

Improving Breastfeeding Practices on a Broad Scale at the Community Level: Success Stories From Africa and Latin America

Victoria J. Quinn, PhD, Agnès B. Guyon, MD, MPH, Joan W. Schubert, MPH, Maryanne Stone-Jiménez, MS, IBCLC, Michael D. Hainsworth, MPH, and Luann H. Martin, MA

Abstract

Large-scale community-level behavior change programs designed to improve breastfeeding practices were implemented in Bolivia, Ghana, and Madagascar. These programs reached sizable populations: Bolivia, 1 million; Ghana, 3.5 million; and Madagascar, 6 million. Over 3 to 4 years, timely initiation of breastfeeding (within 1 hour of birth) increased from 56% to 74% ($P < .001$) in Bolivia, 32% to 40% ($P < .05$) in Ghana, and 34% to 78% ($P < .001$) in Madagascar. Marked increases in exclusive breastfeeding of infants 0 to 6 months of age were also documented: from 54% to 65% ($P < .001$) in Bolivia, 68% to 79% ($P < .001$) in Ghana, and 46% to 68% ($P < .001$) in Madagascar. In Ghana and Madagascar, significant results were seen within 1 year of community interventions. The authors conclude that large-scale programs designed to improve breastfeeding practices are feasible and should be a central component of any child survival strategy. *J Hum Lact.* 21(3):345-354.

Keywords: breastfeeding, infant and young child feeding, nutrition, community, behavior change

A 2003 analysis of child survival strategies identified exclusive breastfeeding (EBF) in the first 6 months of life and continued breastfeeding from 6 to 11 months as the single most effective preventive intervention in reducing child mortality, with the potential of saving 1.3 million lives annually.¹ Improved feeding practices are also critical for child growth and development.² Population-based studies in developing countries show that the greatest risk of nutritional deficiency and growth retardation occurs in children between 3 and 15 months of age, a period noted for suboptimal breastfeeding and inadequate complementary feeding practices.³

Efforts to promote improved breastfeeding practices have often focused on hospital norms and services, leg-

islation and institutional policies, health worker training, mass media campaigns, peer counseling and education, mother-to-mother support, and a combination of these strategies.^{4,5} Many of these efforts have been of limited size and scope. In 1996, the United States Agency for International Development (USAID) issued a grant to the Academy for International Development to design and implement a 10-year program, known as the LINKAGES Project, to improve breastfeeding practices rapidly and at scale.

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Victoria J. Quinn is the country program technical manager, **Agnès B. Guyon** is a regional adviser, **Joan W. Schubert** is a behavior change coordinator, **Maryanne Stone-Jiménez** is a training consultant, **Michael D. Hainsworth** is a monitoring and evaluation specialist, and **Luann H. Martin** is an information development coordinator at the LINKAGES Project, Academy for Educational Development, Washington, DC.

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The project's goal was not to develop highly controlled pilot efforts but to move to full-scale programming to reach large areas of a country. Rather than create new structures to do so, the intent was to maximize existing resources in the government and work through these as well as through nongovernmental organizations (NGOs) already implementing relevant community-level activities.

This article describes the progress made by LINKAGES and its partners to increase the rates of timely initiation of breastfeeding and EBF in Bolivia, Ghana, and Madagascar. The programs were not designed as rigorous research studies but rather as routine development programs. Data on key breastfeeding behaviors generated from the programs' management monitoring and evaluation systems were used to assess trends over time to test the hypothesis that improvements in breastfeeding practices would be observed in communities in which the programs used an approach built on partnerships, training, behavior change communication, and community activities. Another question of interest was the length of time needed to observe improvements in breastfeeding.

Method

Setting

When project activities began in the late 1990s, national rates of malnutrition and infant mortality were highest in Madagascar. Forty-eight percent of children younger than 3 years in Madagascar were stunted compared with 26% in both Bolivia and Ghana. For every 1000 live births, 96 infants died before the age of 1 year in Madagascar compared with 67 in Bolivia and 56 in Ghana. In all countries, the national rates for early initiation of breastfeeding were low, with Ghana having the lowest rate (25%) followed by Madagascar (34%) and Bolivia (39%). The rates for EBF among infants younger than 6 months were similar in Bolivia and Madagascar (50% and 47%, respectively) while considerably lower in Ghana (31%).⁶⁻⁸

Rather than approach breastfeeding promotion as a vertical program, in each of the 3 countries, LINKAGES set out to integrate breastfeeding in broader nutrition, child survival, and reproductive health programs as well as in relevant nonhealth programs. The primary target groups were mothers with young infants and their families residing in resource-poor settings. The Bolivia and Ghana programs focused primarily on breastfeeding and complementary feeding while the Madagascar pro-

gram promoted breastfeeding within the context of 7 "essential nutrition actions": optimal breastfeeding, adequate complementary feeding beginning at 6 months with continued breastfeeding, feeding of the sick child, improved women's nutrition, and the control of vitamin A deficiency, anemia, and iodine deficiency.

The initial phase in each country was devoted to securing funds, cultivating partnerships, building consensus through policy advocacy, and conducting needs assessments and baseline surveys. Partnerships with government and NGOs ushered in community interventions in the 2nd phase. This article reports on activities undertaken in the community phase of country programs, from 2000 to 2003 in Bolivia and Ghana and 2000 to 2004 in Madagascar.

In Bolivia, the program reached 1 million people in rural and urban areas in the country's 3 ecoregions (Table 1). In Ghana, the program started in partner sites in selected districts in the 3 northern regions of the country. As additional partners were engaged, outreach extended to more districts in these regions. In addition, the training approach developed with partners in the north was adapted and rolled out as a 2nd-generation effort by one of the NGO field partners in its community sites in 2 southern regions of the country. At the end of the program, 3.5 million people, residing in mostly rural areas, were covered in all 24 districts in northern Ghana and 6 districts in other regions of the country.

In Madagascar, community-based activities were implemented through government district health teams in 10 focus districts of 2 highland provinces (Antananarivo and Fianarantsoa). At the end of 2001, just after coverage of the program had expanded in these provinces to reach 6 million people in 23 districts, the country experienced a serious political crisis, which led to the halting of all field activities for nearly 10 months. Activities resumed again in late 2002. Because implementation had to be rechanneled through provincial health teams, support to the community level was significantly less intensive than before. In early 2003, an opportunity arose to introduce a streamlined version of the approach originally developed in the 2 highland provinces to selected districts in 2 coastal provinces (Tulear and Mahanjanga). This 2nd-generation effort reached 1.4 million people in the coastal provinces.

Interventions

A country coordinator was hired in each country to oversee the design, implementation, and monitoring of

Table 1. Description of Country Programs (Excluding 2nd-Generation Activities)*

Country (Catchment Areas/Total Population)	Major Partners	Distribution of Catchment Area	Number of Individuals Trained and Groups Reached
Bolivia (1 million/8 million)	PROCOSI and 16 of their NGO partners and local ministry of health offices**	2389 communities in 149 districts throughout 3 ecoregions	500 health workers, 1700 NGO workers
Ghana (3.5 million/18.8 million)	National and local ministry of health offices, UNICEF, and 9 NGOs†	31 districts in 7 of 10 regions	600 health workers and NGO staff, 1600 mother clubs reached
Madagascar (6 million/15 million)	National and local ministry of health offices, Jereo Salama Isika bilateral project, and NGOs	23 districts in 2 of 6 provinces	2000 health workers, 700 NGO staff, 250 community trainers, 12 000 community health volunteers, 4300 members of women's groups

*PROCOSI = Programa de Coordinación en Salud Integral; NGO = nongovernmental organization; UNICEF = United Nations Children's Fund.

**NGO partners in Bolivia: Asociación de Promotores de Salud del Área Rural, Asociación de Programas de Salud en el Área Rural, CARE, CARITAS, Centro de Promoción Agropecuaria Campesina, CRECER/Freedom from Hunger, Consejo de Salud Rural Andino, Esperanza, Plan Internacional, Project Concern International, Protección a la Salud, Servicios de Asesoría a Comunidades Agrarias, Save the Children/Canada, Save the Children/US, Servicios Educativos, Universidad NUR.

†NGO partners in Ghana: ActionAid, Association for Church Development Projects, Catholic Relief Services, Freedom from Hunger, Ghana Red Cross, Ghana United Nations Students Association, NewEnergy, University for Development Studies, World Vision International.

program activities. Additional staff included 3 field supervisors in Bolivia, a trainer and a monitoring and evaluation specialist in Ghana, and 12 field agents, a mass media specialist, a preservice specialist, and a monitoring and evaluation specialist in Madagascar. These country teams coordinated the 4 main components of the community phase of the program: partnerships, capacity building, behavior change communication, and community activities to reach mothers either individually or in groups.

Partnerships. Partner mechanisms found in each country were used to the extent possible to bring together a diverse group of nutrition stakeholders to harmonize nutrition messages and field approaches and to develop materials. From the outset, partners were involved in reviewing and interpreting formative research, developing key messages, pretesting materials, cofacilitating training sessions, and monitoring and evaluating activities. LINKAGES supported the training of trainers and provided technical assistance for media and materials development as well as monitoring and evaluation. In all 3 countries, staff from government offices and NGOs, along with community-based volunteers, were responsible for initiating and carrying out community activities.

In Bolivia, LINKAGES worked with 16 members of PROCOSI, a national network of local and international NGOs involved in child survival, reproductive health, and integrated health projects. At the local level, government health workers collaborating with the partner

NGOs were included in training sessions and community events. Local radio stations were contracted to broadcast the program's jingles and stories.

In Ghana, partners included the Ghana Health Service's national nutrition office as well as health and nutrition staff of Regional Health Teams, United Nations Children's Fund (UNICEF) staff and their local government partners, and staff of 10 international and local NGOs with established community-level child survival, rural development, and food security programs in the 3 northern regions of the country. In addition, early on, journalists, radio announcers from 3 stations in the north, staff from 2 universities, and members of the Food and Nutrition Security Network played an active part in the overall partnership by participating in workshops that led to the design of the program and its field approach.

In Madagascar, one of the partnering mechanisms was the Intersectoral Action Group for Nutrition (the GAIN), consisting of 75 members representing 50 groups from government, universities, NGOs, and newspapers. LINKAGES assisted the government and other local groups, including donors, to establish the GAIN to harmonize nutrition messages and field approaches and share experiences. A national female singing celebrity, local newspaper journalists, and more than 20 local radio stations also proved valuable partners for disseminating messages in program sites.

Prior to the political crisis in Madagascar, the major field implementation partner was the USAID-funded Jereo Salama Isika (JSI) child survival and reproductive

health project. At the peak of this joint effort, LINKAGES and JSI field staff were actively involved in implementing community-level activities with district health workers, NGOs, and members of women's groups. This more direct involvement changed post-crisis as the program reshifted its focus to work indirectly through provincial health teams and NGOs.

Capacity building. In all 3 countries, capacity building was central to the achievement of results. Training materials were developed to suit the needs of local health workers and community members. In each country, hundreds of government workers, NGO staff, and community members were trained to reach a critical saturation point in the community (Table 1). Past experience, particularly in Madagascar, showed the importance of training large numbers of individuals at the community level—both health workers and community members—to replace losses that occur with staff transfers and dropouts, particularly in the public sector.

Practice rather than theory characterized training activities. The goal was to equip service providers and community volunteers with the negotiation skills necessary to convince mothers to change their infant-feeding behaviors. Participants engaged in discussions of key messages, role-plays, demonstrations, and practice in the use of materials such as counseling cards, child health booklets, cloth flipcharts, and posters during individual counseling and group sessions. Midway through the program in Bolivia, a performance-monitoring evaluation of the skills of community health workers who had already received training indicated the need for greater emphasis on the development of counseling and negotiation skills, particularly of the community health workers. Subsequent trainings strengthened these aspects. In program areas in Ghana and Madagascar, support was also given to the Baby-Friendly Hospital Initiative through training and capacity building of staff from these facilities.

Behavior change communication. In each country, interventions were built on formative research and sustained through program activities that focused on bringing about the desired behavior change. In Bolivia, extant reports from formative research already conducted on infant and young child feeding were used to develop messages. In Ghana, the partners were mobilized from the beginning to undertake formative research, interpret findings, and formulate messages and materials. In Madagascar, the program benefited from messages and

Box 1.

Elements of LINKAGES Behavior Change Orientation

Formative research with analysis of barriers and enabling factors and identification of key actions (specific behavior changes that are feasible, “do-able”) that could be taken at the family level to achieve the desired outcomes

Targeted, concise messages to promote “do-able” actions

Consistent messages and materials across all program communication channels to address critical behaviors

Saturation of primary audiences with messages through appropriate media (electronic, print, interpersonal, event, traditional)

Going beyond pregnant and lactating women to include fathers and grandmothers as secondary audiences to promote behaviors supporting mothers to optimally breastfeed

Short-term practical training heavy on counseling/negotiation and communication skills for health and frontline community workers aimed at training large numbers to counteract attrition

Peer group support and interaction through mother-to-mother support groups, women's clubs, and other existing groups at the community level

tools developed by a predecessor project working in pilot sites.

“Do-able actions” identified during the formative research were promoted through targeted messages disseminated through a combination of interpersonal communication strategies (health worker to mother, community worker to mother, mother to mother), group activities and community mobilization, and mass media (radio, television, and print). See Box 1. The intention was to change individual behavior while educating and engaging others, such as fathers and grandmothers, who influence the individual's (usually the mother's) choices.

Mass media, particularly local radio, played an important role in the behavior change communication strategy. Mass media helped reinforce messages promoted by health workers and other community members and greatly extended the reach of the program's messages to areas even outside of program sites where

partners were working. In Bolivia, a nationwide radio campaign, developed to complement the program's activities at the community level, included 6 radio spots, 4 radio dramas, and 5 songs in 3 languages (Spanish, Aymara, and Quechua). The campaign was implemented periodically over 2 years.

In Ghana, local radio announcers who were involved in the program's design and training activities used a variety of formats such as songs, soap operas, radio call-in shows, quizzes, dramatic comedies, panel discussions with local nutrition experts, and advice from community leaders. Intensive radio campaigns were launched every year during World Breastfeeding Week to support related community mobilization activities. In Madagascar, radio announcers from national and local stations received training in infant and young child feeding to prepare them to promote these issues during their broadcasts along with breastfeeding promotion jingles. Partner radio stations broadcast 6 to 10 spots each day during the "mass campaign months" that were held every quarter. Similar spots were played on cassettes that were distributed to bus and taxi drivers in program areas.

Community activities. All 3 country programs emphasized a mix of interventions at the community level to reach women individually or in groups in health facility, home, or community settings. The partnerships, skills training, and harmonized messages and materials resulted in a rich collage of activities implemented in program communities. Government health and NGO staff, community leaders, volunteers, members of local groups, and others spearheaded community mobilization and capacity-building activities. Women were reached through small- and large-group activities, one-on-one counseling in homes and at local health posts, breastfeeding promotion songs performed by women's groups and musical troupes, and community mobilization events such as local theater, health fairs, and festivals celebrating breastfeeding and child health days. Celebration of success through village festivals, healthy baby contests, and "nutrition certificates" for families with optimally fed babies were some of the creative ways that fueled enthusiasm in the communities.

A central component of the Ghana and Madagascar programs was the use of established women's groups for breastfeeding promotion and support. In northern Ghana, the program built on a long tradition of mothers getting together to help each other. The program pro-

vided training in mother-to-mother support group methodology for breastfeeding and organized annual exchange visits for leaders of these mothers' clubs. In Madagascar, training was offered to members of women's social, religious, and income-generating groups. Those trained served as "nutrition volunteers" and helped conduct educational activities during home visits and group discussions at community health centers. They also participated in national or community-sponsored health and nutrition events and promoted improved behaviors during their informal contacts with mothers.

Evaluation Approach

In each country program, an overall monitoring and evaluation system was established to provide data to track progress and use in program management. To monitor trends in infant-feeding practices, a combination of cross-sectional approaches was used to survey households with children younger than 2 years. This included baseline and endline surveys as well as smaller surveys carried out on an annual basis to monitor program progress. Survey interviewers, who received at least 1 week of training, typically comprised health or education professionals not associated with the project. Questionnaires were administered to mothers with children younger than 1 year or 2 years, depending on the country. Prior to the surveys, program staff and partner representatives met with local leaders to brief them on the purpose of the survey and get their verbal consent to proceed. No obstacles were encountered to gain permission. As described below, the monitoring and evaluation (M&E) approach taken in each country varied slightly due to time and resource constraints and differences in partner programs.

Indicators

In each country, LINKAGES used a common set of breastfeeding and infant-feeding indicators based on World Health Organization (WHO) definitions⁹ and Wellstart International's toolkit¹⁰ for monitoring and evaluating breastfeeding activities. Although an array of nutrition data was collected, only the data related to breastfeeding are presented here. Timely initiation of breastfeeding (TIBF) was defined as the percentage of infants younger than 12 months who were put to the breast within 1 hour of birth. Interviewers asked mothers how long after birth they had started breastfeeding their infant.

Table 2. Survey Background*

Country	Survey Date	n (TIBF)	n (EBF)	Sampling Methodology	Survey Population
Bolivia	April 2000	4327	2970	Stratified cluster sampling by NGO	Mothers of children younger than 12 mo
	October 2001	2580	1303	Lot quality assurance sampling by NGO	
	May 2003	1668	834	and by health supervision areas	
Ghana	October 2000	454	255	Stratified cluster sampling by NGO	Mothers of children younger than 12 mo
	October 2001	377	220		
	November 2002	395	236		
	December 2003	900	536		Mothers of children younger than 10 mo
	February 2003 (2nd generation)	570	283	Lot quality assurance sampling by supervision areas	
	March 2004 (2nd generation)	569	288		
Madagascar	February 2000	699	379	Stratified cluster sampling by district	Mothers of children younger than 23 mo
	October 2000	195	195	Purposeful stratified cluster sampling	
	October 2001	199	199	by district (most active communes only)	
	October 2002	180	180		
	November 2004	320	320		
	May 2003 (2nd generation)	240	240	Purposeful stratified cluster sampling	
	April 2004			by district (communes with community health centers only)	
	(2nd generation)	240	240		

*TIBF = timely initiation of breastfeeding; EBF = exclusive breastfeeding; NGO = nongovernmental organization.

EBF was defined as the percentage of infants younger than 6 months who received only breast milk and no other solids or liquids including water (based on 24-hour dietary recall), with the exception of drops or syrups consisting of vitamin or mineral supplements and medicines. Interviewers used a series of questions to ask mothers if they had given their child any foods or liquids during the previous day or night. There were no questions that explicitly mentioned EBF, so no indication was given to the mother that the series of questions being asked related to a desired response.

Survey Methodology and Sampling

The survey methodology and sampling framework varied by country. Sample sizes for infants younger than 6 months were calculated on the basis of detecting at least a 15% change in the exclusive breastfeeding rate with a 5% significance level, 80% power, and 2-tailed test.¹¹ Table 2 provides additional background information for each survey.

In Bolivia, large baseline and endline surveys were carried out in program areas of the PROCOSI partners, with another survey conducted midway. The national EBF level from the 1998 Demographic Health Survey (DHS) also provided a baseline point of comparison.

Since it was not possible to conduct a baseline survey in Ghana, the national EBF rate from the 1998 DHS survey served as a baseline point of comparison. In October 2000, 10 months after program activities were initiated in the 3 northern regions, a cross-sectional survey was carried out. Subsequently, similar sample surveys were conducted annually in program areas to track changes. For the 2nd-generation activities that were initiated in areas outside of the northern regions, a different approach to monitoring indicators was taken. Field supervisors from the partner organization were trained to monitor their individual coverage areas on an annual basis using lot quality assurance sampling methodology^{12,13} and short questionnaires on only infant-feeding indicators. Data from the individual coverage areas were merged to provide overall project-specific results.

In Madagascar, a large baseline survey, taken at the start of the community activities in February 2000, was followed by smaller annual surveys.¹⁴ The national EBF rate from the 1997 DHS provided another point of comparison with the project's baseline data. The program decided to track progress in communities known to have fully embraced the approach in the 10 focus districts covered during the first year of interventions; therefore, each year, sampling frameworks were limited to those communities. An endline survey will be conducted with

the completion of activities in the highland provinces. Program activities have, however, been completed in the 2nd-generation effort in the coastal provinces for which baseline and endline surveys were conducted.

Data Analysis

Data were entered into Epi Info version 6, reentered by in-country staff for verification, and then imported into SPSS for Windows for data cleaning and analysis by in-country M&E staff. Final analyses were verified by headquarters M&E staff. TIBF and EBF variables were created, and frequency distributions were produced for the appropriate age groups. For those surveys for which sampling was not proportionate to population, a weighting factor based on population groupings was applied to the analysis (eg, district, health supervision area, or region, depending on the specific interests in each country). The χ^2 test was used to test the null hypothesis that the EBF and TIBF rates remained constant as compared to the first data point measured in each country.

Limitations

The project’s intent was to develop and implement functional monitoring and evaluation systems to collect and analyze information that could be used to improve program planning and management and to evaluate program outcomes. The country programs were not designed as rigorous scientific studies. The major limitation of our evaluation approach was the absence of control groups. Although the intent was to monitor control communities for general comparison purposes, inconsistent criteria for the selection of control communities and small control sample sizes made statistical comparisons of minimal value. Moreover, contamination of control sites was possible through the programs’ radio broadcasts, which often reached beyond the intervention areas. Another potential avenue for contamination was through health workers who transferred to control communities after receiving training through the program. With these limitations in mind, we did, however, notice that program communities appeared to show regular improvements in infant-feeding practices while these same practices generally remained stagnant in control communities.

Results

The results of surveys undertaken before, during, and after program interventions are presented in Figures 1

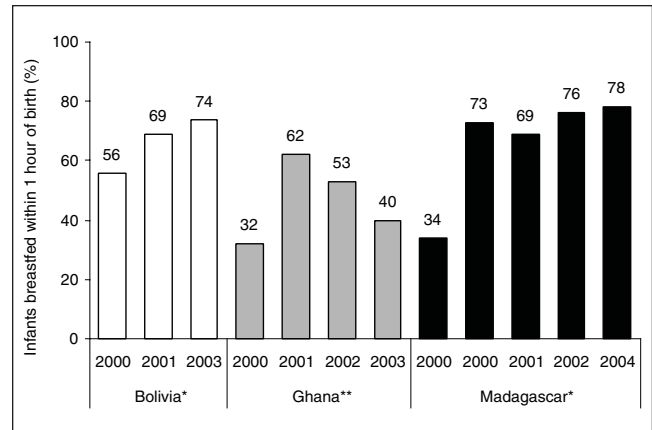


Figure 1. Comparison over time and by country of infants younger than 12 months who were reported to have been breastfed within 1 hour of birth in intervention areas. Two data points in Madagascar in 2000 represent February and October of that year.

* $P < .001$, change from first data point versus last data point, χ^2 analysis.

** $P < .05$, change from first data point versus last data point, χ^2 analysis.

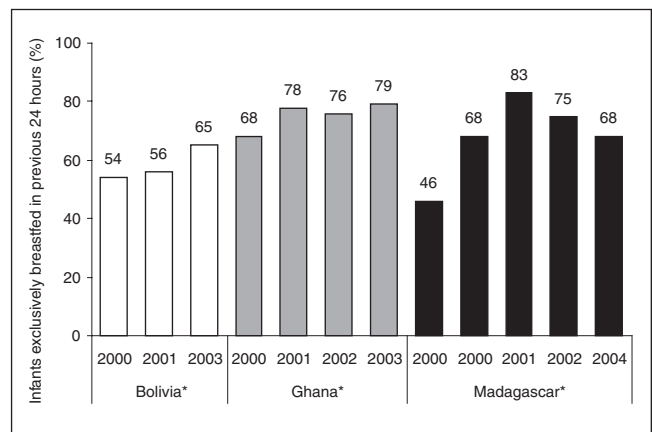


Figure 2. Comparison over time and by country of infants younger than 6 months exclusively breastfed based on 24-hour dietary recall in intervention areas. Two data points in Madagascar in 2000 represent February and October of that year.

* $P < .001$, change from first data point versus last data point, χ^2 analysis.

through 3. The results for each country are presented separately.

Bolivia. The largest gain was made in the TIBF rate, which began at 56% in 2000, rose to 69% in 2001, and reached 74% by the endline in 2003 ($P < .001$; Figure 1). Although change in exclusive breastfeeding practices was slow in the early part of the program, by the endline there was marked and statistically significant improvement, from 54% at baseline to 65% at endline ($P < .001$; Figure 2).

Ghana. During the original phase of program implementation in the 3 northern regions of Ghana, TIBF and EBF rates were higher during the last survey in 2003 than during the first survey in 2000. However, the dramatic doubling of the timely initiation of breastfeeding rate after 1 year of program implementation did not hold (Figure 1). In the first year, the rate jumped from 32% to 62% and then dropped to 40% ($P < .05$) by the last survey when the program began shifting emphasis to support for preservice review and capacity building in other areas of the country. The explanation for this drop is not evident, although it may be related to how the question was translated in the local vernacular. Unlike TIBF, improvements in exclusive breastfeeding were maintained. In late 2000 after 10 months of interventions, EBF was 68% in program areas, rose a year later to 78% ($P < .001$), and stayed around this level during the next 2 years (Figure 2).

The 2nd-generation program was implemented in Ghana through a field partner in 3 districts of 2 southern regions. After 12 months of implementation, the proportion of children put to the breast within the first hour of delivery increased significantly, from 47% to 61% ($P < .001$). The exclusive breastfeeding rate in program sites also rose sharply, from 55% to 78% ($P < 0.001$; Figure 3).

Madagascar. In the original program areas of the 2 highland provinces, TIBF increased from 34% at baseline to 73% after 9 months and was maintained at 78% ($P < .001$) at the time of the 2004 survey (Figure 1). EBF jumped from a baseline of 46% to 68% in the first 9 months and continued to climb to a peak level of 83% in late 2001 (Figure 2). These increases probably reflect the continued strong support to community interventions that were being provided by program staff during this time. From late 2001 to mid-2002, the country went through a political crisis, halting LINKAGES's field activities for 10 months. Although TIBF remained strong throughout this period, the community survey conducted in late 2002 showed that EBF had dropped slightly to 75%. EBF further declined to 68% in 2004 after 2 years of implementing the less intensive community strategy put into place after the crisis, but this was still significantly higher than the baseline level ($P < .001$).

In the 2nd-generation program launched in 2 coastal provinces, TIBF increased from 29% to 58% ($P < .001$), and EBF dramatically rose from 29% to 52% ($P < .001$)

after only 9 to 10 months of implementation (Figure 3). Although the approach in the coastal provinces was similar to the postcrisis provincial approach in the 2 original provinces, the community support in the new provinces was more intensive. This may explain the larger increases in these areas. In addition, more dramatic increases could be expected considering the very low baseline level.

Discussion

Improving breastfeeding practices requires behavior change, something that does not happen spontaneously and without encouragement and support at the family and community levels. This is recognized in the Global Strategy for Infant and Young Child Feeding, which includes community-based interventions as one of the new operational targets.¹⁵ The Global Strategy was developed by WHO and UNICEF with broad participation of governments and other stakeholders.

Program results show that the breastfeeding promotion approach described here, which builds on a foundation of partnerships, training, behavior change communication, and community activities, was able to achieve significant increases in TIBF and EBF over large populations. In Ghana and Madagascar, these increases were seen as rapidly as 9 to 12 months after the start of the community phase.

The program approach was flexible enough to achieve results under 3 very different country situations in Africa and Latin America. Other large-scale programs with similar strategies have also achieved measured improvements in breastfeeding practices,¹⁶ as have several randomized controlled trials of community-based breastfeeding counseling by health providers and village-based workers¹⁷ and peer counselors.^{18,19}

In the same time period spanned by LINKAGES's programs in Bolivia, Ghana, and Madagascar, major increases were seen in the national timely initiation of breastfeeding rate and the exclusive breastfeeding rate, as measured by the DHS. TIBF at the national level increased: 39% to 61% in Bolivia, 25% to 46% in Ghana, and 34% to 62% in Madagascar. EBF at the national level also increased: 50% to 54% in Bolivia, 31% to 55% in Ghana, and 47% to 67% in Madagascar.^{6-8,20-22}

Earlier DHS reports showed a secular upward trend in TIBF and EBF that began in all 3 countries prior to the initiation of LINKAGES country programs. As more government and NGO workers used the approach,

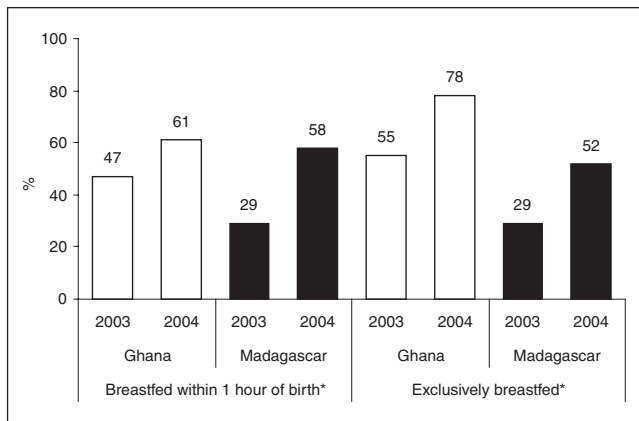


Figure 3. Comparison over time and by country of infants younger than 12 months who were reported to have been breastfed within 1 hour of birth and infants younger than 6 months exclusively breastfed based on 24-hour dietary recall in 2nd-generation project areas.

* $P < .001$, change from first data point versus last data point, χ^2 analysis.

messages, and tools promoted by LINKAGES, greater coverage was achieved, particularly through mass media outreach, which should have contributed to an overall positive effect on the national rates. Further analysis is now under way to determine the contribution of these broad-scale, multipartner country programs to the national trends.

Some practical lessons relevant to developing large-scale breastfeeding promotion programs can be drawn. Our experience indicates that a mix of activities, such as interpersonal counseling, community mobilization, and mass media, contributes to behavior change when these activities deliver consistent messages. Although it is not possible to say what the optimal balance of activities is to achieve results, the findings do suggest that a greater degree of support to community activities through direct implementation is associated with better results, as was observed in Madagascar.

Our experience tells us that creating a broad array of partners ensures harmonization of field approaches (especially messages and tools), expands coverage, and maximizes resources. By linking health workers and community health promoters, particularly for referral, mothers receive consistent messages. This harmonization of approaches and messages is a step toward the creation of new community norms for optimal breastfeeding.

Creating an overall positive policy environment for breastfeeding and nutrition through effective policy analysis and advocacy is essential for coalition building, partner “buy-in” to the programmatic approach,

and resource mobilization. Our experience suggests that addressing breastfeeding in an integrative manner, rather than dealing with it as a separate vertical program, extends its appeal to other health and nonhealth programs and increases program reach to more of the primary audience—pregnant women and mothers with young infants.

To foster sustainability, we involved partners in all aspects of program design and implementation and invested in the enhancement of preservice training curricula in medical and paramedical schools in Ghana and Madagascar. The project provided up-to-date technical content on breastfeeding, nutrition, counseling, and negotiation to ensure that future service providers are equipped with the knowledge and skills needed to support mothers and families to optimally feed their infants. We learned that using existing groups in communities instead of creating new ones allows for quicker start up and fosters sustainability.

The sustainability of program results will also depend on leadership to keep partners focused on infant and young child feeding and ensure that this issue is on the agendas of government, donor, and NGO decision makers. The existing networks of partners in the north of Ghana and through the GAIN in Madagascar, along with the strong ties established with government health services, may help serve this role and preserve the gains made. Individual partners, to varying degrees, have embraced the program approach. The expectation is that they will continue to incorporate it in their future community activities.

The findings from the work undertaken in the 3 countries show that sizeable improvements in optimal breastfeeding can be achieved at scale and within a relatively rapid time frame using the program approach we have described. Investing in improved breastfeeding practices is well justified given the potential to avert 13% to 15% of all deaths in children younger than 5 years in developing areas of the world.¹ Breastfeeding promotion should be a central component of any child survival strategy. The challenge is to secure the commitment of governments and donors to invest in infant and young child nutrition programs, particularly in the poorest regions of the world.

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Resumen

Se implementaron en Bolivia, Ghana y Madagascar, programas de cambios de comportamiento a larga escala a nivel comunitario, diseñados para mejorar las prácticas de lactancia materna. Estos programas llegaron a poblaciones grandes: Bolivia, 1 millón, Ghana, 3.5 millones; y Madagascar, 6 millones. En más de 3 a 4 años la iniciación de la lactancia materna a tiempo (dentro la primera hora después del parto) aumentó de 56% a 74% ($P < .001$) en Bolivia, 32% a 40% ($P < .05$) en Ghana, y 34% a 78% ($P < .001$) en Madagascar. También se documentó el aumento de la lactancia materna exclusiva en bebés de 0 a 6 meses de edad; de 54% a 65% ($P < .001$) en Bolivia, 68% a 79% ($P < .001$) en Ghana, y 46% a 68% ($P < .001$) en Madagascar. Se vieron resultados significativos en Ghana y Madagascar en menos de 1 año de intervenciones comunitarias. Estos autores concluyen que los programas diseñados a larga escala para mejorar las prácticas de la lactancia materna son posibles y deben ser un componente central en la estrategia global de supervivencia infantil.