such as drying and wrapping the baby immediately after birth, initiation of breastmilk within 1 hour of birth, and early postnatal newborn check-up, improved in the intervention areas. Increased community awareness helped improve maternal and newborn care practices at the household level. Home visits by CHWs were effective in identifying pregnant women and following them through pregnancy to the postnatal period.										
<b>Burkina Faso, South Africa, Uganda:</b> Tylleskar T, Jackson D, Meda N, et al.; PROMISE-EBF Study Group. Exclusive breastfeeding promotion by peer counsellors in sub-Saharan Africa (PROMISE-EBF): a cluster-randomised trial. <i>Lancet</i> . 2011;378(9789):1–8.	To assess the effect of breastfeeding counseling by peer counselors in Africa.	Cluster RCT.	n=2,579; prevalence of EBF and diarrhea at 12 and 24 weeks of age.	4-6 visits with individual peer counseling.	Peer counselors, 1-week training in adapted WHO counseling. Prearranged referral if breastfeeding difficulty.				1	
<b>Findings:</b> Overall EBF 24-hour recall at 12 weeks, intervention/control=79%/35%. B: PR 2.29, 95% CI 1.33-3.92; U: 1.89, 1.70-2.11; S: 1.72, 1.12-2.63. Findings supported by 7-day recall.										
<b>Comments:</b> One interpretation is that switching from predominant to EBF does not impact diarrhea incidence.										
<b>Totals</b>							<b>13</b>	<b>6</b>	<b>19</b>	<b>9</b>

Infant and Young Child Nutrition Project  
455 Massachusetts Ave., NW  
Washington, DC 20001

**[www.iycn.org](http://www.iycn.org)**