

Innovative Community-based Interventions to Improve Newborn Health in Latin America and the Caribbean

By Rachel Haws, Peter J. Winch, Jaime Castillo
Johns Hopkins University



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The CORE Group

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ACRONYMS AND ABBREVIATIONS

<5MR	–	under-five mortality rate
ANM	–	auxiliary nurse-midwife
BCC	–	behavior change communication
CHW	–	community health worker
CRS	–	Catholic Relief Services
DILOS	–	<i>Directorio Local de Salud</i> (Bolivia)
ENC	–	essential newborn care
EOC	–	essential obstetric care
EmOC	–	essential emergency obstetric care
FP	–	family planning
HBLS	–	home-based lifesaving skills
HIS	–	health information system
IEC	–	information, education, and communication
IMR	–	infant mortality rate
KPC	–	Knowledge, Practice, and Coverage
LAC	–	Latin America and the Caribbean
LAM	–	Lacto-Amenorrheic Method
LBW	–	low birth weight
LQAS	–	Lot Quality Assurance Sampling
MNH	–	maternal and neonatal health
MOH	–	Ministry of Health
MMR	–	maternal mortality ratio
NGO	–	nongovernmental organization
NMR	–	neonatal mortality rate
PCI	–	Project Concern International
PHC	–	primary health care
PMR	–	perinatal mortality rate
PVO	–	private voluntary organization
SNL	–	Saving Newborn Lives (initiative led by Save the Children)
STI	–	sexually transmitted infection
SUMI	–	<i>Seguro Universal Materno Infantil</i> (Bolivia)
TBA	–	traditional birth attendant
TT	–	Tetanus Toxoid
UNICEF	–	United Nations Children’s Fund
USAID	–	United States Agency for International Development
UTI	–	urinary tract infection
WHO	–	World Health Organization



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Executive Summary

Despite progress made over the last two decades in reducing <5 mortality in Latin American and Caribbean (LAC) countries, neonatal mortality rates have remained largely unchanged, make up an increasing proportion of remaining <5 mortality, and constitute a significant proportion of neonatal deaths worldwide. The highest neonatal mortality levels in LAC countries are concentrated in areas that are remote geographically and/or inhabited by marginalized indigenous populations, areas characterized by poor health indicators related to disparities in resources, health care, and education.

These areas, whether remote mountain villages or periurban shantytowns, are frequently underserved by government services. Because private voluntary organizations (PVOs) and nongovernmental organizations (NGOs) serve these communities throughout the LAC region, they are uniquely suited to make use of low-cost, tested interventions to reduce neonatal mortality at the community level.

This report examines community-based neonatal health interventions in the LAC region from both theoretical and programmatic perspectives to identify operational considerations for effective neonatal health care. The report was developed based on an extensive review of health theory, peer reviewed journal articles, and gray literature, as well as program data collected by the authors through interviews and pertinent documents from PVOs and NGOs engaged in neonatal care interventions in LAC countries.

The document is organized into five sections. Section 1 presents background material concerning neonatal mortality in Latin America, highlighting areas of concern. Section 2 presents and elaborates

upon three different models for the establishment of a continuum of quality care for mothers and newborns. Following the principles of Safe Motherhood, Saving Newborn Lives and CARE have both suggested a continuum of care over four critical periods (preconception through the postnatal period). De Bernis' skilled attendant model of care, which closely echoes recent WHO recommendations, recommends that formal health care workers trained in essential midwifery skills be present at every birth, and that effective referral systems be implemented to provide comprehensive emergency obstetric care when necessary. Susan Rae Ross offers programmatic recommendations for the training of TBAs specific to the maternal health care setting, determined by availability of infrastructure and maternal health indicators. Barbara Kwast's version of the maternity care pyramid is a holistic community-based model emphasizing quality care from the home through the referral hospital level. This section also includes detailed definitions of the roles of community members in neonatal health interventions, and emphasizes the importance of partnerships promot-

ing strong intracommunity linkages and effective referrals. Section 3 presents five case studies from ongoing neonatal care projects in Nicaragua, Guatemala, Peru, Bolivia, and Honduras, respectively, including information about the geographic setting of the project, project objectives, interventions to improve neonatal and maternal health, roles of community members in the intervention, and next steps/lessons learned. Section 4 synthesizes information from the case studies and the literature to present a series of lessons learned concerning operational and technical issues in neonatal health care interventions. Following these lessons learned is an evaluation of the key strengths and attributes of PVOs and NGOs in neonatal care interventions, as well as an agenda for program evaluation and operational research. Section 5 concludes the paper by underlining the value of PVO and NGO approaches in underserved areas and emphasizing the appropriateness of the community-based approaches they use to develop effective, sustainable, and scalable interventions for neonatal health.

A recurring theme in the report is the infrastructural and cultural variations between rural, urban, and periurban areas, particularly with regard to access to care, the role of traditional birth attendants (TBAs), and the importance of traditional knowledge and practices. Differences in availability of resources and trained personnel in these different areas have important program design implications. Throughout, the report emphasizes the importance of understanding traditional knowledge and the role it can play during delivery and in neonatal care-seeking behaviors. The literature and the case studies both highlight the divergent perspectives of facility-based health care workers and the women and TBAs who interact with this system for referrals, divergences resulting from a lack of understanding of this traditional knowledge by formal health care workers. TBAs are given special attention in conceptualizing community-based models of neonatal care because they can be rich sources of traditional knowledge as well as some of the only health care resources available in remote areas. However, their level of training and the quality of the care they provide varies greatly, presenting a number of operational challenges for neonatal health care programs where TBAs are involved.

This report also outlines the value of community-based participatory strategies for problem-solving and

education as part of an integrated battery of interventions (including training of formal health care workers and policy development/advocacy) to improve neonatal health. Community-based approaches can teach problem-solving skills that build capacity and the ability of communities and their members to care better for themselves. Many of the case studies included in this report build upon the model of the Warmi Project, a community-based maternal and neonatal health project led by MotherCare in Bolivia in the early 1990s. The problem-solving model of community autodiagnosis, prioritization, planning, implementation, and evaluation reappears throughout the case studies, adapted for new environments and new problems, and linked to other interventions such as mortality surveillance and health worker training.

Commonalities between the five case studies and supporting evidence from the literature permit consideration of operational issues that can influence the effectiveness of neonatal care interventions. These operational issues include: 1) the need for multiple roles and a range of personnel, 2) roles CHWs and TBAs can perform (including an enhanced technical role for some CHWs), 3) a proposed package of essential newborn care interventions, 4) minimizing long start-up times for neonatal health care programs, 5) different program needs in rural and periurban environments, 6) ways to improve utilization, and 6) using partnerships to build sustainability and scalability.

The findings of this report consistently suggest a wide range of roles for PVOs and NGOs in neonatal health care. In the case studies as well as the supporting literature, PVOs and NGOs consistently display strengths that imply a substantial role for them in improving neonatal care, including creativity, ability to work with limited resources, adaptability, ability to marshal resources and political will through partnerships, emphasis on capacity-building and sustainability, and ability to bring successful projects to scale. The involvement of PVOs and NGOs in a wide range of activities, including service provision, training, networking, and resource mobilization, makes them important bridges between communities, government, and other health care actors.



Introduction

1.1. Under-five Mortality in Latin America

Over the last two decades, the Latin America and Caribbean (LAC) region has made consistent progress in the reduction of under-five (<5) mortality, thanks in part to improvements in basic infrastructure and the success of child survival programs. Today, of the LAC countries, only Haiti remains among the 40 countries worldwide reporting highest <5 mortality rates (Black et al., 2003). Fertility levels in nearly all LAC countries are gradually decreasing to levels that promise to stabilize population growth and further lower infant and child mortality rates.

While <5 mortality rates (<5MR) and infant mortality rates (IMR) have dropped steadily, Latin American countries continue to figure significantly in the estimated 10.8 million annual <5 deaths in the world (Black et al., 2003), due to the large size of their populations and continuing disparities in health outcomes. Mortality rates vary widely between LAC countries: in the region, Haiti and Bolivia present high neonatal, <5, and maternal mortality rates comparable to many Asian and African countries, while lower mortality indicators in Cuba and Chile are more comparable with developed countries.

Aggravated by failed structural adjustment policies in the 1980s and financial crises in the 1990s, large disparities in income, education, and access to health care mark many of the LAC countries (Wagstaff, 2000). These inequities have been conclusively associated with disparities in child health outcomes (Victora et al., 2000; Victora et al., 2003; Wagstaff, 2000). Importantly, national-level aggregate mortality rates often conceal high levels of <5 mortality in vulnerable subsections of the population (Victora et al., 2003). In most LAC countries, indigenous peoples, ethnic minori-

ties and rural populations have significantly worse health indicators and birth outcomes than the average (Bender et al., 1993; Torres, 2002). In many cases, these populations may be concentrated in remote mountainous areas: high <5 mortality has been documented in such areas of Mexico, Central America, and the Andes (de Meer et al., 1993; Kwast, 1995).

1.2. Neonatal Mortality in Latin America

The rate of neonatal mortality (death within the first 28 days of life) is considerably lower in the LAC region than in Africa or Asia (see Table 1). Still, the overall magnitude of neonatal mortality is significant: 9 percent of all neonatal deaths worldwide occur in LAC countries (SNL, 2001). Neonatal mortality rates in Bolivia and Haiti are the worst in the LAC region, at 34 per 1000 live births in Bolivia and 31 per 1000 live births in Haiti (SNL, 2001).

Child survival interventions, including routine immunizations and treatment of common childhood infections such as malaria, diarrhea, and pneumonia, have significantly reduced post-neonatal deaths in the LAC region. However, the number of neonatal deaths

TABLE 1. COMPARISON OF <5MR, NMR, AND MMR BY REGION

Region	<5MR (deaths up until age 5 per 1000 live births, 2003)	NMR (number of neonatal deaths per 1000 live births, 1995–1999)	MMR (number of maternal deaths per 100,000 live births, 2000)
Africa	174*	42	830
Asia (S Asia) (E Asia and Pacific)	(97) (43)	34	330
LAC (Caribbean) (Central America) (South America)	34	17 (19) (13) (18)	190
Developing Regions	90	34	440
Developed Regions	7	5	20
World	82	31	400

* Sub-Saharan Africa only

Sources:

<5MR: (UNICEF, 2003); NMR: (SNL, 2001); MMR: (AbouZahr and Wardlaw, 2000).

has remained fairly stable. Because neonatal deaths have remained relatively constant while <5MRs have decreased, a large proportion of remaining <5 mortality in LAC countries can be attributed to neonatal mortality (SNL, 2001). Worldwide, nearly 40% of all <5 mortality occurs within the first 28 days of life (Ross, 1998; SNL, 2001). This percentage is even higher in LAC countries: in Brazil, 53% of all <5 mortality occurs during the neonatal period; in El Salvador, 59%; in Paraguay, 67%; and in Mexico, 86%. A significant proportion of <5 mortality occurs during the first week of life, particularly on the first day, demonstrating that immediate newborn care and monitoring of the newborn for danger signs during the first days of life are critical (Ross, 1998). Further reductions in infant and <5 mortality will therefore require addressing the care of newborns.

Disparities in neonatal mortality rates are disturbing in LAC countries: Table 2 demonstrates for Brazil and Nicaragua that, while overall neonatal mortality rates may be lower than in Africa and Asia, rates for the poorest quintiles of the population are comparable to or higher than NMRs in countries with the highest national NMRs, such as Ethiopia, Nepal, and Mozambique.

High neonatal mortality rates are typically concentrated in more remote rural areas and periurban shantytowns. Government services often fail to reach rural areas and low-income shantytowns, a gap frequently filled by private voluntary organizations (PVOs) and non-governmental organizations (NGOs) (Levinger and McLeod, 2002; Winch et al., 2002). (Note: PVO is the American government term for US-based private entities involved in charitable work; the

TABLE 2. ESTIMATED NEONATAL MORTALITY RATES IN BRAZIL AND NICARAGUA, BY QUINTILE OF EQUIVALENT CONSUMPTION

Country	Neonatal Mortality by consumption quintiles				
	Poorest		Richest		
	1	2	3	4	5
Brazil	48.5	24.7	21.8	11.3	10.2
Nicaragua	65.8	51.5	42.7	40.0	27.1

Source: Estimated ($NMR=0.6667*IMR$) using figures from disaggregated data in Wagstaff, 2000.

TABLE 3. VARYING TRENDS IN RURAL, PERIURBAN, AND URBAN AREAS OF THE LAC REGION

	Rural	Low-Income Periurban	Urban
Access to care	Low	Varies according to cost and marginalization	High
Utilization of maternal health services	Low	Low	High
Skilled attendant at delivery	Low	Variable	High
TBA role at births	High	Low	Low
Importance of traditional knowledge	High	Variable	Low
Rates of home deliveries	High	Variable	Low
Rates of Caesarean sections	Low	Moderate	High
Rates of breastfeeding	High	Variable	Low

term NGO includes PVOs as well as their local partners—public and private—in the field. In this document, PVOs will be referred to by the more inclusive and common term NGO). Because decreases in NMR and IMR are typically observed last in poor and underserved parts of population, lowering <5 mortality in the LAC region will require prioritizing the pockets of high neonatal mortality found in these hard-to-access areas (Szwarcwald et al., 2002).

1.3. Differing Trends Influencing Neonatal Mortality in Rural, Urban, and Periurban Areas of the LAC Region

Disparities in neonatal mortality within countries are primarily caused by differences in available resources, access to health care, and access to education for women (Wagstaff, 2000). In Bolivia, rates of neonatal mortality are almost twice as high in rural areas as in urban areas; an average NMR of 48 per 1000 live births in these rural areas approaches rates found in Africa and Asia. A brief summary of the different trends in rural, periurban, and urban areas is presented in Table 3 and will be discussed in greater detail below.

Rural Areas

In rural areas, neonatal mortality is high because of a lack of access to quality health care, distance from health care facilities, and low education and training levels of community members and health care workers. In rural areas, traditional knowledge remains important, as most births occur in the home and many rely on the skills of lay volunteer birth attendants such as

TBAs, called traditional midwives in some LAC countries (Note: the term “midwife” is applied throughout the literature to a heterogeneous group of individuals with diverse skills and training, ranging from untrained birth attendants with no midwifery skills to master’s degree recipients with training in emergency obstetric care. For clarity, the term TBA will be used to refer to birth attendants in the informal sector with less than one month of formal training, and the term midwife will be used solely to refer to one of several kinds of highly-trained, skilled birth attendants. Typologies of skilled birth attendants and TBAs, and subcategories and skill sets within each group, can be found in Section 2.2 and 2.5, respectively.)

TBAs continue to play a key role in rural areas because of a combination of necessity and tradition. Many rural areas are too sparsely populated or impoverished to support a permanent post for a physician, despite the demands of many rural populations for high-technology care. In the absence of biomedical care, traditional knowledge and home births are common. Traditional knowledge and cultural acceptability can be powerful: even where biomedical care alternatives to traditional birthing practices have been introduced, rural women have often continued to prefer using TBAs (Hunt et al., 2002). Sargent and Bascope, in their study of rural Mayans in Yaxuna, Mexico, note in these rural communities a collaborative style of shared traditional knowledge, enhanced by personal experience rather than professional training, in which mothers as well as TBAs have power in the birth process (Sargent and Bascope, 1996),

also documented in Chiapas, Mexico (Hunt et al., 2002). In countries that have adopted WHO-recommended government policies eliminating or severely curtailing the activities of TBAs, including Bolivia, Brazil, Costa Rica, Paraguay, and Jamaica, TBAs play a diminished role in the birth process (Jenkins, 2003; Kwast, 1995; Sargent and Bascope, 1996).

Breastfeeding rates tend to be higher in rural than in urban areas of LAC countries, a finding documented by several studies of breastfeeding women. A study of Mexican women found that rural women had higher rates of breastfeeding initiation and longer average breastfeeding duration than women in urban areas (Perez-Escamilla and Dewey, 1992), and a 1993 study of breastfeeding duration in nine LAC countries confirmed breastfeeding duration to be longer in rural than in urban areas (Perez-Escamilla, 1993; Perez-Escamilla et al., 1993). Although recent research has confirmed that median breastfeeding duration is still higher in rural than in urban areas, it has also noted that this differential is decreasing over time as higher proportions of urban women choose to breastfeed (Perez-Escamilla, 2003).

While the need for obstetric and neonatal care between rural and urban areas is similar, allowing for local variations in morbidity and mortality patterns, an urban bias exists because most medical training occurs in fairly sophisticated urban hospital environments and medical personnel are ill-equipped to provide the needed continuum of care in rural areas (Kwast, 1995). Lack of infrastructure and shrinking national health budgets are major obstacles to the creation and sustainability of such sophisticated environments in rural areas. An urban bias also applies to national policies on neonatal health, which are often designed for, and may be best suited to, urban areas. Formulated predominantly with data from urban areas due to difficulties in rural data collection, these policies are frequently ill-equipped to address different community dynamics, cultural variations, and obstacles created by lack of resources.

Urban Areas

The lower levels of neonatal mortality in urban areas can be attributed to greater access to and utilization of facility-based obstetric and neonatal care. Trends observed in urban areas include a higher proportion of births in medical facilities, higher rates of antenatal care, and increased reliance on technical obstetric

interventions (Barros et al., 1991; Jenkins, 2003; Sargent and Bascope, 1996). In urban areas of LAC countries, increasing value placed on biomedical knowledge has medicalized the birth process and increased demand for facility-based obstetric and neonatal care (Sargent and Bascope, 1996). In Costa Rica, 98% of all births now take place in clinical settings. Physicians, nurses, nurse-midwives, and midwives trained in essential midwifery skills provide the majority of prenatal and obstetric care; this shift has diminished or eliminated the role for traditional birth attendants (TBAs) untrained in biomedical care (Jenkins, 2003). An associated decrease in the influence of traditional knowledge may be one factor that led to decreased rates of breastfeeding among urban women over the last several decades, although recent research suggests that breastfeeding protection policies and promotion programs are contributing to an increase in breastfeeding rates among urban women in LAC countries (Perez-Escamilla, 2003).

An example of the growing influence of high-tech obstetric care in urban areas of the LAC region is the documented increase in Caesarian sections in several LAC countries—El Salvador, Nicaragua, Bolivia, Paraguay, and the Dominican Republic—over the last decade (AbouZahr and Wardlaw, 2001). Presumably, this trend is more pronounced in urban areas, due to the primarily urban clustering of medical personnel trained in the procedure. Data on Caesarian section rates in rural areas of LAC countries is hard to obtain. In Brazil, Caesarian-section rates nationwide are 36.4%, and over 80% in some urban hospitals (Barros et al., 1991; Misago et al., 2001). The government emphasis on hospital-based care and highly technical procedures in Brazil has recently extended to rural areas, potentially putting mothers' and neonates' lives at risk in small-town hospitals lacking professional and financial resources. Overuse and misuse of reproductive and obstetric technologies can have a number of negative effects, both on the health of mothers and neonates, including higher morbidity and mortality, anesthesia depression, and obstetrical trauma (Patterson et al., 2002). The high cost of technological solutions also raises questions about the appropriateness and equitability of these solutions in lieu of using the same financial resources for cost-effective low-tech solutions to help a much larger number of rural, indigenous, or otherwise disenfranchised women.

Low-income Periurban Areas

Low-income periurban areas should be considered separately from wealthier urban areas due to their segregation from these areas by deep poverty, and separately from remote rural areas because of differences in community composition and access to services. In periurban shantytowns, rates of neonatal mortality may meet or exceed rates in rural areas. While there is a scarcity of reports on neonatal mortality in low-income urban environments and periurban shantytowns in LAC countries, the common features of endemic poverty and poor infrastructure suggest that findings from similar environments in other countries may be generalizable to the LAC region. One study from India observes that the proportion of home births without a trained attendant is even higher in periurban shantytowns than in rural areas. The study also notes that the measured NMR in periurban slums of Delhi, India is more than double the national NMR (58.1 per 1000 live births in Delhi; 26 per 1000 nationally) (Fernandez et al., 2003).

Periurban shantytowns in the LAC region have arisen primarily from migration of rural populations toward cities in search of economic opportunity. Populations of urban shantytowns such as El Alto in Bolivia have consistently grown by 9% or more each year in recent years, too quickly for health services—where they exist—to meet the needs of residents or reach the large number of newcomers (Aguilar et al., 1998). The poor living conditions found in these areas have resulted from systematic underinvestment in infrastructure, education, health care, and other social goods (Szwarcwald et al., 2002). In some cases, low-income periurban residents may not be able to access or afford quality health care services because of social, cultural, and economic marginalization. As in rural areas, in periurban shantytowns, the main determinants of infant death are inadequacy of housing and sanitation, poor access to and/or quality of health care, and cultural factors affecting use of preventive services. While adequate prenatal care can reverse many of the effects of poverty on neonatal and infant mortality, rates of antenatal care in periurban slums are typically low.

In many areas, periurban shantytowns have more heterogeneous populations ethnically and linguistically than rural areas or established urban areas because of this rapid growth and in-migration from different parts of the country. This heterogeneity can create barriers to care for residents unfamiliar with the formal health

care system, as well as difficulties in communication between health professionals providing obstetric services and their clients. Community mobilization in these areas can also be difficult because of a low sense of collective responsibility due to this diversity.

Because PVOs and NGOs are frequently well versed in the dynamics of communities in which they work, cognizant of the role of traditional knowledge in local understandings of health, and often accustomed to designing creative solutions with a scarcity of resources, these organizations may be uniquely able to improve neonatal health in underserved areas, including periurban shantytowns and geographically remote villages (Levinger and McLeod, 2002; Winch et al., 2002).

1.4. Traditional Practices Affecting Newborn Health

The newborn period is characterized by several overlapping transitions. There are biological and physiological transitions as the child adapts to life outside the womb, and there are social and cultural transitions as the child is recognized and accepted as a member of the family and of the larger community (Winch et al., Manuscript in preparation). Anthropologists have documented in many studies that when someone is passing from one life stage to another, as is the case for newborns (unborn child to young child), girls at the time of menarche (child to fertile woman), or when people adopt a new role in society, they are vulnerable, and at increased risk from forces both seen and unseen (Turner, 1969). Cultures take a variety of steps to “manage” these transitions to ensure a good outcome (Turner, 1969; Winch et al., Manuscript in preparation).

During delivery, the mother and the newborn are simultaneously passing through important, linked transitions that the caregiver must manage, often alone. The mother and the newborn both have a need to be protected from harm, but during delivery, caregivers usually attend first to the mother and second to the baby. In some Altiplano cultures, relatives customarily give newborns herbal teas (*mates*) rather than colostrum (first milk) to allow the mother to rest after the birth (Aguilar et al., 1998). Immediately after delivery, caregivers often lay newborns on a cloth or rag on the ground until the placenta is delivered, rather than quickly drying and wrapping the newborn. These cultural practices to manage the mother’s transition can unintentionally weaken the newborn, particularly if the baby is preterm.

While health professionals view careseeking as a key behavior to decrease neonatal mortality, in many cultures families view careseeking as a behavior that will increase the risk to the newborn, placing the child at risk from a range of malevolent forces such as *mal de ojo* (evil eye) (Cosminsky, 1994). This, combined with the time and effort required to seek care, effectively dissuade many parents from seeking treatment for a very sick newborn (Terra de Souza et al., 2000). Similar to death, the beginning of life is associated with a variety of spirits, and families may take steps to appease them or keep them away from the child. Rather than seeking care outside the home, a woman may have her labor, delivery, and newborn care all occur in one inner room of her house, with entry restricted to selected household members. These restrictions protect both the mother and newborn from harmful influences such as the cold, winds, and malevolent spirits. For example, Sargent and Bascope describe how during a birth in rural Guatemala “the husband was admonished by Dona Lila (the birth attendant) for not covering all the holes (in the wall) to protect against dangerous winds” (Sargent and Bascope, 1997).

Families may also feel that there is little they can do to influence the outcome as the newborn passes through this dangerous transitional period. Once a newborn is ill, actions taken by the family may be oriented toward perceived spiritual rather than biomedical causes. Particularly in rural communities, women whose newborns become sick may believe that the condition arose from contact with dead spirits during pregnancy. Reading coca leaves is a common practice by mothers in Colombia, Peru, Ecuador, and Bolivia, to determine the natural outcome of their infant’s illness. Use of herbal remedies is common, particularly in rural areas, both by mothers and by traditional healers. In some cases, neonates may be massaged with alcohol or bathed in urine, potentially worsening a newborn’s condition (Aguilar et al., 1998). Beliefs that children who are ill are “with the devil,” or that God has preordained the deaths of newborns who become sick, are obstacles to giving newborns timely and appropriate care (Aguilar et al., 1998). These cultural conceptions have contributed to what has been called the “invisibility” of the newborn (SNL, 2001).

Serious neonatal complications, particularly life-threatening infections such as sepsis and meningitis, can also be difficult to recognize. Chances of survival

are rapidly worsened by delays in recognizing life-threatening problems or sicknesses, in deciding to seek care, in arranging transport to get care, and in being able to access high-quality, appropriate care at a health facility (Ross, 1998; SNL, 2001).

Last, the incorrect perception, both among families and health professionals, that newborn care, especially for preterm and low birth weight (LBW) births, requires high-tech care and monitoring equipment such as incubators and vital sign monitors is widespread in LAC countries (Ross, 1998). Many people perceive that nothing can be done for newborns outside of sophisticated health facilities. However, there is convincing evidence that low-tech simple resuscitation techniques can revive asphyxiated babies, that adequate sanitation and handwashing can prevent a number of potentially fatal infections, that keeping preterm babies warm and frequently fed can reduce neonatal mortality (SNL, 2001). Very basic interventions can go far to train new mothers in recognizing warning signs and seeking appropriate care for their babies. One such intervention is encouraging the practice of early postnatal contact with a skilled care provider or TBA trained in counseling on newborn care and recognizing health problems—such as breathing and feeding difficulties, convulsions, bleeding, jaundice, fever, pallor, or swelling—in the neonate that may require special attention or referral (Ross, 1998; SNL, 2001).

1.5. Links to Maternal Mortality and Maternal Health Care

The intersection of neonatal and maternal health is a crucial one. Every year, 23,000 mothers die during or shortly after childbirth in the LAC region, particularly in rural areas where health care is unavailable (Acosta et al., 2000). The majority of these women are from low socioeconomic backgrounds, have low education, and live in remote rural areas far from high-quality medical care (Acosta et al., 2000).

Establishing a continuum of care that meets the health needs of mothers and their babies before pregnancy, during the antenatal period, through delivery, and in the postnatal period is essential to safeguard women’s health and improve birth outcomes. For example, proper antenatal care can anticipate and treat some complications of pregnancy and labor. When reproductive and maternal health services are provided that encourage better nutrition and the use of family planning methods, mothers can become better

equipped for the nutritional demands of pregnancy and can learn to space their pregnancies, enabling them to improve their own health as well as that of future children (SNL, 2001). Improving the quality of care during delivery, such as maintaining the clean chain, reduces not only the likelihood of neonatal death but also the likelihood of maternal death and morbidity (Acosta et al., 2000). Postnatal care to recognize birth complications, such as infections, is as essential for the health of the mother as it is for her newborn (Ross, 1998).

To include newborn care in this continuum of maternal and child health care will require synergistic integration with established maternal health and child survival programs. These programs provide much of the needed infrastructure to implement interventions to foster neonatal and maternal health in the early postnatal period (SNL, 2001). Simple newborn care components can be easily incorporated into safe motherhood and child survival programs with minimal additional resource commitment. For an example of a program that combines interventions promoting neona-

BRIDGING THE NEONATAL CARE GAP THROUGH AN INTEGRATED PROGRAM APPROACH

From 1999 until 2003 in the Department of Intibucá, Honduras, Catholic Relief Services (CRS) worked to reduce maternal and child mortality through an integrated intervention approach. The program, called the Intibucá Community-Based Child Survival Program, had four intervention arms: 1) Safe Motherhood and Newborn Care; 2) Lacto-Amenorrheic Method (LAM) for Health and Birth Spacing; 3) Diarrhea Prevention, Recognition, and Management; and 4) Pneumonia Prevention, Recognition, and Management. Intervention activities were mutually reinforcing and created a continuum of care both through the cycle of

pregnancy, childbirth, and infant development, and from the community to higher-level health care services when needed.

Program activities addressed maternal and child health at all stages. The program was structured so that mothers could receive appropriate prenatal care, learn how to recognize danger signs during pregnancy, and receive care from trained TBAs who can manage some complications and seek referral for others. TBAs initiated breastfeeding immediately after delivery. Mothers received postnatal home visits to monitor health of the mother and newborn, as well as instruction in how LAM can prevent sickness and promote growth in the baby as well as help space future births for the

mother. Growth monitoring activities, strengthened training in IMCI among health professionals, and community-based education about diarrhea and pneumonia prevention and treatment, helped to improve the health of infants and children as they grew.

The program also focused on a continuum of obstetric and neonatal care from the community to referral facilities in cases of emergencies. Women and TBAs were taught to recognize danger signs during labor and the postpartum period and to use the services of emergency committees in each community, which arranged transportation for women to referral health facilities. A community-based monitoring system collected data on birth outcomes.

This integrated approach has proven a success in promoting maternal and neonatal health: the proportion of institutional births has risen from 16 to 23%, implying an increase in presence of skilled birth attendants at births. In 17% of all pregnancies, women, family members, or TBAs recognized a risk factor or danger sign that required and resulted in a referral. At the end of the project, 100% of communities had developed their own transportation plans under the leadership of emergency committees. Additionally, exclusive breastfeeding in children under 6 months of age increased from 32 to 63%.

Source: (Anderson et al., 2004)

tal health with basic Safe Motherhood and child survival interventions, see page 7. The community-based maternity care model is particularly salient as an example of this continuum of care, which can bring about reductions in maternal as well as perinatal mortality and morbidity (Kwast, 1995).

1.6. Objectives of this Report

It is in underserved communities of LAC countries that neonatal mortality and maternal mortality remain highest, and continuing to make progress toward reducing mortality of children under five will require attention to the needs of newborns and their mothers in the most remote and impoverished areas of Latin America. To highlight what activities are already underway to improve neonatal health, and what challenges remain to be met, this report reviews a range of approaches to reduce neonatal mortality by PVOs and NGOs working in these underserved areas of Latin America.

This report first aims to evaluate the range of theoretical frameworks and typologies about neonatal

care. After evaluating the literature, the report presents a series of case studies profiling ongoing community-based neonatal health projects by PVO and NGOs in Nicaragua, Guatemala, Peru, Bolivia, and Honduras. The exploration of these case studies allows for comparison of a number of different models of how PVOs and NGOs can work with communities to improve neonatal care in the LAC region, particularly in underserved rural areas and other low-resource settings.

A series of lessons learned concerning operational issues emerge from a comparison of the case studies, suggesting key roles and competencies for community members, essential interventions for newborn care packages, differing approaches for rural and periurban areas, and ways to overcome cultural barriers to careseeking. After identifying a number of attributes of PVOs and NGOs that enhance their potential effectiveness in implementing and scaling up neonatal care interventions, the paper concludes by recommending an agenda for further operational and evaluation research.



Models for Implementing Newborn Health Programs

There is no universal model for the successful implementation of a neonatal health program. In the LAC region, the wide diversity of health care systems, geography, distribution of trained personnel, and distribution of resources makes such a model unfeasible. However, several broad features will characterize any successful neonatal health program.

First, it will include health interventions targeting four critical periods surrounding pregnancy and birth: pre-conception, pregnancy, delivery and after birth. Neonatal health can be affected indirectly and directly as early as a mother's girlhood and as late as the 28th day after birth. Cost-effective, simple interventions exist that can help protect the health of women before and during childbearing, and that can improve their chances of their babies surviving to adulthood. Some of these interventions affect women's and their newborns' health directly, such as folic acid supplementation and proper cord care, while others indirectly improve the status and decision-making abilities of women, such as expanding girls' opportunities for education and discouraging early marriage.

Second, it will emphasize a continuum of quality care by skilled birth attendants wherever they are available (De Bernis et al., 2003; Koblinsky et al., 1999), but will also incorporate and provide support to volunteer caregivers and community members without essential midwifery skills. Most remote and otherwise underserved areas suffer from shortages of skilled birth attendants. While there is no substitute for having care from a skilled attendant during pregnancy or delivery, it will take considerable time and political will to train

and support enough skilled birth attendants to meet women's needs in the LAC region (WHO, 1998). In the meantime, TBAs, CHWs, health promoters, and women's groups will be indispensable resources in planning and executing neonatal health care programs. Their wealth of experience is a window to learn how women live, what their health problems are, and how birth problems have been handled in the past. Their presence in communities that may be far removed from other sources of care make them invaluable as educators and health practitioners. Any successful neonatal care program will maximize their strengths, supplement their knowledge with appropriate continuing training and supervision, and encourage constructive interdependences between these health care actors.

Third, it will be community-focused. Neonatal deaths are highest in rural and low-income periurban areas of LAC countries, and delays in seeking care during delivery and for sick newborns are frequently fatal. The advantages to incorporating neonatal care into a maternity care pyramid where the majority of prenatal, delivery, and post-delivery services are provided or initiated within the community will do much to alleviate the vacuum in obstetric and newborn care capability at the health center level (Kwast, 1995).

2.1. Preventing Neonatal Mortality: Four Critical Periods

Most neonatal mortality can be prevented without highly technical interventions or equipment. Very simple, cost-effective solutions exist, and in many cases are as simple as good nutrition, adequate sanitation and hygiene, vaccination for preventable diseases, and having access to good care during and after delivery. Ideally, preventing the death of newborns (and protecting the health of their mothers) should begin well before babies are born, even before they are conceived. In harmony with the principles of Safe Motherhood, several organizations, including CARE and Saving Newborn Lives, recommend a model for providing essential care for neonatal health by establishing a continuum of care through four key periods: preconception (care for future mothers prior to conception), pregnancy, delivery, and after birth (Ross, 1998; SNL, 2001).

Preconception

Before women conceive, critical opportunities exist to improve their chances of remaining healthy and delivering a healthy baby. Caring for future mothers, even as girls, can do much to prepare them for healthy pregnancies and strong families. Improving general health, nutrition, societal status, and education of women all contribute to their ability to make healthy childbearing decisions and bear healthier children (de Meer et al., 1993). In Latin America, 25% of the population is food insecure, predominantly in remote rural areas subject to drought and seasonal food production (Ross, 1998). Providing access to family planning services during this period is crucial (Ross, 1998). In Latin America, it is estimated that preventing unwanted pregnancies could avert 33% of maternal deaths (Kwast, 1995). Family planning increases women's ability to space births, helping them renew their strength and replace lost nutrients so that they and their future children will be healthier and able to avoid worsened poverty from having more mouths to feed (Ross, 1998; SNL, 2001). Promoting safer sexual practices can also contribute to the prevention of a number of sexually transmitted infections, including HIV/AIDS, gonorrhea, and syphilis, which can threaten women's lives and jeopardize the health of their newborns. Rising syphilis incidence in Latin America is of particular concern: the World Health Organization estimates that number of new syphilis cases in Latin America more than doubled between 1995 and 1999,

and that approximately 25% of all syphilis cases worldwide occur in Latin America (WHO, 2001). Syphilis infection is a leading cause of stillbirth, preterm birth, and low birth weight, and congenital syphilis in the newborn can cause seizures or death in the first few weeks of life, implicating syphilis as an important cause of perinatal mortality (Conde-Agudelo et al., 2000; Gloyd et al., 2001; Ramos et al., 2000; Saraceni and Carmo Leal, 2003). Van Dam has estimated that of all pregnancies in syphilis-infected women, only 12.5% of pregnancies will end with the birth of a healthy newborn (Van Dam, 1995). The remainder of the pregnancies will end in spontaneous abortion (20%), stillbirth (30%), congenital syphilis (25%), or preterm birth (12.5%). Communities have a prominent role to play in ensuring that women may choose when to bear children and that prior to conceiving, women are healthy and prepared to care for themselves during pregnancy.

Pregnancy

Quality care during pregnancy both prepares mothers to care for their newborns and prevents complications that could threaten the life of the mother and/or her baby during childbirth (Ross, 1998). Regular antenatal visits help prepare women for delivery, and help to identify many possible complications, such as insufficient weight gain, high blood pressure, anemia, or bleeding, before they claim mothers' or babies' lives. Providing pregnant women with information about birth preparedness, care of their bodies during pregnancy, and newborn care equips them with skills to recognize danger signs and know how and where to seek help (Ross, 1998). Good nutrition during pregnancy helps reduce the risk of low birth weight (LBW) babies, the most important indirect cause of newborn morbidity and mortality (SNL, 2001). Proper nutrition, including supplementation, also strengthens mothers in preparation for labor and for the nutritional demands of breastfeeding (Ross, 1998). Pregnancy presents a window to screen and treat infections that pose risks to mothers and their children. Tetanus immunizations, treatment of urinary tract infections, and treatment of bacterial vaginosis are inexpensive but effective interventions to prevent fetal and neonatal morbidity and mortality. Treating sexually transmitted infections can reduce the risks of congenitally acquired infections that can cause blindness in or death of the baby (Ross, 1998). Treatment of malaria and worms can prevent

spontaneous abortion and prevent LBW births. Additionally, the prenatal period is a potential entry point for HIV prevention and care; voluntary counseling and testing for HIV during pregnancy gives many women the opportunity to reduce the risk that their child will be born with the infection, and that their own health can be preserved through appropriate nutrition and medication (SNL, 2001).

Delivery

Formal health care personnel who have received in-depth training in essential midwifery skills (for a definition of these skills, see Section 2.2) can capably manage normal deliveries and manage or refer deliveries with complications. Having a skilled birth attendant at delivery is associated with lower rates of neonatal death (SNL, 2001). In LAC countries, only 64% of births are attended by skilled attendants: 48% by doctors, and 16% by other types of skilled attendants (de Bernis, 2003). TBAs attend an additional 24% of births in LAC countries (de Bernis, 2003). In remote rural areas of many LAC countries, district hospitals are unable to provide adequate coverage, so women have no access to skilled health providers during delivery (Kwast, 1995). In rare cases where such care is available in remote areas, continuing training for and supervision of skilled birth attendants and quality referrals should be maintained or improved. Whether or not a skilled birth attendant is involved, simple steps during the delivery period can prevent a number of complications and infections in the first crucial minutes, hours, and days after the birth. Of primary importance is maintaining a “clean chain”—clean hands, clean delivery surfaces and equipment, clean umbilical cord cutting/tying/stump care, and clean clothing and blankets—to prevent infections such as sepsis and tetanus (Kwast, 1995). Food and warmth for the infant are also essential, especially for LBW and preterm infants, who may require special attention to recognize potential problems and monitor vital signs. Drying infants immediately and either wrapping them or placing them in contact with their mother’s skin can prevent hypothermia. Initiating breastfeeding within an hour after birth and ensuring that babies benefit from colostrum, or first milk, helps reduce neonatal mortality from infections (Kwast, 1995). Being able to recognize early danger signs, such as asphyxiation, limpness, or bleeding, also helps improve the chances of a safe delivery.

After Birth

The fourth crucial period of opportunity to improve neonatal health is shortly after birth. Most neonatal deaths occur in the first minutes, hours or days after birth. Deaths are classified as early neonatal deaths until the age of 7 days and late neonatal deaths from 7–28 days. The causes of early neonatal death are commonly related to the causes of fetal death (complications of congenitally acquired infections and congenital defects) as well as birth-related causes (hypothermia, birth asphyxia, infections, and birth injury), conditions compounded by preterm birth and/or low birth weight (Hinderaker et al., 2003; Lansky et al., 2002). More than two-thirds of these deaths can be prevented if skilled care is available (Ross, 1998). Late neonatal death is more likely due to feeding problems, transmissible infections, or asphyxia-related conditions, compounded by delays in recognizing or seeking care and referrals for neonatal problems. Most of the interventions that prevent early neonatal death (such as immediate drying and wrapping, or simple resuscitation) must be practiced during or immediately after delivery. However, a substantial proportion of both early and late neonatal deaths can be prevented through the provision of basic and appropriate postnatal care for mother and baby, a focus of very few programs (Ross, 1998). When someone trained in essential midwifery skills (see Section 2.2) has early postnatal contact with a mother and her newborn, an opportunity exists to counsel the mother on proper newborn care (including cord care, handwashing, and breastfeeding) and to recognize any problems in the mother or her baby. Households and communities can play a key role in encouraging women to seek care, so community mobilization and participation techniques can usefully target the postnatal period (Ross, 1998). During this period, potential problems with exclusive breastfeeding can be identified. When mothers in Mexico were given support for breastfeeding during a postnatal care visit, their rates of exclusive breastfeeding increased (Morrow et al., 1999). A routine postnatal visit also increases the chances that infections can be recognized and treated early.

2.2. The Skilled Attendant Model of Care

De Bernis et al have emphasized the clinical rationale behind a skilled attendant model of care, in which all births are attended by formal health care workers trained in essential midwifery skills (De Bernis et al.,

2003). Having skilled attendants at births improves triage and decreases referral times, often saving lives (De Bernis et al., 2003; Ross, 1998). However, in resource-poor areas without government support promoting skilled attendants at birth, this model may be out of reach for many, although the model has a number of features that deserve mention.

For the sake of clarity and for program planning, it is important to distinguish between skilled birth attendants, and traditional or trained birth attendants. Part of the formal health care system, the category of skilled birth attendants as defined by the World Health Organization includes midwives, nurses, nurse-midwives, or doctors who have undertaken a set course of study in essential midwifery skills and are registered or legally licensed to practice. TBAs, including those who have received some training in biomedical techniques, are not defined by the World Health Organization as skilled birth attendants (WHO, 1998).

Formal health care personnel (doctors, nurses, nurse-midwives, etc.) are not *de facto* skilled birth attendants. Doctors and nurses in LAC countries may have had no obstetric training at all, or may not have practiced these skills to mastery. According to the WHO classification, skilled birth attendants are defined less by their title than by their mastery of a package of essential midwifery skills. Anyone with this set of skills is a skilled birth attendant (WHO, 1998).

Skilled birth attendants have extensive biomedical training in essential midwifery skills, preparing them to manage normal childbirth, prevent complications, provide treatment where possible, and make referrals to more advanced care when appropriate, while TBAs have little or no training in these skills. Many skilled birth attendants have training in expanded (also called life-saving) midwifery skills, such as prevention and treatment of hemorrhage; vacuum extraction; prevention and management of shock; prevention and management of sepsis; prevention and management of eclampsia; monitoring labor; resuscitation of the newborn; management of abortion complications and postabortion care (WHO, 1998).

The skilled attendant model of care outlined by de Bernis underlines the clear clinical benefits of having skilled medical care present in the event of complications, and argues that quality, low-technology skilled care can be delivered through this model outside of a high-tech medical referral facility, which should be reserved only for complications (De Bernis et al., 2003).

At the community level, the skilled attendant model of care emphasizes that persons trained in essential midwifery skills are well-suited to provide prenatal and postnatal care in addition to attending births (Ross, 1998). Midwifery training qualifies skilled birth attendants to provide antenatal care to pregnant women, to monitor for complications and abnormalities, and to prescribe essential drugs. Skilled birth attendants trained in essential midwifery skills are also prepared to offer social and psychological support to pregnant women and new mothers, to educate families and communities about pregnancy, delivery and infant care; and to provide leadership in administration, project implementation, and research (Ross, 1998). No matter what their level of training or capability, skilled birth attendants cannot succeed alone in this model; they need appropriate back-up from other trained personnel, cooperative teamwork with other obstetric care providers, the support, respect, and help of traditional caregivers in the community, and the trust of women whom they serve through understanding of local customs and beliefs (De Bernis et al., 2003). Where they can cultivate these relationships, skilled birth attendants have the potential to be powerful forces for collective advocacy and individual empowerment (De Bernis et al., 2003).

The skilled attendant model of care is a worthy goal, but it requires substantial investment of resources and may not be attainable in the near future, particularly in remote areas with little or no health infrastructure or referral capacity. Advocacy can help accelerate progress in implementing a skilled attendant model of care, but the increased coverage, levels of training, levels of supervision, and levels of sustained commitment of resources demanded by the model will take considerable time to achieve. The State Committee on Maternal Mortality in Sao Paulo, Brazil has taken an active role in policy formulation and advocacy for maternal health, serving as a springboard for advocacy at the national level (Rodrigues et al., 2003). While advocacy for skilled care is still a priority for underserved communities, a more practicable model for many of these communities in the meantime may be a community-based neonatal care program.

2.3. The Community-based Neonatal Care Program

It is increasingly clear that no one class of caregiver, whether skilled or lay, is capable of reducing neonatal and maternal mortality alone. The holistic framework

for maternal health outlined in several articles by Barbara Kwast provides a helpful starting point for designing community-based neonatal health care programs. Kwast argues for designing community-based maternal health programs that fit within the “maternity care pyramid” paradigm (Kwast, 1995), emphasizing the bottom of the pyramid: communities’ ability to handle the majority of their maternity care needs, with reliance on referrals (the top of the pyramid) only for complicated births. In order to best support the primary care level, maternal care should be given at the most peripheral level (e.g., as close to the community as possible) at which it can be delivered safely and efficiently (Kwast, 1995). Interventions at the community level must span a range of categories, including policy formulation, training, IEC, management/supervision, logistics/supplies, and research/monitoring/evaluation. Each of these components, she argues, should be interlinked, and no intervention should be prioritized at the expense of the others. Additionally, services must be made more culturally and socially relevant, a feat accomplished more easily through qualitative research about barriers to care at the community level (De Bernis et al., 2003; Kwast, 1996).

Because of the close linkages between maternal and neonatal care, Kwast’s typology and holistic community-based maternity care model also apply to neonatal care, especially in resource-poor areas. Adopting a community-based approach toward neonatal care in rural and periurban areas is appropriate for a number of reasons. The highest rates of neonatal deaths occur in these areas where access to care is limited and referral delays can be fatal. Additionally, most district hospitals in LAC countries cannot meet the demand in beds or personnel for essential obstetric functions, so they would be greatly benefited if communities could successfully handle uncomplicated births. Keeping principal responsibility for maternity care centered on the community also preserves local traditions and knowledge related to the birth process kept by TBAs, and reduces the strain of transportation and language differences.

Since the majority of births do not require referral, a community-based neonatal care program need not compromise mothers’ or infants’ health, provided that basic skills for childbirth can be practiced safely and efficiently. Involving communities in programs promoting neonatal care helps them empower themselves to make improvements that protect their youngest mem-

bers while preserving relationships, respecting local knowledge and customs, and developing participatory models of problem-solving.

2.4. Community Roles to Consider for Implementation

Establishing a community-based continuum of neonatal and maternal health care will require strengthening the abilities of traditional caregivers during the birthing process. Within the community, three categories of individuals and groups have important roles and interrelationships in a community-based neonatal health program:

- 1) Traditional birth attendants, in providing basic prenatal and obstetric care as well as referrals where skilled birth attendants are absent, and in promoting facility-based births where skilled birth attendants are present,
- 2) Community health workers (CHWs) such as health promoters (Promotoras), in providing primary health care and education, and
- 3) Women’s groups and/or village committees, in problem-solving and planning to improve opportunities for girls, women’s health, and care for mothers and their newborns.

2.5. Traditional Birth Attendants: Background

Effectively preventing and managing pregnancy-related complications depends on pregnant women having access to a skilled caregiver with the necessary skills, medications, supplies, equipment, and back-up (De Bernis et al., 2003). While all pregnant women should have access to skilled health care during pregnancy, childbirth, and in the first few weeks of their newborn’s life, this ideal is far from a reality in many rural and impoverished periurban areas of LAC countries. However, most of the women in these areas are not without assistance during the perinatal period, though the skill levels of their health care providers may vary greatly. Especially where sophisticated medical facilities and highly-trained personnel are lacking, TBAs fill this role to some extent (Kwast, 1995).

Traditional birth attendants (TBAs) are lay health care providers who assist mothers during childbirth. It is helpful to note that the term TBA can refer to several categories of health care workers with differing levels of training. Traditional (or untrained) birth attendants often have no formal training, and have learned their trade primarily through apprenticeship or personal experience. TBAs may be considered trained if they

have completed a several-week training in basic obstetric skills. The literature is not always clear what cadre of health care worker is being referred to, as terms like *partera/parteira* (traditional birth attendant) are applied to women with differing levels of training, depending on the country.

Traditionally, TBAs have learned their occupation either by going through childbirth themselves, or by apprenticing with an experienced TBA. Even though ministries of health in LAC countries have largely ignored them, TBAs sometimes provide the only perinatal care for many communities, particularly in rural areas without access to hospital facilities. Even where alternative sources of care exist, cultural acceptability, lower cost, and perceptions of status may favor the use of TBAs (Kamal, 1998). TBAs may also provide traditional medical treatments such as herbal remedies, as well as family planning and basic primary health care. Culturally acceptable and readily available, TBAs typically live in close proximity to the women they assist, sharing customs, language, and traditional understandings of health and childbirth (Cosminsky, 1994). They often enjoy high community status, often chosen from well-respected families to be apprentices to well-respected TBAs, and gaining prestige based on a history of successful deliveries, especially success in remedying malpresentation (e.g., transverse position) using fetal massage, pushing down on the abdomen, and other maneuvers.

TBAs can be loosely divided into three groups, according to Castañeda Camey (Castaneda Camey et al., 1996):

- 1) Traditional TBAs—practice in remote areas on the basis of wisdom passed through oral tradition, frequently using herbal and manual remedies.
- 2) Trained TBAs—have limited biomedical training, usually from short, specialized training programs of several weeks or less, and so blend the use of traditional therapies and remedies with modern pharmaceuticals and surgical instruments, as well as family planning.
- 3) Unskilled, Empirical TBAs—practice within displaced or migrant populations that have experienced large-scale change such as war or resettlement. They have learned skills out of necessity, *only* through their own personal experience, rather than apprenticeship (traditional TBAs) or institutional training (trained TBAs). Primarily

able to handle only normal deliveries, with little or no knowledge of traditional or biomedical remedies or treatments.

Of course, TBAs do not fall neatly into these three categories. Except in very remote areas, it is not unusual to find TBAs who combine traditional practices with modern biomedical practices to varying degrees. It is worth noting, however, that there are significant differences in styles of skill acquisition between apprenticeship and formal classroom education (intuitive/imitative vs. intellectual), which may partly explain the low levels of success in providing supplemental biomedical training or re-training in institutional or classroom settings for traditional TBAs (Castaneda Camey et al., 1996).

TBAs operating in the absence of support from the formal health care sector cannot be expected to reduce neonatal and maternal mortality on their own. Especially in remote areas, TBAs often assume high levels of responsibility without any help from skilled birth attendants, without recourse to refer women to health facilities, without sophisticated equipment, and even without basic sanitation. This TBA, usually attending home deliveries, operates below the lowest level of a possible functional health care typology described by Koblinsky. Koblinsky notes that the lowest level of a functional model (Model 1) providing safe care for mothers and neonates requires access to and availability of essential obstetric care (Koblinsky et al., 1999), and that even where a skilled birth attendant is present (Model 2), functioning essential obstetric care must be available to safeguard mothers' and newborns' lives. Unsurprisingly, in the absence of back-up support, resources, and continuing training and supervision, the ability of TBAs to recognize and manage complications is limited (WHO, 1998). Without support or training, TBAs may prescribe drugs and herbs in potentially harmful ways, or fail to disinfect their equipment (Castaneda Camey et al., 1996). They may also practice pushing on the abdomen or other external manipulations to speed the expulsion of the fetus from the vagina, potentially harmful practices for the mother and her baby (Castaneda Camey et al., 1996). Even when physical interventions, such as shaving public hair, performing vaginal exams, rupturing membranes, performing episiotomies, or clamping/tying the umbilical cord immediately after delivery, are necessary, traditional TBAs are less likely to perform these

interventions (Carvalho et al., 1998). Some traditional remedies and practices have positive or neutral impact on mothers' and newborns' health, but others are potentially harmful and may contribute to maternal and/or neonatal mortality (Kamal, 1998). Without quality training, continuing education, and supervision from skilled birth attendants, TBAs will remain unable to successfully recognize, manage, and refer pregnancy complications and/or newborn abnormalities and sicknesses. Safe maternal and neonatal care requires teamwork and cooperation at all levels among all caregivers, from the community to the referral hospital. Until the formal health care sector can provide ongoing support to TBAs including continuing education, supplies, and connections to the formal health system, the TBA in isolation will remain unable to reduce maternal and neonatal mortality and morbidity.

Many LAC countries have experimented with compulsory or voluntary biomedical training for TBAs in rural areas and developing linkages to referral systems. These policies and projects have achieved varied levels of success, in some cases destroying or subordinating traditional cultural knowledge and in others, building "bridges" between communities and the biomedical health system (Jenkins, 2003; Kwast, 1995). The changing roles of TBAs in rural areas present both a challenge and an opportunity for the improvement of neonatal health care. Despite deficiencies in support, resources, and training, in many rural areas of the LAC region, TBAs often provide the only available obstetric care. TBAs' conceptions of female anatomy and physiology often differ substantially from those of biomedicine, which can partly explain the failure of mandatory government biomedical training to take hold with either TBAs or their clientele (Sesia, 1996). Differences in learning style, as TBAs have traditionally learned through imitation and not in classroom or clinical settings, may be another barrier. Establishing an effective referral system that cultivates workable, respectful relationships between TBAs and skilled birth attendants in health centers and hospitals is a further challenge.

Despite pressures from government to adopt biomedical training, many rural TBAs hold high community status due to the perceived authority of their traditional knowledge, and so are reluctant to change their practices (Sargent and Bascope, 1996; Sesia, 1996). Successfully incorporating TBAs into neonatal health care efforts and building effective referral

systems for complications will require cultivating sensitivity to traditional obstetric knowledge among biomedical personnel as well as making sure to preserve and respect traditional knowledge in biomedical training of TBAs wherever possible. Successfully incorporating TBAs into initiatives to improve neonatal and maternal health outcomes in the early postnatal period will be difficult, but remains essential, as these health workers often provide the only health care and serve important social roles in communities with highest maternal and neonatal mortality.

2.6. TBAs: Roles They Can Play

In underserved communities, TBAs continue to meet a vital need, and will likely exist for a few more decades (Kamal, 1998). TBAs enjoy special position and status in their communities, and so are an appealing potential actor to incorporate into programs that help underserved communities in PHC and neonatal care (Kamal, 1998). While in most cases it is not feasible or cost-effective to train TBAs in essential midwifery skills, TBAs can still contribute to reducing newborn deaths and disabilities. TBAs can offer pregnant women moral and emotional support, and can teach skilled birth attendants about local customs and how to respect women's needs. Potential roles for TBAs differ according to the existing health care infrastructure in different areas (Ross, 1998). In areas with poorly-developed health care infrastructure, where TBAs are an integral part of the community and local culture, it is productive to 1) train TBAs how to avoid harmful practices, recognize danger signs, and refer complications to health facilities, 2) strengthen linkages between TBAs and the formal health system (where it exists), and 3) cultivate respect in the formal health system for TBAs as acceptable initiators of referrals (WHO, 1998).

In hopes of supporting TBAs with resources and technical back-up, and enhancing their ability to recognize and refer complications, a number of interventions try to upgrade TBAs' skills, either in recognizing danger signs and referring mothers and neonates to health facilities, or in simple technical interventions such as safe delivery techniques and simple resuscitation for birth asphyxia. Results from the Quetzaltenango Maternal and Neonatal Health Project showed that TBAs can be taught to recognize and respond to a number of clinical complications, such as bleeding, swelling, malpresentation, prolonged labor,

retained placenta, depressed newborn, postpartum bleeding, and infections in the mother or the newborn. TBAs were also able to reduce referral times to health posts and health centers (Kwast, 1995). Another study has found that TBA training can achieve improvements in identification of high-risk pregnancies, management of emergencies, and appropriate referrals as long as 26 months later (Rodgers et al., 2004).

In practice, results of training TBAs to manage and/or refer birth and neonatal complications have been frequently disappointing: successes such as those above have been rare among efforts in more than 70 countries (Kamal, 1998). A common reason for these disappointing results is the failure to identify feasible roles for TBAs to perform given the context and resources of the general and health infrastructure of the

THE QUETZALTENANGO MATERNAL AND NEONATAL HEALTH PROJECT

The Quetzaltenango Maternal and Neonatal Health Project was implemented from 1990 to 1993 in Guatemala as a joint project of MotherCare and the *Instituto de Nutrición de Centroamérica y Panamá* (INCAP). Guatemala has the third highest rate of maternal and neonatal mortality in the LAC region, after Haiti and Bolivia. The MMR in the Quetzaltenango Health Area was estimated to be 240/100,000 live births. Community-based data from the area have shown a perinatal mortality rate of 23.2 per 1000 total births and a neonatal mortality rate of 16.7 per 1000 live births (Schieber and Delgado, 1993). In this area of Guatemala, most women give birth at home, 70–90% of births are assisted by a

traditional TBA, as midwifery training programs were abolished more than twenty years ago. Women tend to avoid hospitals for births because institutional capacity for births is limited, the hospitals and clinics have long waits, and because they do not feel respected by the formal medical system. Women and TBAs alike complain about the negative attitudes of health providers toward them.

Through this project, MotherCare and INCAP aimed to improve obstetric and neonatal services, ultimately reducing maternal and neonatal morbidity and mortality. The program had five objectives: (1) to improve TBAs' recognition of and response to danger signs (primarily malpresentation, prolonged labor, and preterm labor), (2) to improve relationships between the formal medical establishment and TBAs/pregnant women, (3) to

improve supervision of health post and health center staff in maternal and neonatal care, (4) to develop simple protocols to detect and manage complications in health facilities, and (5) to improve management and referrals of these complications through staff training.

The program developed protocols for recognition, management, and referral of complications; sensitized health providers to foster good working relationships with each other and with TBAs; successfully trained 400 TBAs in timely recognition and referral of maternal and newborn complications; developed guidelines for temperature control in facilities, cot nursing, infection control, and guidelines for clothing sick newborns; and performed a medical audit of neonatal management to measure the impact of the intervention. Data

was collected both from a hospital-based study of TBA referrals and a community-led surveillance system of women with obstetric and peri- and neonatal complications. Importantly, the TBA training component of this intervention found a consistent increase (313% from pre-training to post-training) in the number of referrals made by TBAs. The timeliness of these referrals rose from 28 to 46%. Waiting time in hospitals decreased and women's satisfaction with the health services increased. The MotherCare Quetzaltenango Maternal and Neonatal Health project demonstrates that hospital-based and TBA training programs can have a synergistic positive effect, but that community-based IEC programs are needed complements.

Source: (Kwast, 1995; Kwast, 1996; Schieber and Delgado, 1993).

area in which they operate, and an overinvestment in TBA training at the expense of complementary interventions and a holistic approach.

A recent comprehensive guide to developing maternal and newborn care interventions developed by CARE describes how the level of general and health infrastructure of an area (measured using maternal health indicators) shapes the interventions and maternal health programs that can be implemented there, and has outlined five health infrastructure categories, or maternal health care settings, ranging from “very poor” to “very high” in order to suggest appropriate maternal health intervention approaches (Ross, 1998). Using this typology, the “very poor” and the “poor” maternal health care settings are the only ones where TBAs still serve a key function. These settings are characterized by low proportions of births attended by skilled birth attendants (<35%), low contraceptive prevalence (<25%), high fertility rates (>5), and high maternal deaths (>550/100,000 births). In “very poor” settings, CARE indicates, the emphasis should be on training TBAs in clean delivery and effective community health promotion; in “poor” settings with slightly more resources and access to referral facilities, the emphasis should be on training them in appropriate obstetric first aid and referrals. In maternal health care settings with better maternal health indicators (and

access to skilled providers), roles for TBAs are likely to be minimal or nonexistent.

Learning from successful as well as failed attempts to train traditional TBAs, it is clear that interventions that aim to upgrade TBAs’ skills should pay careful attention to:

- 1) the feasibility of the skills the TBAs are being trained for in the context of their traditional duties and access to back-up and supervision,
- 2) the environment in which training is given (experiential training as more effective than classroom-based training),
- 3) the fears of well-respected TBAs that changing their practices will cause them to lose status in their communities, and
- 4) the contradictions between indigenous health beliefs and accepted biomedical best practices.

These efforts should also conscientiously work to cultivate supervisory and collegial relationships between TBAs and the formal health care system, as well as opportunities for continuing training.

Communities with village clinics or higher-level health facilities may have skilled birth attendants in addition to, or in lieu of, TBAs. In communities most births happen in facilities, formal health care workers (doctors, nurses, nurse-midwives, or midwives) trained

IMPROVING QUALITY OF CARE THROUGH UPGRADING SKILLS AND REFERRAL ABILITIES OF TRADITIONAL TBAS

In the southern Peruvian town of Juliaca, men and women who volunteer as *parteros/parteras* (TBAs) provide a variety of prenatal and delivery services. Their skills and abilities vary widely, as some people serving as TBAs are untrained relatives of pregnant women, while others have had official train-

ing as birth attendants. In this urban area, facility-based obstetric and neonatal care of varying quality is available, but relationships between the Quechua-speaking community and the Spanish-speaking formal health system are strained, resulting in underuse of health facilities. Many women neglect seeking care during the prenatal period and prefer having

a relative or semi-skilled TBA present during childbirth to delivering in health facilities.

The BABIES Project, led by CARE Peru, is working with both trained and untrained TBAs in communities in Juliaca to improve community-level newborn health care for uncomplicated deliveries. The project also provides education to strengthen their

ability to recognize danger signs and promptly refer women to the formal health system. By having TBAs write weekly updates about the women and newborns they have visited, the project helps TBAs contribute to data collection and surveillance of neonatal deaths.

in essential midwifery skills usually attend births. Where most births happen in the home and skilled birth attendants are available, trained midwives usually attend births, and are often also tasked with providing maternal health care, facilitating normal deliveries, referring or treating complicated deliveries, providing family planning, and treating child health problems (Koblinsky et al., 1999). In the LAC region, there has been a “vacuum” of skilled birth attendants in the system for several decades, caused by decreasing numbers of midwives, lack of personnel trained in essential midwifery skills, and decreasing availability of essential obstetric functions for complicated pregnancies (Kwast, 1995). In many countries, trained midwives are becoming frustrated by low pay and lack of attention from the government health system. This has resulted in an absence of beds for birthing services and no skilled birth attendant in place, so that even at the health center level a woman cannot receive emergency obstetric or newborn care. Health centers provide prenatal and child care but few or no services for birth complications. Assuming that women with complications must go all the way to district hospitals or higher to receive obstetric care is common in many LAC countries (Kwast, 1995).

To address this problem, WHO has developed guidelines defining essential obstetric care functions at different levels of the health system (WHO, 1994). Essential obstetric care (EOC) is a comprehensive term including the skills and means to manage complications when they happen, as well as early risk profiling, diagnosis, and treatment to recognize complications of pregnancy before they become emergencies during labor or delivery. In recent years, increased attention on newborn health has resulted in the addition of special newborn care to the list of EOC functions. The more comprehensive definitions of EOC imply a broad spectrum of services including family planning, comprehensive antenatal care, management of complications, and postpartum care.

Basic EOC refers to all EOC elements that can be provided at the health center level by skilled attendants. Basic EOC includes at least the following functions: administration of parenteral antibiotics, the administration of parenteral oxytocic drugs, the administration of anticonvulsants for preeclampsia or eclampsia, manual removal of the placenta or retained products, and assisted vaginal delivery. Attention to newborn health problems is also emphasized. Particu-

larly in rural areas where access to and capabilities of health facilities are limited, Basic EOC—which provides care for problem pregnancies, medical treatment, manual procedures, monitoring of labor, and neonatal special care—is often an appropriate first step toward providing comprehensive EOC.

Emergency obstetric care (EmOC) refers to the subset of EOC elements designed to save women’s lives by addressing unexpected complications of labor and delivery, such as hemorrhage and obstructed labor. EmOC includes the services of Basic EOC as well as surgery, anesthesia, and blood transfusions. These functions usually require personnel highly trained in obstetrics and facilities where obstetric surgeries can be conducted safely.

Where TBAs are present in communities alongside skilled birth attendants, or where they have quality interactions with the formal health system, opportunities exist for greater coordination between TBAs and skilled birth attendants. Project experience in encouraging closer working relationships has shown that these interactions can often be strained by language differences, perceptions of superiority/inferiority and distrust, or conflicting approaches to care. However, it should not be overlooked that TBAs are excellent sources of local knowledge who can often interpret women’s concerns more accurately than trained health personnel, who can bridge language and cultural divides between women and the formal health care system, and who may improve the warmth and quality of interaction between women and their providers.

Like community health workers, particularly *técnicos* (technical specialists, discussed in the next section), TBAs can also improve birth outcomes by performing prenatal and postnatal home visits or, if the facilities are accessible, encouraging women to attend health facilities for these visits. In this way, TBAs can become integral parts of community-based surveillance systems in areas where government services are overburdened and reliable statistical data are sparse.

2.7. Community Health Workers

Community health workers (CHWs), tend to play one of two kinds of roles in the provision of neonatal care. The first role is that of a generalist carrying out primarily awareness-raising activities, encouraging pregnant women to come for tetanus toxoid immunizations, participating in immunization campaigns, pro-

moting antenatal care attendance, encouraging exclusive breastfeeding, and providing general health education to members of a community. They may also act as facilitators for community-based initiatives. They have a rapport with the community as well as a basic health background, and occasionally, the knowledge of birth and neonatal care, to be able to serve as a liaison between PVOs/NGOs and community groups, and to facilitate these groups in participatory methodologies. In many LAC countries, the name *promotora* (female health promoter) is applied to someone with this range of general duties, and the vast majority of CHWs fall into this category.

However, a very small number of CHWs are trained personnel capable of performing technical interventions in the antenatal, intrapartum and postpartum periods, often in addition to some general health promotion activities. These technical specialists, whom we will refer to as *técnicos*, may coach pregnant women in birth and newborn care preparedness through role-playing with a specially-designed doll. They may also provide intrapartum care by recognizing and addressing problems in the newborn, such as providing basic care for birth asphyxia or warming for symptoms of hypothermia in the newborn. During the postpartum period, *técnicos* may perform routine visits to check on the health of the mother and newborn, including examination for signs of infections.

In reviewing articles, project documents and reports for this review, there was often little detail on the precise roles and responsibilities of community health workers in newborn health programs. For this reason, it is difficult to state the degree to which their role fits the model of *promotora* (female health promoter) or *técnico* (technical specialist). In some cases, it appears that the CHWs have a wide range of additional responsibilities related to the health of women and older children, and that time and effort they devote exclusively to newborn health is limited.

2.8. Women's Groups, Village Committees

At the village level, the collective actions of women's groups or village committees can improve the capacity of individuals at the community level to make better decisions regarding maternal and newborn health care. These groups engage in a number of different areas related to maternal and newborn health, from helping women to stay healthy and respond appropriately to emergencies to improving the quality of care and opportunities for supportive linkages within communities. The table below catalogues a set of interventions that directly address maternal and neonatal health as well as the underlying inequalities that contribute to poor maternal and neonatal health.

Empowerment as a goal figures largely into efforts to incorporate women's groups or village committees

TABLE 4. TWO TYPES OF COMMUNITY HEALTH WORKERS IN NEWBORN HEALTH PROGRAMS

Type of community health worker	Typical roles and responsibilities
1. Promotoras (Female health promoters): Promote healthy behaviors in communities	<ul style="list-style-type: none"> • Surveillance for pregnant women, maintaining list and tracking pregnant women • Working with families on newborn care preparedness during the antenatal period • Promotion of tetanus toxoid immunization and antenatal care • Participation in immunization campaigns • Encouraging exclusive breastfeeding • Organizing, working with community groups • Raising awareness of maternal and newborn health problems, among both men and women • Working with communities to establish and maintain emergency transport systems • Facilitating participatory approaches to problem solving around maternal and newborn health problems with various stakeholders in the community
2. <i>Técnicos</i> (Technical specialists): Community health workers with specialized technical skills related to newborn care	<p>In addition to the health promotion activities listed above:</p> <ul style="list-style-type: none"> • Providing intrapartum care to the newborn including basic treatment of asphyxia and prevention of hypothermia • Performing postpartum visits to check on the newborn and provide counseling on feeding and care

PROMOTORAS VS. TÉCNICOS: PRACTICAL EXAMPLES

Promotoras (Female health promoters)

A good example of the *promotora* (female health promoter) role is illustrated by CHWs working in periurban shantytowns in El Alto, Bolivia. Involved in CARE Bolivia’s neonatal health project, *Cuidados Esenciales del Recien Nacido en Comunidades con Grupos Organizados de Mujeres* (Essential Newborn Care in Communities With Organized Women’s Groups), these *promotoras* are community-based educators raising awareness about general health issues, include basic prenatal care, tetanus toxoid immunizations, and exclusive breastfeeding. They also organize events to educate community members about the health needs of women and children. In this particular project, *promotoras* have been trained in neonatal health care from pregnancy through the postnatal period, including recognition of danger signs, encouraging careseeking, and appropriate referral practices. Selected *promotoras* serve as *promotoras estrellas* (female health promoter “stars”), facilitators who provide leadership and information about neonatal health to women’s and men’s groups as they engage in participatory approaches to solve problems related to neonatal health. A more detailed discussion of the roles of *promotoras* and the experience of CARE Bolivia in El Alto can be found in Section 3.4.

Técnicos (Technical specialists)

CHWs serving in more of a *técnico* (technical specialist) role are working with the Saving Newborn Lives *Maya Salud Neonatal* (Mayan Neonatal Health) Project in the highlands of Guatemala, an initiative led by Save the Children. Along with TBAs in project communities, *técnicos* are being trained in safe delivery techniques and essential newborn care (ENC), including immediate normal newborn care, simple resuscitation for birth asphyxia, appropriate bathing techniques to limit the risk of hypothermia, initiation of immediate breastfeeding, and recognition of danger signs at birth. *Técnicos* also distribute safe delivery kits and counsel on birth preparedness planning. In this project, they do not perform the common *técnico* role of home visits during the postnatal period; postnatal home visits are conducted by TBAs in this particular project. A more in-depth discussion of how *técnicos* are being trained by Save the Children in this project can be found in Section 3.2.

TABLE 5. PRIORITY INTERVENTIONS FOR WOMEN’S GROUPS AND VILLAGE COMMITTEES

Priority Areas of Intervention	Intervention topics
Developing capacities to stay healthy, make healthy decisions, and respond to obstetric and neonatal emergencies	<ul style="list-style-type: none"> o Self-care o Care-seeking behavior o Birth and emergency preparedness
Increasing awareness of rights, needs, and potential problems related to maternal and newborn health	<ul style="list-style-type: none"> o Human rights o The role of men and other influential people o Community epidemiological surveillance and maternal-perinatal death audits
Strengthening linkages for social support between women, families, and communities and within the health delivery system	<ul style="list-style-type: none"> o Community financial and transport schemes o Maternity waiting homes o Roles of TBAs within the health system
Improving quality of care, health services and interactions with women and communities	<ul style="list-style-type: none"> o Community involvement in quality care o Social support during childbirth o Interpersonal and intercultural competence of health care providers

Ref: (Portela and Santarelli, 2003)

into neonatal health care interventions. Empowerment is both a means and an end (Portela and Santarelli, 2003), enabling groups to build their capacity, improve their powers of critical analysis, and act on their analysis, and to repeat the process for any number of different problems. Invariably, community-based approaches working with groups such as these are process-oriented, focused as much or more on problem-

solving processes as on solving problems. The process is usually highly participatory and iterative, motivating group members themselves to identify, prioritize, and analyze the problem(s), design a solution, implement the solution, and collectively participate in the evaluation of the solution.

Kwast notes the need for all community neonatal care interventions to include community-based initia-

COMMUNITY ACTION CYCLES: THE WARMI PROJECT IN BOLIVIA

The Warmi Project presents the most illustrative application of community-based participatory interventions to improve newborn health care practices and reduce neonatal mortality. Developed by Save the Children/Bolivia as part of the USAID MotherCare project, the Warmi Project was carried out in 50 remote rural communities in Inquisivi Province in Bolivia from 1990 to 1993. The MMR was 1,400/100,000 live births and the PMR was 103/1000 live births. Villages selected were 6–8 hours by bus from a referral hospital for emergency obstetric care, and there were no TBAs in these villages. Husbands usually attended their wife's birth. Traditional practices such as *manteo* (rocking in a blanket to treat malpresentation), and delaying breastfeeding were

common. Newborns were commonly cared for only after the placenta was delivered, and breastfeeding was usually delayed.

The intent of the project was to show what actions could be taken in areas with extremely limited access to health services. In each community, a group of women was formed and/or strengthened using a gender-sensitive participatory problem-solving methodology, now called the "Community Action Cycle," in which women's groups engaged in the process of autodiagnosis (identifying and prioritizing problems), collective planning, implementation of the plan, and participatory evaluation. Community efforts during the project focused on forming and strengthening women's groups, training women and their spouses for safe home births, and using parteras (TBAs) as links to referral hospitals in cases of birth complications.

The project encouraged groups to design and implement their own plans for neonatal health interventions, which resulted in the training of a cohort of parteras, a number of women and men educated about family planning, the provision of family planning services to seven communities through NGO partnerships, strengthening of referral links with the hospital and reduction of costs for emergency admissions, and the development of BCC/IEC materials including a women's health card for home-based care, manuals and booklets, and a radio program.

The Warmi Project achieved reductions in perinatal mortality of almost 50%, and also documented significant improvements in the practice of key behaviors. In 1993 alone, antenatal attendance increased from 45 to 77%, births attended by a TBA jumped from 13 to 15%,

rates of immediate breastfeeding rose from 25 to 57%, and use of family planning methods increased from 0 to 27%. Importantly, the project gave a voice to women's concerns about their and their children's health, by giving women the opportunity to participate in the community planning and decision-making process for the first time. A number of recent projects have drawn upon the Warmi model, although the initial plan to scale the model up to the national level has yet to be realized.

In the past few years the Warmi methodology has been further developed, and the SECI model (Comprehensive Community System of Epidemiologic Surveillance) was created during a project in Oruro between 1998 and 2001.

Source: (Gonzales and Howard-Grabman, 1998), (Kwast, 1996).

USING WOMEN'S GROUPS TO INCREASE AWARENESS OF DANGER SIGNS DURING PREGNANCY IN GUATEMALA

In 1997, the Guatemalan Ministry of Health and MotherCare designed a set of information, education, and communication (IEC) strategies to increase awareness of danger signs during pregnancy, delivery, and the postpartum period in the highlands of southwestern Guatemala. Educational sessions conducted through local women's groups complemented two other intervention arms, one to provide training for health providers and one to broadcast radio messages about obstetric complications.

Sixty-two women's groups participated in the educational sessions, with each group composed of an average of 37 women of reproductive age, regardless of whether they were pregnant. These women's groups had been established previously in these communities by NGOs working in health or development. In each women's group, facilitators led seven different discussion sessions using a modified version of the "Triple A Cycle," a participatory focus group strategy developed by UNICEF. Similar to the community action cycle, this strategy involves

three steps: autodiagnosis (autodiagnostico), analysis, and action; MotherCare added a fourth step called learning (aprendizaje) to help women assess situations and monitor progress. Using props such as coloring books and puzzles depicting obstetric complications, facilitators encouraged participation among the women.

The unique strength of women's groups in this intervention is that they provided opportunities for more in-depth education and discussion. Groups were able to discuss recognition and management of a wide range of obstetric complications, includ-

ing hemorrhage, swelling of the hands and face, premature labor, premature membrane rupture, previous cesarean delivery, fetal malpresentation, twins, prolonged labor, retained placenta, abdominal pain, fever, and foul-smelling discharge. Over the one-year project period, women's awareness of danger signs increased by approximately 80%, and attending the seven participatory sessions was correlated with a greater ability to recognize danger signs than attending a series of prenatal visits.

Source: (Perreira et al., 2002).

tives and a focus on self-care, regardless of the number or qualifications of health personnel available in a community (Kwast, 1995). However, the best way to work with women's groups or village committees will depend heavily on geography, population density, and resources (human and financial) where the program is being implemented. Koblinsky outlines a typology for safe motherhood care models, most of which include a professional birth attendant (Koblinsky et al., 1999). The higher the level of care provided, the greater the demand will be for personnel training, skill maintenance and supervision, as well as facility regulation and usability for women. The lack of access to comprehensive essential obstetric care in the remote rural and/or periurban slum settings we will consider in this paper require us to consider ways of improving the level of care in a sustainable way without a large number of professional birth attendants or access to

advanced medical facilities. For this reason, organized women's groups and village committees offer a powerful entry point to help individuals, families, and communities make better decisions during pregnancies, childbirth, and the postnatal period. Working with women's groups also helps to increase women's influence and control of maternal and newborn health, and encourages women to make use of quality skilled care where it is available.

In periurban areas, it is important to note that in many cases, there may be no TBAs at all. Depending on the availability of institutional health care, possible roles for women's groups in improving birth outcomes may vary considerably. Where low-income periurban dwellers have good access to health services, as in many periurban areas of countries like Brazil and Costa Rica, women's groups can play a health promotion role, educating mothers and families about birth

A FRAMEWORK FOR WORKING WITH INDIVIDUALS, FAMILIES, AND COMMUNITIES: THE MAKING PREGNANCY SAFER INITIATIVE

Launched in 2000, the WHO Making Pregnancy Safer Initiative complements WHO's Safe Motherhood Initiative through interventions to improve maternal and newborn health. At the national level, the initiative is intended to help countries to strengthen their health systems and develop effective, evidence-based interventions to reduce maternal and neonatal mortality, particularly

among the poor.

The involvement of individuals, families, and communities is crucial to the success of neonatal and maternal health care interventions. For this reason, the Making Pregnancy Safer Initiative has pioneered the development of a strategic framework for working with individuals, families, and communities to decrease maternal and newborn mortality and morbidity, and to empower women, families, and communities to

make better decisions and improve their access to quality care. The framework stipulates a conceptual basis for bringing about change (health promotion), two aims (increasing access and utilization of quality care, and empowerment of women, men, families and communities), four priority areas for intervention (See Table 4: Priority Interventions for Women's Groups and Village Committees), and a number of different settings for interventions.

Strategies that can be applied to this framework include education, community action, partnerships, institutional strengthening, and local advocacy. Because neonatal and maternal health relies on an integrated continuum of information and services throughout the different key periods, comprehensive strategies are recommended, containing interventions from each priority area.

Source: (Portela and Santarelli, 2003).

preparedness and newborn care. In such cases, because of the high proportion of institutional births, women's groups may have less of a focus on performing technical interventions during the intrapartum or postpartum periods, and more focus on utilization of services and advocacy of health rights. In periurban areas of other countries, overburdened health services and unfamiliarity of recent arrivals with formal medical systems may lead more births to happen in the home. In the absence of effective health care, and without assistance from TBAs, community-based approaches for providing better care for uncomplicated births in the home may best benefit residents of these periurban shantytowns. Community mobilization and collective decision-making can be an effective way for communities to improve their own birth outcomes through self-care, as well to empower them to address problems collectively.

Helping women's groups, and community groups in general, to serve as actors in neonatal health care interventions is also an opportunity for advocacy to influence policy up to the national level. De Bernis, in emphasizing how essential it is that skilled birth

attendants are available for women throughout their pregnancies, childbirth, and postnatal period, notes that professional associations can form alliances with women's groups and other health professionals to call for national action to provide skilled care and improved health care services (De Bernis et al., 2003).

2.9. The Importance of Strong Linkages and Referrals

Barbara Kwast notes that "everyone is trying to save women's lives" (Kwast, 1995). In many cases, the primary problem is simply a lack of strong working relationships between levels of health care, and proper treatment of women and TBAs when they enter the formal health system. De Bernis, as well, notes how essential a functional referral system is in cases of complications when access to higher-level medical facilities is available (De Bernis et al., 2003). However, in many cases in the LAC region, there are cultural barriers to referral, such as beliefs that newborns should be kept indoors to avoid *mal de ojo* (evil eye). In many remote rural areas, effective referral systems are an impossibility because of geographic distances and the high cost of transportation from villages to

OBSTETRIC TRANSPORT BRIGADES IN MATAGALPA, NICARAGUA

In rural areas far from health services, major barriers to seeking care for maternal and neonatal health problems are distance and the high cost of transportation. An innovative way around these problems is being piloted by CARE

Nicaragua's *Sobrevivencia Infantil* project in rural areas of Departamento Matagalpa, a high-altitude region in Nicaragua. Organized *brigades de transporte emergencia obstetrica* (emergency obstetric transport brigades) are organized in remote

communities, use local means of transport (hammocks, cots) to reach the nearest health facility for pregnant women with complications or sick newborns. The members (drivers) of the brigades are all men, a novel way to encourage male involvement in improving

maternal and neonatal health outcomes. A more detailed description of how this activity fits into an intervention to reduce maternal and neonatal mortality can be found in Section 3.1.

equipped health facilities. Some innovative solutions to this barrier exist, including pooling community funds to afford transportation, sponsoring homes for women nearing term, or community-based transport schemes. These solutions have been implemented in a variety of settings worldwide to improve access to care for women living in remote rural areas. Maternity waiting homes are located near a hospital with essential obstetric facilities, and allow women with high-risk pregnancies to remain close to the hospital during the last weeks of their pregnancy (WHO, 1996). Many waiting homes also provide education and counseling on birth preparedness and newborn care. Community mobilization techniques can be used to develop plans for and implementation of community-based transport

schemes (See box for an example of such a scheme). These transport schemes pool community funds and rely on volunteer drivers (sometimes organized groups of men from the community, sometimes truck driver unions) to arrange on-call emergency transportation to referral facilities for pregnant women with complications or new mothers with sick infants. In some cases, the transport is provided as a free service to women who need emergency obstetric transport, in others, community loan mechanisms with long repayment periods may be used (Essien et al., 1997).

The best possible standard of neonatal and maternal health care requires a continuum of care throughout pregnancy, childbirth, and the postnatal period, and requires a coordinated integration between the

"PLANS IN SUPPORT OF LIFE" IN GUATEMALA

In Guatemala, the Ministry of Health and the Maternal and Neonatal Health Project (JHPIEGO) are intervening at the four moments in which a delay or lack of action can lead to the death of the mother or the newborn: 1) Recognition of the problem (danger signs), 2) Decision-making

about whether to seek care, 3) Timely access to care, and 4) Quality care. The strategy is implemented at various levels: household, community, municipality, department and region. At the household level a "Plan in Support of Life" (Plan de Apoyo a la Vida) is developed that includes a delivery plan and an emer-

gency plan. At the community level, a community emergency plan is developed which includes creation of a local committee for safe motherhood, a savings account for emergencies, and designation of a means of transport for referral to health facilities. To support this process a number of public fora were con-

vened (5 municipal, 5 departmental and 2 regional) with the participation of NGOs, government authorities, municipalities, the private sector, mothers' groups, associations of birth attendants and mayors of indigenous communities.

household, the community, and health facilities where women can receive perinatal care. Focusing efforts on individuals, families, and communities is seen as a critical point at which to strengthen the WHO-recommended continuum of care (Portela and Santarelli, 2003).

Several of the case studies presented in this report, as well as a number of reports in the gray literature on neonatal care interventions, suggest that the rapport between traditional and biomedically trained health personnel can often be strained. This strain can be due to language differences between village health post and city hospital, perceived inferiority of TBAs by health workers with biomedical training from institutions, or a lack of trust or respect. The need for improving rapport between traditional and biomedical health workers to strengthen the effectiveness of referrals and intracommunity linkages is obvious. Skilled attendants

must realize that lay caregivers play important social and cultural roles, and often control or assist access to skilled attendants and referrals. They should be treated with respect as a legitimate part of the team, collaborating closely with or under the supervision of a skilled attendant (De Bernis et al., 2003). De Bernis adds that where they exist, traditional healers and TBAs may have local knowledge that the skilled attendants can learn from to provide better care to women.

Other creative approaches to develop stronger community linkages may also benefit interventions for neonatal health care. Linkages are not limited to interactions between TBAs, CHWs, women's groups/village committees, and personnel from formal health systems. In many cases, other personnel and resources exist within and outside of the traditional and formal health sectors, including traditional healers and pharmacies.

INNOVATIVE LINKAGES: PHARMACIES IN EL ALTO, BOLIVIA

In the periurban shantytown of El Alto, Bolivia, CARE Bolivia is leading an intervention to mobilize women's and men's groups to watch for danger signs during pregnancy, delivery, and the postnatal period. While the project encourages careseeking at facilities in cases of birth complications or

serious neonatal or puerperal problems, self-care is recommended for normal pregnancies and births, and for care of healthy newborns. Because the costs of medical care, including self-care, can consume essential household resources, the project has partnered with a "network of family pharmacies" and "community doctors."

The former are informed and trained in the appropriate use of drugs during pregnancy, labor, delivery and the postpartum period, and newborn care. The latter, private doctors in the community, and trained to provide high quality services, and trained in the management of newborn complications and in essential newborn care.

Pharmacies are not traditional partners in maternal and newborn health care interventions, but innovations like this one can support appropriate careseeking behaviors by lowering the overall cost of care. A more detailed description of this case study can be found in Section 3.4.



Case Studies

This section reviews five different community-based neonatal care projects in Nicaragua, Guatemala, Peru, Bolivia, and Honduras. Descriptions of the case studies can be found in Table 6. Each case study provides a basic summary of the setting in which the intervention is taking place (urban/rural, access to care, and basic status of neonatal and/or maternal health), a description of the project objectives, a summary of project interventions to improve neonatal and maternal health, a typology of the different community members involved in the intervention, and next steps/lessons learned so far in each project.

Elements of the Saving Newborn Lives model for neonatal care (profiled in Section 2.1) are clear in some of the case studies, where specific interventions target key periods (antepartum, intrapartum, and postpartum) that impact neonatal health. The elements of Barbara Kwast's holistic approach (described in Section 2.2), which applies the principles of the maternity care pyramid to community capacity building in neonatal health, can also be seen in the case studies. Many of the projects have intervention components to improve appropriate linkages between the formal health care

system and the community while maintaining an emphasis on self-care.

It is important to note that most of the projects profiled in these case studies are still ongoing, or only recently concluded. In most cases, midterm and/or final evaluations for most of the projects have either not yet been conducted, data analysis has not yet been completed, or findings have not yet been disseminated. Process and outcome data should be forthcoming from most of these projects as they complete their project periods.

TABLE 6. SUMMARY OF CASE STUDIES

Country	Organization/ Current Contact	Project Title	Geographic Area	Description of Project	Groups in involved implementation	Technical Interventions Involved in Project
Nicaragua	CARE Nicaragua Ivette Arauz (Project Manager) iarauz@care.org.ni	<i>Sobrevivencia Infantil</i> (Infant Survival)	Urban (25%) and rural (75%) areas of <i>Departamento</i> of Matagalpa, in mountainous region of Nicaragua	Project aims to reduce neonatal and maternal mortality by improving access to and quality of EOC and ENC in facilities. Includes community-based intervention arm to train women and TBAs to prevent, recognize, and seek referrals for complications.	1) <i>Brigadistas de salud</i> (Health brigadiers) 2) Traditional birth attendants <i>Parteras</i> (TBAs) 3) Lactation counselors 4) Health promoters (<i>Monitoras/es de atencion de salud integral</i>) 5) Emergency transport brigade members	1) Providing training for formal health care workers and TBAs in safe obstetric care 2) Monitoring pregnant women, providing home visits during antenatal, intrapartum, and postpartum periods from TBAs, lactation counselors, and health promoters, and registering births. 3) Encouraging presence of skilled attendants at births 4) Providing emergency transportation to hospitals via emergency transport brigades
Guatemala	Save the Children Guatemala Elizabeth de Bocaletti (Regional health advisor for LAC) ebocaletti@savechildren.org	<i>Maya Salud Neonatal</i> (Mayan Neonatal Health)	3 low-income urban and periurban towns (Cotzal, Nebaj, and Chajul) in the remote Ixil Triangle highland area of Quiché Department	Research-based pilot project to improve preparedness and care-seeking within the home, capabilities of health providers in management of complications and essential newborn care, and advocate for neonatal care at local and national levels	1) <i>Promotoras</i> (Health promoters) 2) Women's group leaders 3) <i>Vigilantes</i> (Pregnancy surveillance volunteers)	1) Developing woman-to-woman peer education so women can recognize danger signs during perinatal period and engage in care-seeking behavior 2) Improving skills of and linkages between health promoters, TBAs, and formal health system in immediate newborn care through training 3) Developing a local surveillance system to monitor pregnant women, collect data, and link women to health facilities 4) Advocating for neonatal care programs at community and national level.

TABLE 6. SUMMARY OF CASE STUDIES (CONT'D)

Country	Organization/ Current Contact	Project Title	Geographic Area	Description of Project	Groups in involved implementation	Technical Interventions Involved in Project
Peru	CARE Peru Irma Ramos (Project Manager) iramos@ pathfind.org	BABIES	Juliaca (Altiplano)	Partnership with MOH to provide im- proved training and referrals by untrained and semi-skilled TBAs (parteros/as). Strengthening quality of care in health facilities through EOC and ENC training.	1) <i>Promotoras</i> (Health promoters) 2) <i>Parteros/as</i> (TBAs) 3) <i>Enfermeras-</i> <i>matronas</i> (Nurse- midwives) 4) <i>Medicos</i> (Doctors) 5) <i>Enfermeras</i> (Nurses)	1) Training for MOH health system personnel in newborn health care 2) Training for groups of untrained and tradi- tional volunteer TBAs to improve quality of care, recognition of danger signs, referrals in emergencies, and post- natal care 3) Strengthening monitoring of birth outcomes and data collection through weekly updates from TBAs.
Bolivia	PROCOSI, a network of more than 30 NGOs. Projects profiled in this report are by Save the Children Bolivia, PCI Bolivia, and CARE Bolivia Programs part SNL Initiative Oscar Gonzalez PROCOSI/ SNL Project Director ogonzalez@ procosi.org.bo	Programa Neonatal: Saving Newborn Lives (Saving Newborn Lives Neonatal Program)	Various projects led by different PROCOSI network member NGOs. Projects span four departments (Cocha- bamba, La Paz, Oruro, and Potosí) and eight health net- works. Pre- dominantly rural, but two peri- urban in El Alto and Potosí City.	Variety of separate projects to encourage prenatal and birth prepared- ness interven- tions; safe delivery with skilled care present; and postnatal care, including immediate and exclusive breastfeeding, drying and warming, and postnatal health visits for mothers and newborns.	Vary from project to project, but may include: 1) <i>Promotoras</i> (Health promoters) 2) <i>Tecnicos</i> (Technical specialists) 3) <i>Parteras</i> (TBAs) 4) Women's groups 5) Men's groups 6) <i>Personal de</i> <i>salud</i> (Formal health care workers) 7) <i>Manzaneras</i> (Pregnancy surveillance volunteers) 8) <i>Curanderos</i> <i>tradicionales</i> (Traditional healers) 9) Network of friendly pharmacies 10) Network of community physicians	Specific activities vary from project to project, but all include: 1) Training of health promoters and/or formal health care workers in prenatal and newborn care 2) Training mothers, family members, and/or TBAs in birth pre- paredness, safe delivery techniques, and im- mediate newborn care, including immediate and exclusive breastfeeding and drying and warming. Training TBAs/CHWs in postnatal visits. 3) Teaching community members to recognize danger signs and act on them 4) Encouraging collec- tive learning and participatory decision- making by community groups regarding neo- natal care. 5) Strengthening link- ages with the formal health system (in some cases, improving relationships of women with providers, in others, timeliness of referrals from com- munity level).

TABLE 6. SUMMARY OF CASE STUDIES (CONT'D)

Country	Organization/ Current Contact	Project Title	Geographic Area	Description of Project	Groups in involved implementation	Technical Interventions Involved in Project
Honduras	Catholic Relief Services Honduras Alfonso Rosales(Senior Health Technical Advisor) arosales@crs.org	Intibuca Community-Based Child Survival Program	95 communities in Intibuca Department, covering 6 municipalities. Exclusively rural.	Safe motherhood/newborn care and lacto-amenorrheic method (LAM) arms were part of integrated intervention to reduce child mortality (other arms included diarrhea and pneumonia prevention and management). Safe motherhood/newborn care arm encouraged recognition of danger signs, technical interventions by TBAs, improved referral seeking by families and TBAs, and improved access to care through emergency transport. LAM arm encouraged immediate and exclusive	1) Health educators 2) TBAs (and assistant TBAs) 3) Community volunteers 4) Formal health care workers 5) Emergency committees	1) Training women and their families to recognize risk factors and danger signs during pregnancy and delivery 2) Training and supervising TBAs in danger sign recognition and emergency obstetric skills 3) Establishing emergency committees in the community to coordinate transportation to first-level referral facilities for complications 4) Encouraging proper use of the lacto-amenorrheic method among community women for immediate and exclusive breastfeeding to promote good nutrition, prevent disease, and encourage birth spacing. 5) Monitoring of birth outcomes through detection of pregnant women, identification of pregnancy related health problems and outcomes for both mother and child.

3.1. CASE STUDY: INFANT SURVIVAL IN DEPARTAMENTO MATAGALPA, NICARAGUA

The Setting

In 2003, CARE Nicaragua began the *Sobrevivencia Infantil* (Infant Survival) Project in Departamento Matagalpa (in Municipio Matagalpa, La Dalia, Wastala) in partnership with the Nicaraguan Ministry of Health (MOH). Matagalpa City, home to 70,000 people and 25% of the population of the Department, is one of the nation's principal urban areas, but the surrounding regions are predominantly rural. Matagalpa Department is a humid, high-altitude region in the mountains of Nicaragua, where villages are often separated by large distances. Many of the home deliveries in this area are not reached by any skilled birth attendants. This area was chosen by CARE based on its high rates of maternal and neonatal morbidity and mortality, as well as its rugged geography.

The Project

Sobrevivencia Infantil is an adaptation of several successful neonatal and maternal health interventions that used similar community-based approaches in Guatemala, Honduras, and Peru. The four-year project aims to contribute to the reduction of maternal and infant mortality using a comprehensive set of interventions to establish a continuum of care for newborns and their mothers. The project attempts to improve both access to and quality of maternal and neonatal services, a need jointly identified by CARE and the MOH. The community-based prong of the program aims to improve the ability of women, their relatives, and TBAs to prevent, recognize, and seek referral care outside the home for birth complications, newborn sicknesses, and puerperal disorders in the mother. A number of complementary interventions are also involved to improve prenatal care, infant feeding, birth preparedness, and perinatal monitoring. An integrated, institution-based prong of the program aims to improve neonatal care given by skilled personnel in the Hospital de Referencia in Matagalpa City, where mothers experiencing emergency birth complications and sick newborns are often referred.

The People Implementing the Intervention

A number of different community agents are involved in the planning and implementation of this project, all of them volunteers. Communities were involved in



needs assessments related to newborn health, and were also involved in the planning of interventions adopted by this project.

Parteras empiricas (TBAs) are volunteer birth attendants who have some traditional training but have received additional training in prenatal care and deliveries from the MOH. Each community has one or two *consejeras de lactancia maternal* (lactation counselors), who have been selected by community to promote early and exclusive breastfeeding for at least six months, followed by appropriate complementary feeding. Additionally, CARE and the MOH identified special *monitoras/es de atencion integral de salud* (health promoters) for this project, volunteers who carry out monthly monitoring of the growth of under-five children in the community. A key component of the referral system set up by this project are organized *brigades de transporte emergencia obstetrica*, male volunteers who coordinate the driving of women to health units (*unidades de salud*) in case of an obstetric emergency. Last are *personal de salud* (health professionals), including physicians, nurses, PHC personnel, and technical staff, who work for the Ministry of Health and have received training in neonatal care.

TABLE 7. ROLES OF COMMUNITY MEMBERS AND HEALTH WORKERS IN THE SOBREVIVENCIA INFANTIL PROJECT

Spanish title	English title	Role in implementation
<i>Brigadistas de salud</i>	Health brigadiers	Volunteers who provide home visits to women during prenatal and postpartum periods and hold monthly meetings with the health facilities.
<i>Parteras empíricas</i>	TBAs	Volunteer birth attendants with some traditional training but also supplemental training in prenatal care and deliveries from MOH. In this project, TBAs are trained in prenatal care, intrapartum care, recognition of danger signs and referrals, newborn care, and lifesaving skills.
<i>Consejeras de lactancia maternal</i>	Breastfeeding counselors	Volunteers from the community who encourage immediate and exclusive breastfeeding practices via home visits and formation of support groups while women are pregnant and during labor and delivery
<i>Monitoras de atención de salud integral</i>	Primary health care monitors/promoters	Volunteers who carry out monthly monitoring of the growth of under-five children in the community
<i>Miembros de brigades de transporte emergencia obstetrica</i>	Members of emergency obstetric transport brigades	Male drivers who volunteer to drive women to the nearest health center or hospital in cases of obstetric emergency or for sick newborn care.
<i>Personal de salud</i>	Formal health care workers	Doctors, nurses, PHC personnel, and technical staff who work for the Ministry of Health, have received training in neonatal care, and work with the project and community groups.

The *brigadistas* (health brigadiers) and *consejeras de lactancia maternal* (lactation counselors) hold monthly meetings. Both groups also provide home visits to pregnant women and new mothers during the postnatal period. *Parteras empíricas* (TBAs) also provide home visits during the perinatal period. Pregnant women hold regular meetings with each other to discuss birth preparedness and newborn care; communities also have breastfeeding support groups to encourage women to decide to breastfeed their infants.

Interventions to Improve Maternal and Newborn Health

Interventions with pregnant women and other community members sought to (1) improve health care seeking behaviors during the prenatal and postpartum periods, (2) increase use of family planning methods for birth spacing and prevention of unplanned pregnancies, (3) encourage exclusive breastfeeding for at least six

months, initiated within one hour after birth, (4) disseminate information about the importance of care during the postpartum period, including prevention and recognition of infections and careseeking for problems, (5) improve rates of referral of women with obstetric complications and sick newborns to health units (*unidades de salud*). The interventions also stressed the importance of care for the infant and sought to alleviate the burden on mothers by encouraging family members to help women with household chores, creating an environment that allowed mothers to pay more attention to their newborns.

Interventions targeting formal health care workers were designed to (1) help birth attendants make adequate use of obstetric emergency and newborn care guidelines, to cover all 10 elements of UNICEF's safe childbirth approach, (2) ensure that pregnant women and sick newborns could achieve timely transportation to a health unit through the use of *brigades de*

transporte obstetrico (obstetric transport brigades), and (3) train skilled birth attendants and lay volunteers to follow the steps needed for safe deliveries.

Components of the *Sobrevivencia Infantil* Project target key periods where neonatal mortality can be reduced. The prenatal period is a primary focus of the project. At the beginning of the project, all pregnant women in the project catchment areas of Matagalpa Department were identified through a census performed by community groups and health services. After being identified, pregnant women receive home visits from *parteras*

Empiricas (traditional TBAs trained by the MOH), *consejeras de lactancia maternal* (local lactation counselors who encourage breastfeeding), and *monitoras/es de atencion integral de salud* (essentially CHWs trained to give advice on health in general). These visits allow for management of infections, such as STIs and UTIs, during pregnancy, for prenatal nutrition interventions, and for the development of birth preparedness plans including newborn care and feeding.

Several intervention components target the intrapartum period. In accordance with MOH guidelines, delivery by a skilled attendant is emphasized, preferably at a health post or hospital. *Parteras empiricas* (TBAs) and *personal de salud* (trained health personnel from the health post level up to the Hospital de Referencia) are being trained in safe obstetric care,

monitoring of labor for complications, and referrals at both the primary and secondary level. A unique feature of the *Sobrevivencia Infantil* project is the use of *brigades de transporte obstetrico* (obstetric transport brigades), who are groups of male volunteers, organized at the community level, who provide emergency transport using their means of transport to the nearest health units for pregnant or parturient women with obstetric complications and sick newborns. The project also emphasizes immediate attention to the newborn during birth to reduce the risks of hypothermia, birth asphyxia, infection, and other problems in the neonate. A strong emphasis is also placed on immediate initiation of breastfeeding within one hour after birth.

During the postpartum period, home visits provide an opportunity for Vitamin A supplementation, BCG vaccination, and early recognition of infections or disorders in the mother and newborn. Postnatal visits also provide an opportunity for *brigadistas* (health brigadiers) to discuss family planning methods, and for *parteras* (TBAs) to provide puerperal care for the mother and monitoring of infants' health during the first 72 hours or the first 10 days after birth. The program also encourages that civil registration be completed within the first few days of life, a system that enables a higher level of recording and monitoring newborn deaths.

TABLE 8. SOBREVIVENCIA INFANTIL PROJECT INTERVENTION COMPONENTS

Period	Activities
Antepartum	<ul style="list-style-type: none"> • Identify pregnant women through community census • Ensure pregnant women receive home visits from <i>parteras empiricas</i> (TBAs), <i>consejeras de lactancia maternal</i> (lactation counselors), and <i>monitoras/es de atencion integral de salud</i> (health promoters) to refer women for prenatal care, monitor for complications, encourage breastfeeding, and develop birth preparedness plans
Intrapartum	<ul style="list-style-type: none"> • Encourage institutional deliveries in presence of skilled attendants • Train <i>parteras empiricas</i> (TBAs) and <i>personal de salud</i> (biomedical personnel from the MOH system) in safe obstetric care, monitoring of delivery, lifesaving skills and appropriate referral procedures • Train <i>parteras empiricas</i> (TBAs) and <i>personal de salud</i> (biomedical personnel) in immediate newborn care • Provide emergency transportation for women with birth complications or sick newborns using <i>brigades de transporte obstetrico</i>
Postpartum	<ul style="list-style-type: none"> • Use home visits by <i>parteras empiricas</i> (TBAs) as opportunity to supplement with Vitamin A, give BCG vaccination, and observe for signs of newborn morbidity. • Use home visits by <i>parteras empiricas</i> (TBAs) as opportunity to educate mothers about family planning options and puerperal care. • Record births in civil registration system.

Lessons Learned and Next Steps

Other intervention activities are planned for the future of this project, including management and treatment of newborn infections, promotion of careseeking outside of the home, prevention of hypothermia, and training of CHWs and TBAs. One innovative element of this *Sobrevivencia Infantil* Project is that it provides education to new mothers about children's rights during the postnatal visits, during which mothers are informed about the rights of children as human beings in a way that they and other community members can understand and process.

The *Sobrevivencia Infantil* Project is an example of a project that bridges the common gap between safe motherhood and child survival programs with clear components to improve newborn health. The program uses a number of indicators related to newborn mortality, such as the proportion of mothers receiving tetanus toxoid during pregnancy, the percentage of births occurring in hospitals, and the percentage of early and exclusive breastfeeding within one hour of birth. However, the *Sobrevivencia Infantil* Project also supports other activities extending along the continuum of care to maintain maternal health as well as to protect the health of the newborn into childhood. The program provides training for women and CHWs on the use of family planning methods and the importance of careseeking behaviors during the prenatal period. It

also monitors infants into childhood, documenting rates of malnutrition, breastfeeding/complementary feeding of infants 6–9 months of age, vaccination rates among children 12–23 months of age, implementation of appropriate dehydration care during illnesses, and use of ITNs.

In the case of the *Sobrevivencia Infantil* Project, mobilizing the community has improved access to higher-level services, both for normal births by bringing skilled antenatal and postnatal care into the home, and for birth complications by organizing an effective referral system of trained personnel and effective emergency transportation. The net effect of the program is higher obstetric and neonatal care coverage in the Matagalpa Department. All pregnant women and mothers participating in the program benefit from increased health care benefits, and volunteer health personnel all claim to have increased their level of knowledge. A remaining challenge for this intervention is implementing it in a context where there are other organizations working on similar maternal and neonatal health problems using a top-down approach rather than a participatory community approach.

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3.2. CASE STUDY: MAYAN NEONATAL HEALTH IN GUATEMALA

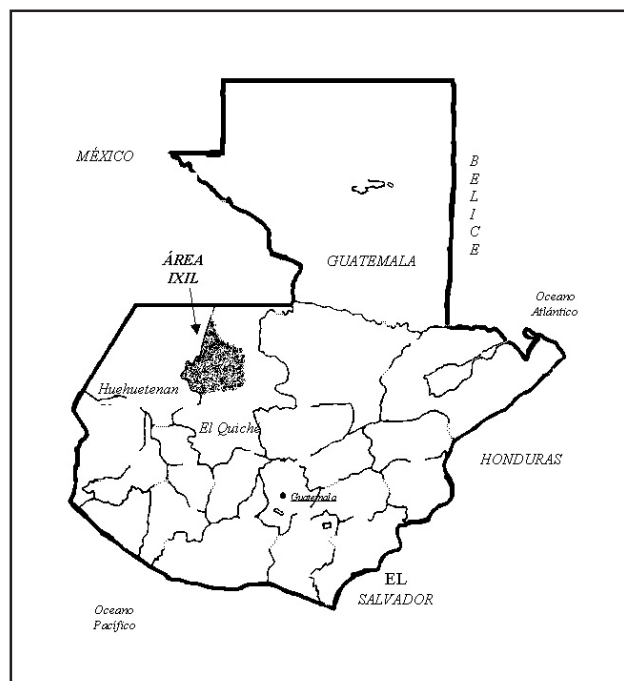
The Setting

The *Maya Salud Neonatal* (Mayan Neonatal Health) Project targets the Ixil Triangle area in the remote highlands of Guatemala, an area bounded on the south and west by mountains, and on the north by foothills above the Petén rainforest. Begun in April 2003, this research study project is part of the Saving Newborn Lives Initiative, led by Save the Children/USA. It aims to reach 3,000 Mayan women of reproductive age living in urban and periurban areas of San Juan Cotzal, Santa Maria Nebaj, and San Gaspar Chajul in the Department of Quiché. The entire project catchment area holds a population of 18,000 people. The neonatal mortality rate in the Ixil Triangle reaches 33 per 1000 live births, which represents more than half of the infant mortality rate of 57/1000 live births. Problems within the health system lead to barriers in utilization of services. The lack of confidence in the health services, fear, and language barriers have been described as major barriers to increased use of services. In addition, the health personnel are not fully aware of the difficulties in transport, the time families require to make decisions to seek care, and the role played by community health workers and traditional birth attendants.

The Project

This community-based program is based on qualitative research from previous experiences of Save the Children, MotherCare and the LaLeche League, who worked with women's groups in the area but had not applied this approach to perinatal and neonatal care.

Using preliminary conclusions drawn from the results of a baseline study, Save the Children found that there is a lack of information given to women by their health care providers during prenatal and postpartum visits. Many women demonstrate a lack of accurate knowledge about and recognition of danger signs in their newborns during the first few hours and days after birth, such as hypothermia, convulsions, or other abnormal reactions. These women do not possess enough information to seek services when they are necessary, and during delivery, principal decision-makers (TBAs and husbands) often delay taking action for obstetric emergencies. Additionally, the baseline study found low coverage of prenatal care visits with



skilled providers, and a large number of births in this region—over 66%—have no skilled birth attendant present. Another important finding is that cultural beliefs in the region discourage giving newborns colostrum (first milk), which can delay breastfeeding initiation. Mayan women also practice ritual bathing of their newborns in extremely cold water on the ground, a practice that can make the newborn vulnerable to hypothermia from the cold.

A primary objective of the project is to increase mothers' knowledge and recognition of danger signs during pregnancy, delivery, and the postpartum period. The project also aims to improve birth outcomes by improving immediate newborn care and increasing and improving referrals to maternal and neonatal services in emergencies. Interventions to support the attainment of these above objectives include (1) encouraging behavior change through training women to counsel and educate other women, both peer-to-peer and in women's groups (the woman-to-woman model), (2) training 80% of the community health workers identified in the project area in essential newborn care (ENC), (3) developing a community-based surveillance system to detect new pregnancies and help refer these women to appropriate perinatal care, (4) conducting

quantitative research to determine changes in neonatal knowledge and practices, as well as qualitative formative research for the development of appropriate BCC materials, and (5) advocating to raise awareness of neonatal health needs at the local and national level by presenting project data and results.

A unique feature of this program is that it encourages meetings of women of reproductive age, rather than just meetings of pregnant women. Woman-to-woman education at these meetings allows women to learn about a number of health issues such as prenatal care, birth preparedness, and newborn care, even before they are pregnant.

The People Implementing the Intervention

While this program was designed by Save the Children, implementation, management, and evaluation have been led by community members. All people involved in implementation of the Mayan Neonatal Health project were volunteers, with the exception of community facilitators. The women who participated as leaders of women’s groups or as *vigilantes* (pregnancy surveillance volunteers) were given incentives through a point system. At the conclusion of the project, the women will be given awards according to the number of points they accrue. Save the Children initially

identified several women’s groups at work in the community through their own previous work in the community, asked community facilitators about these groups, and inquired with the municipality about other groups active in this area. Many of the women were drawn from the Evangelical Church, which is extremely active in this community. Women who were selected often helped to identify other women to participate.

Interventions to Improve Maternal and Newborn Health

Four principal interventions make up the program, including (1) a woman-to-woman peer education system to educate women to recognize danger signs, (2) training for CHWs, TBAs, and health personnel to improve essential newborn care, (3) a community-led surveillance system to identify and monitor pregnant women in the community through the postnatal period, and (4) advocacy for newborn health care at the local and national level. A table describing activities supporting each of these interventions follows.

Lessons Learned and Next Steps

The final qualitative study from this project demonstrates that as women know more about their own

TABLE 9. ROLES OF COMMUNITY MEMBERS AND HEALTH WORKERS IN THE MAYAN NEONATAL HEALTH PROJECT

Spanish title	English title	Role in implementation
<i>Facilitadores comunitarios</i>	Community facilitators	Members of the community who are salaried SAVE employees, working in cooperation with a field coordinator/physician. In this program, three women and one man were selected as community facilitators, and they serve as data collectors for qualitative research studies, as well as trainers of women in neonatal care. They also identify leaders of women’s groups to participate.
<i>Mujeres líderes de grupos</i>	Women’s group leaders	Women who are members of known community groups, chosen by community facilitators to receive training in newborn care, to disseminate information, and to give talks to their groups and communities.
<i>Vigilantes</i>	Pregnancy surveillance volunteers	Selected from among the women’s group leaders, pregnancy surveillance volunteers are primarily responsible for the community-based surveillance system, in charge of identifying pregnant women in the community. Trained by SAVE to detect danger signs, surveillance volunteers also attend births and perform postnatal visits with TBAs, watching for danger signs during delivery and in newborns.

TABLE 10. INTERVENTIONS IN THE MAYAN NEONATAL HEALTH PROJECT IN GUATEMALA

Intervention	Activities
Develop a woman-to-woman peer education model for counseling and education of women to recognize danger signs during the perinatal period and take appropriate action	<ul style="list-style-type: none"> • Perform KAP qualitative study to determine actual beliefs, knowledge, attitudes and practices in maternal and neonatal health • Design and produce behavior change communication materials to be used in community counseling • Identify organized women's groups, and identify individuals within the community to serve as training facilitators • Train local women as facilitators and community counselors, who can then disseminate information, provide counseling, and give small talks to other women in their communities about the following subjects: (1) promoting careseeking outside of the home for sick newborns, (2) immediate and exclusive breastfeeding, (3) prevention of hypothermia, (4) safe delivery kits, (5) birth preparedness planning, and (6) newborn care. • Train local women to encourage a smooth transition to well-child care through promotion of age-appropriate vaccinations, beginning with BCG/polio at birth, and transitioning to well child care/routine immunizations by 2 months of age.
Improve health providers' skills in immediate newborn care	<ul style="list-style-type: none"> • Perform qualitative KAP study to determine actual beliefs, knowledge, attitudes and practice in maternal and neonatal health Design training materials and training curricula for TBAs and CHWs Train CHWs, TBAs, and health personnel in hospitals and health centers in clean delivery, immediate normal newborn care, simple resuscitation for birth asphyxia, proper bathing of newborns to prevent hypothermia, initiation of immediate breastfeeding, and recognition of danger signs at birth (Training managed by JHPIEGO in hospitals and health centers and by Save the Children at the community level). • Strengthen the relationship between health services and community based health workers
Develop a local surveillance system to permit early detection of pregnant women, linking these women to facility-based health services	<ul style="list-style-type: none"> • Identify and contact local leaders, and identify and organize women volunteers by sector (for surveillance activities) • Design and produce simple data collection forms • Train community volunteers in data collection and use of basic data through <i>sala situacional</i> (local situational analysis) • Establish strong links with public health services to strengthen referrals and referral follow-up
Advocate for neonatal health care programs at the community and national level.	<ul style="list-style-type: none"> • Work with the Ministry of Health to sensitize them to the importance of newborn care at the community and health service levels. • Hold open forums to present data and lessons learned at the local and national level, including partners and representatives from the Ministry of Health. • Hold additional meetings at the local and national level to leverage support through sensitization and coordination of newborn health activities. Results will leverage government support to place newborn health on priority agenda.

health, they are more likely to take responsibility for their own care and improve their communication with health providers (Estrada, 2003). A promising feature of the model is that most interventions rely on woman-to-woman peer interaction, allowing Mayan women to work with other Mayan women. This relationship establishes trust to enable knowledge transfer; ordinarily, Mayans often avoid using public health services because of a lack of trust of health care providers and because they often cannot understand Spanish, the primary language of the health system. Many pregnant

women/mothers have difficulty communicating with service providers. Because of its reliance on volunteers and its use of peer-to-peer strategies, many components of the project appear to be sustainable.

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3.3. CASE STUDY: NEWBORN HEALTH CARE TRAINING IN THE PERUVIAN ALTIPLANO

The Setting

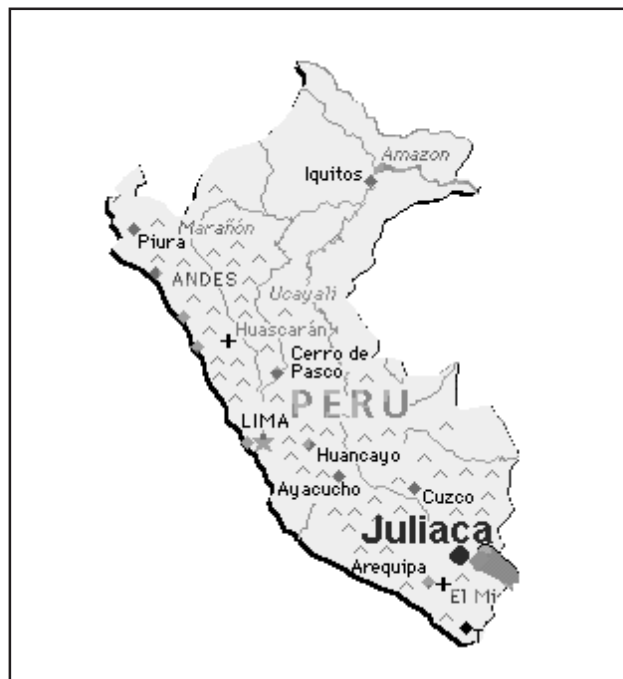
In the extensive, high plateaus of the Central Andes, CARE Peru is working in partnership with the Peruvian Ministry of Health and local volunteer TBAs to promote newborn health. Called BABIES, the project targets rural and urban areas in and around the southern Peruvian town of Juliaca, one of Peru's poorest communities. Juliaca lies along the Pan-American highway near the shore of Lake Titicaca; at 15,000 feet elevation, it is one of the highest-altitude towns in the world. Having worked in Juliaca since 1998, CARE began the BABIES initiative in late 2001 and ended it in late 2003.

The Project

The principal objective of the project was to reduce both the neonatal mortality rate and the perinatal mortality rate in Juliaca by improving the quality of care for both healthy and sick newborns at the community level and in health facilities. The program aimed to improve newborn care by teaching healthy bathing practices, encouraging immediate initiation of breastfeeding, and ensuring clean equipment and surfaces during delivery. The program was intended (1) to increase the number of women who had institutional deliveries attended by skilled providers at any point of service within the MOH system, (2) to improve the care of all pregnant women by skilled providers in the MOH system or semi-skilled providers in the community, both during the prenatal period and through delivery, (3) to increase frequency of prenatal visits to the MOH system, and (4) to provide neonatal health care services to at least 50% of newborns.

Interventions to Improve Maternal and Newborn Health

BABIES included a number of activities to support the achievement of these objectives. First, the initiative trained MOH personnel in newborn health care. The project also organized groups of untrained or traditional *parteros/parteras* (TBAs) and provided them training to improve their ability to provide quality neonatal health care services and referrals during prenatal care, delivery, and postnatal visits/observation. To supplement these training initiatives, the project developed informational training materials



(posters, guidelines, videos, etc) on neonatal care. Training for *parteros/parteras* involved teaching them to write weekly updates to improve surveillance and reporting of birth complications and neonatal deaths, and training them to refer both women and newborns to clinics in Juliaca when they notice danger signs. *Parteros/parteras* were also trained to teach pregnant women how to design birth preparedness plans and how to recognize and treat common childhood illnesses.

CARE previously applied the central principles of the BABIES project in other communities in Nicaragua and Peru. The strategy is based loosely on the Warmi Project in Bolivia, and was adapted for use in Juliaca based on a needs assessment. Interventions were determined based on calculations of mortality rates in Juliaca, a number of focus groups held to evaluate knowledge, attitudes, and practices pertaining to neonatal care, and observation of neonatal health care behaviors in homes and health facilities.

The People Implementing the Intervention

The core people in the design of this intervention were *promotores/promotoras* (health promoters), CHWs

TABLE 11. ROLES OF COMMUNITY MEMBERS AND HEALTH WORKERS IN THE BABIES PROJECT

Spanish title	English title	Role in implementation
<i>Promotoras/promotores</i>	Health promoters	Male and female civil servants who are part of the MOH health system, and who promote general health, family planning, and appropriate prenatal care through antenatal visits and provision of immediate newborn care.
<i>Parteros/parteras</i>	TBAs	Male and female volunteers from communities in Juliaca who provide any of a variety of prenatal and delivery services. Highly varied skill levels in this group: some are relatives of pregnant women, others have had official training as birth attendants.
<i>Enfermeras-matronas</i>	Nurse-midwives	Women who have been trained at the university level in biomedically-based essential midwifery skills. In Juliaca, only one enfermera-matrona was involved.
<i>Medicos</i>	Doctors	Part of the MOH system and usually found only in hospitals, these individuals have advanced biomedical training in essential obstetric care.
<i>Enfermeras</i>	Nurses	Women who have been trained as nurses at the university level.

whose services were integrated with the MOH system. Because of the small number of *promotores/promotoras*, their generalist role in perinatal care, and their social networks with *parteros/parteras* (TBAs) in the community, *promotores/promotoras* were well suited to a coordinating role. In cooperation with a prominent *enfermera-matrona* (nurse-midwife) in the community, *promotores/promotoras* representing the MOH system selected *parteros/parteras* from their communities. Selected *partero/partera* volunteers were then offered training in neonatal health care. Managed primarily by the MOH, *promotoras/promotores* and *parteros/parteras* provided significant feedback regarding their training and experiences with the project. Women and mothers in the intervention were encouraged to seek care for themselves and their infants, and demand attention using knowledge gained through the intervention (e.g., immediate breastfeeding).

Several difficulties were encountered in implementation of the BABIES program. First, the *parteros/parteras*, as laymen volunteers attending births, were not well received by persons in the MOH system. Significant resistance to their participation was encountered among MOH personnel. Interactions between *parteros/parteras* and MOH personnel were frequently

strained for this reason. Some of the strain in communication could also be attributed to language differences; in general, *parteros/parteras* spoke primarily Quechua, while trained MOH personnel spoke primarily Spanish. These language differences also posed problems for women in the communities when they sought perinatal care from MOH facilities. Geographically, this area of the Central Andes has poorly developed health, sanitation, and communication infrastructure, making timely referrals for serious perinatal complications very difficult. Additionally, there is a documented lack of political will to improve neonatal health in lieu of other higher priority issues, observable throughout the MOH and government system in Peru.

Lessons Learned and Next Steps

The project period for BABIES ended in late 2003. An interesting observation emerging from the project is that *enfermeras* (nurses) and *enfermeras-matronas* (nurse-midwives) both feel their main priority is the delivery itself, and that their highest concern is the mother's health during and immediately after the delivery. The health status of the newborn is typically a secondary or tertiary priority. This observation suggests a greater need for a focus on the newborn, and suggests that further training for biomedical MOH

personnel on immediate newborn care could reduce the high rates of neonatal mortality in the region.

Juliaca also lacks quality statistical data on neonatal and perinatal mortality (due to the number of home births and unrecorded neonatal deaths). Training *parteros/parteras* to record maternal and neonatal problems in weekly reports should increase the ability of communities in Juliaca to collect and analyze this data in cooperation with the local health center. CARE anticipates that *promotoras/promotoras*, in cooperation with other local MOH personnel, will be able to develop and implement simple tools to use this mortality data to shape future neonatal health care delivery programs in this area.

The education of mothers by *parteros/parteras* during this project promises to have lasting effects. Because of their geographic and social marginalization

and language differences, Quechua women have frequently had negative prior experiences with MOH services. This project was seen by the community as a way to empower and educate women to demand better health care services, and to be more vocal about their and their babies' needs.

Community volunteers noticed an increase in the number of well babies, as well as the importance of valuing healthy babies. People in Juliaca now realize how families and communities share responsibility for keeping children healthy.

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3.4. CASE STUDY: PROMOTING NEWBORN SURVIVAL IN BOLIVIA THROUGH AN NGO NETWORK

The Setting

Throughout Bolivia, Save the Children Bolivia is working in partnership with members of PROCOSI on the Saving Newborn Lives (SNL) Initiative. PROCOSI, or *Programa de Coordinación en Salud Integral* (Coordination Program in Integral Health), is a network of 37 local and international NGOs working among the poorest people in Bolivia. A landlocked, high-altitude country of highlands studied by mountains, Bolivia occupies an area of 1,098,581 square kilometers in central South America, and has a population density of 7.6 inhabitants per square kilometer. The country is divided into 9 Departments, 112 Provinces and 314 municipalities or local governments. Bolivia has the highest neonatal mortality rate (34/1000 live births—ENDSA 98) and the second-highest maternal mortality ratio in the LAC region. In rural areas, the NMR is almost twice as high as in urban areas (rural: 46/1000 live births; urban: 25/1000 live births) (SNL, 2003). The departments of La Paz, Potosí, Chuquisaca and Cochabamba have the highest newborn mortality, mainly associated with sepsis, low birth weight, premature births, and perinatal asphyxia.

Throughout the country, traditional childbirth and post-childbirth practices have focused on caring for the mother, rather than the newborn. Most births take place at home and are attended by relatives, including husbands and mothers-in-law. While most infants are breastfed, only 38% of newborns are breastfed during the first hour of life, and only 68.5% are breastfed exclusively (ENDSA, cited in (SNL, 2003)).

The Project

In Bolivia through the Maternal Mortality Reduction Program on PROCOSI, also referred to as the *Programa Neonatal* (Neonatal Program), the Saving Newborn Lives (SNL) Initiative has projects in four departments with eight health networks. Different PROCOSI member NGOs lead projects in different departments. The sites where projects are being implemented include El Alto in La Paz, CIES/CARE (Red Corea y Los Andes), Red Valle Alto Punata y Valle Baja Quillacollo, PCO en Cochabamba, Redes Azanakes, Norte, Oruro, Save the Children in the city of Oruro and CEPAC Potosí in the City of Potosí. The projects



cover more than 20 governments, all rural with the exception of periurban shantytowns in Potosí City and El Alto. Total target population in the catchment area of the projects is 944,826, which includes 163,953 women of reproductive age.

The SNL Initiative focuses on five main lines of action:

1. Scaling up of essential newborn care with cost-effective community interventions, initially in NGOs in the PROCOSI network with existing projects financed from other sources;
2. Training in essential newborn care for health care providers,
3. Training when requested for community health workers;
4. Communication for behavior change and reinforcement of behaviors; and
5. Adaptation or improvement of innovative intervention models through research, obtaining commitments and mobilization of resources.

In the process of implementation, the projects involve local authorities in assessment and planning of

PROCOSI IN EL ALTO: HOW CARE WORKS WITH WOMEN'S GROUPS TO IMPROVE ESSENTIAL NEWBORN CARE

In a periurban shantytown in Bolivia, PROCOSI member CARE Bolivia is working with groups of indigenous Aymara Indian women to implement a community-based program for the reduction of maternal and neonatal mortality. El Alto is Bolivia's largest shantytown, transformed from farmland because of rural-urban migration toward La Paz over the last two decades. Most of El Alto's population of over 600,000 lacks water, sanitation, or adequate health care. National health services cannot meet the needs of this large population and suffer from extremely high turnover of personnel, making community-based approaches more sustainable than training programs for medical personnel. The NMR in El Alto is the highest in Bolivia, and 43.4% of newborn mortality is during the first day of life. The four districts

chosen for this program are among the poorest in this sprawling shantytown, and are poorly served by government health care.

This SNL project, called *Cuidados Esenciales del Recien Nacido en Comunidades con Grupos Organizados de Mujeres* (Essential Care for Newborns in Communities with Women's Organizations), began in March 2003 and will end in December 2004. The program applies the BABIES monitoring and evaluation methodology developed by CDC and CARE USA to the model of community-based neonatal care pioneered by the Warmi Project in Bolivia. Using community-based, participatory methodologies to empower community groups to identify and address issues related to neonatal health, the program has four main objectives: (1) to decrease NMR in all four districts by reducing the four delays and improving quality of care, (2) to empower both men and

women in the community with skills and knowledge to improve care of pregnant women, mothers, and newborns, (3) to link community networks with health systems to reduce neonatal mortality, and (4) to strengthen MOH surveillance of neonatal mortality using community self-diagnosis and the BABIES monitoring and evaluation approach.

Like the Warmi Project, this project relies on the use of community self-diagnosis, planning, implementation, and participatory evaluation oriented toward the four delays and the four key periods. The project helps women's and men's groups to develop their own intervention proposals and health education materials, helps participants recognize danger signs in mothers and their newborns and act to seek care, and helps women and men learn interventions that can help improve the health of newborns. Group members are encouraged to develop their own pro-

posals for newborn care, to educate others within the group and in their communities, and to negotiate with other community organizations to improve health by CHW facilitators. CHWs also give prenatal education to women's groups, encouraging birth preparedness and proper care during the postnatal period. The project also trains health personnel in maternal and neonatal health.

The project is adapting the BABIES methodology to work within the neonatal health information system of the MOH. The BABIES methodology allows actors at all levels to identify key intervention areas in neonatal health: families, communities, and health services. In this project, the community level is used as a central level to improve decision-making related to neonatal care, to develop plans to follow up after births, and to develop and maintain effective participatory evaluation mechanisms for effective future plan-

ning. Using the BABIES methodology, the men's and women's groups are learning to develop proposals for interventions and IEC activities, which requires them to apply the Warmi Project's Community Action Cycle to the problems they identify related to neonatal health. The members of these groups, in turn, educate one another and other community groups with the educational materials they develop.

The program capitalizes on the existence of groups of women and men organized during a previous USAID-funded project in El Alto, using CHWs as health educators. Especially experienced or well-regarded *promotoras estrellas* ("star" health promoters) serve as facilitators for neonatal health discussions and intervention planning in women's and men's groups. These efforts are complemented by the surveillance efforts of two groups: a community-based surveillance team of *manzaneras* (pregnancy surveillance

volunteers), who identify abnormal disease events such as diarrhea or pneumonia outbreaks, and *defensores de la salud* (health defenders), who monitor violence and other social conflict in the community. A "network of friendly pharmacies," a cooperative venture offering lower prices on drugs and supplies such as sponges, clean cloths, and razor blades, supports the interventions at the community level.

The community-based approach has helped to improve management skills from the bottom up, and has stimulated community empowerment. By working with women's and men's groups and enabling them to educate themselves and their community, the project promotes effective self-care without further burdening the overwhelmed government health system. The project will offer NGOs and governments a new way to measure health care system performance. In El Alto, there is room for

improved coordination of families and communities with MOH-run health care centers and public hospitals, an area men's and women's groups may consider in designing future interventions and training curricula.

The project aims to increase women's participation in the community planning and decision-making process, empowering them to seek help when necessary, be more vocal about their health needs, and encourage whole communities to promote essential newborn care. The project is teaching women, many of whom have migrated from the countryside and have little knowledge of their rights to basic services such as water, sanitation, and health care, about *ejercicio de derechos*, or exercising their rights. Women are learning that health care is a right they can demand and that they deserve quality care. While the project emphasizes self-care whenever possible, women involved in the project are also learn-

ing that they are eligible to access certain resources and services as a part of universal health care.

Evaluation is forthcoming, and will draw upon lessons learned in a similar community-based project in CARE Tanzania (Ahluwalia et al., 2003), which documented successes using the community-based participatory decision-making model to improve recognition of danger signs, increase numbers of births attended by trained attendants, increase numbers of referrals, and improve facility-based addressing of obstetric emergencies.

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PROCOSI IN COCHABAMBA: HOW PCI IS WORKING TO REDUCE NEONATAL MORTALITY IN RURAL AND URBAN AREAS

To reduce neonatal mortality among Quechua Indians in the Andean city of Cochabamba in central Bolivia, PROCOSI member Project Concern International (PCI) is leading the *Camino a la Sobrevivencia Neonatal* (Road to Neonatal Survival) Project in partnership with the Bolivian MOH and the municipal government in Cochabamba. One project area is rural (Valle Alto, started February 2003) and encompasses eight provinces, and the other is urban (Valle Bajo, started July 2003) in the province of Quillocollo.

As in many countries, most neonatal mortality in Valle Alto and Valle Bajo is in the first week of life, primarily due to infections, respiratory problems, low birthweight, and prematurity. NMRs of 46/1000 live births have been documented in both of these areas, among the highest neonatal mortality rates in Bolivia. In Valle Alto, 85% of home births are attended by husbands or mothers-in-law, not skilled birth attendants. Only 11% of women can recognize warning signs in newborns.

The *Camino a la Sobrevivencia Neonatal* Project is a set of community-based interven-

tions in both Valle Alto and Valle Bajo to improve neonatal mortality rates through 1) improving care during pregnancy, 2) improving care during delivery and the early postnatal period, and 3) improving neonatal care. Principal strategies PCI is using to achieve these goals include 1) training in quality of care for health workers in the municipal and MOH system, 2) training TBAs and *promotoras* (health promoters) in immediate newborn care (including steps to avoid hypothermia and encouraging immediate exclusive breastfeeding), 3) training TBAs and health promoters to prepare preg-

nant women for child-birth and newborn care during the antenatal period (including recognition of danger signs in themselves or their newborns, and when to seek care), 4) developing a community-based surveillance system to monitor and refer pregnant women and keep track of birth outcomes, and 5) improving referral systems and rapport between health promoters/TBAs and personnel from in the government health system. Additionally, the project supports community-wide events to provide pregnant women with safe delivery kits, immunizations, and information they may need.

activities so that the projects are in harmony with local problems and necessities. Expected outcomes of the project in all sites include:

- 45% of pregnant women recognize at least 2 danger signs during pregnancy;
- 30% of pregnant women have their own individual “childbirth plan;”
- 60% of births are attended by qualified personnel either at home or in a health facility;
- 65% of newborn are dried and wrapped in the first minutes of life;
- 45% of pregnant women and their relatives recognize at least 2 signs of danger for newborns and seek help from the health services;
- 40% of newborns receive postpartum care/visit during the first three days of life.

Although not described in detail here, the SNL Initiative is intervening at both the health facility and community levels. In collaboration with the Ministry of Health and Sports, SNL is supporting the implementation of the newborn component of IMCI in coordination with WHO/PAHO, the Integrated Health Project (PROSIN/USAID) and UJNICEF which updates personnel on appropriate clinical care for newborns.

Through the Initiative, the quality of care provided to newborns in health facilities in the four Departments where SNL works is being improved through training of health personnel in how to apply the IMCI approach (Integrated Management of Childhood Illnesses or AIEPI=Atención Integrada de la Enfermedades Prevalentes de la Infancia) to

Education about neonatal health is provided at the facility level for health care workers, at the community level through educational TV and radio spots, training of *promotoras*, and presentations at community meetings, and at the home level during prenatal and postnatal visits by *promotoras*.

All project implementers are volunteers, primarily TBAs, as well as health promoters who provide information to women at community meetings and home visits about prenatal health and promote careseeking for illnesses. The project also aims to improve the quality of care provided by traditional healers and

personnel in the formal health system by conducting trainings and workshops with the MOH on quality care. *Manzaneras* (pregnancy surveillance volunteers) are also involved; these are villagers chosen by the community to lead local epidemiological surveillance activities related to obstetric and neonatal care. *Manzaneras* lead epidemiological surveillance committees composed of community leaders, health promoters, and key informants to monitor pregnancies and provide referrals for pregnant women and mothers of newborns in cases of obstetric emergency. Committees record data on incidence of problems and how they were

handled. Oversight is provided by *defensores de la salud* (health defenders), who assure that the project is being implemented at the local level.

Early indications from the intervention underline the importance of maintaining respect between different groups of people involved in interventions. In these areas of Cochabamba, community health promoters have reported feeling demoralized and unsupported, despite indications that their performance is actually of high quality, by health professionals and/or health services with whom they have neutral or even negative interactions. Health workers in

the formal health care system are primarily concerned with quality of medical care, rather than the qualities of warmth and understanding in patient/provider interactions. This attitude is prevalent and a source of complaints by CHWs, pregnant women, and new mothers alike, and one that PCI is working to address in training.

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the management of sick newborns. There is close collaboration with PAHO/Bolivia, so as to build upon PAHO's extensive experience with the implementation of IMCI in Latin America. In addition, efforts are being made in these Departments to strengthen linkages between health facilities and communities.

Interventions to Improve Maternal and Newborn Health

All SNL projects in Bolivia include components to encourage prenatal and birth preparedness interventions; safe delivery with skilled care present; and postnatal care, including immediate and exclusive breastfeeding, drying and warming, and postnatal health visits for mothers and newborns.

Activities and methods selected to encourage these behavior changes and achieve the goals above vary from project to project, depending on the needs of the particular community involved in the project, variations in personnel to implement the interventions, whether births are primarily home-based or facility-based, and municipal government concerns. Some programs focus on improving the training of TBAs in birth preparedness and immediate newborn care, while others use community groups to educate women to recognize obstetric and newborn danger signs and respond. Where health facilities are available for emergency obstetric complications or newborn sicknesses, programs emphasize births in facilities, timely referrals, and quality training of medical personnel. Where these facilities are lacking, TBAs and CHWs are

trained in immediate newborn care. Some projects use community meetings as entry points for education of mothers, some use home visits, some use clinic visits, and others use a mix of all three. Some include surveillance components to register pregnant women, monitor effectiveness of referrals, and document outcomes. Examples of this project diversity can be found in the text boxes in this section, which profile two different SNL projects by PROCOSI members in Bolivia: one in Cochabamba, led by PCI Bolivia, and one in El Alto, led by CARE Bolivia.

People Involved in Implementing the Interventions

Depending on the location of the intervention, different individuals and groups are involved in implementation of SNL projects. Because lead NGOs on these projects usually had prior experience in their SNL project area, these NGOs frequently identified and invited principal agents in these projects personally. With the exception of salaried MOH personnel and participating pharmacies (the latter only in the CARE Bolivia example—see below), all individuals were unpaid volunteers. In all cases, community members were heavily involved in the implementation of projects, though often less so in the design/planning and monitoring/evaluation of these projects. A notable use of community members in monitoring and evaluation is the role of *manzaneras* (pregnancy surveillance volunteers), who monitor pregnant women, record birth outcomes, and document referrals.

Next Steps and Lessons Learned

Several challenges remain for a continuum of quality neonatal care to be established. First, the program has identified a need to incorporate essential newborn care into pre- and post-service training for medical personnel. There is also a need for greater use of community mobilization and participatory methodologies to help caregivers recognize danger signs and seek care from facilities when needed.

Cultural and geographical barriers to care, as well as patient-TBA-formal health worker interactions, are also a challenge. The SNL Initiative focuses heavily on improving quality of care given by providers, but in many cases these services are underused because of distance from villages to facilities, language barriers, or disrespectful or uncomfortable interactions between formal health care workers and women. In Oruro, for example, program managers noted that this problem is

directly related to the age and/or status of the health professional: older formal health care workers and doctors were most likely to disregard or underestimate the contributions of TBAs.

One problem noted in several of the SNL interventions is that almost all community participants in these interventions are unpaid volunteers, but volunteers working in other projects in many SNL project areas have received payment in recent years. Some volunteers have demanded pay, threatening to quit if they receive no compensation. Volunteering can be difficult or impossible for lower-income individuals. Compensating volunteers may be critical to maintain the high involvement and morale of CHWs and TBAs.

Because the SNL Initiative is coordinated at the national level, the initiative has a strong advocacy component, and has formed a number of alliances and partnerships with government and NGOs to commit to improving newborn health. Already, PROCOSI members have advocated for and helped to draft recently enacted legislation providing free maternal and newborn health insurance for all Bolivian women and their infants, and have successfully lobbied, in close collaboration with PAHO/Bolivia, for the incorporation of neonatal health into the national plan for Integrated Management of Childhood Illness. PROCOSI members have also successfully spearheaded the inclusion of neonatal health interventions and indicators in the National Under-5 Strategic Plan.

Evaluation of this program is underway and will be available in coming months. Thus far, the program has achieved a number of goals, including the completion of formative and evaluation research, significant advocacy and policy changes, and the development of a behavior change communication strategy. The program has also worked with PAHO/Bolivia to guide the development of a clinical neonatal IMCI training plan (implemented at national level), which will be implemented at clinic and community levels throughout Bolivia by the MOH. Currently there is a proposal to develop a manual for community health agents (*agente comunitario de salud*) on neonatal Community-IMCI, with technical support from PAHO/Bolivia.

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ROLES OF COMMUNITY MEMBERS AND HEALTH WORKERS IN THE RANGE OF SNL PROJECTS IN BOLIVIA

Spanish title	English title	Role in implementation	Lead NGOs and location of SNL projects involving this role
<i>Promotoras</i>	Health promoters	Volunteers from the community who provide basic information to women about prenatal health, promote careseeking during the antenatal period and for newborn illnesses, and promote community events such as vaccinations. Usually involved in community mobilization and basic education, either at community/women's group meetings or community events.	CARE Bolivia (El Alto)PCI (Cochabamba)Save the Children (Oruro)* Note: CARE Bolivia uses especially well-regarded, knowledgeable promotoras (<i>promotoras estrellas</i>) as facilitators/educators of women's groups.
<i>Técnicos</i>	Technical specialists	Health promoters who are trained in specific technical interventions related to birth preparedness, immediate newborn care (e.g., immediate breastfeeding initiation, drying and warming, and simple resuscitation), and performance of postnatal visits to monitor for danger signs.	PCI (Cochabamba)Save the Children (Oruro)
<i>Parteras</i>	TBAs	Traditional birth attendants without formal training (including husbands and mothers-in-law in some rural areas).	Save the Children (Oruro)
<i>Grupos de mujeres</i>	Women's groups	Groups of women who learn about newborn health care issues and recognition of danger signs at community meetings, and are encouraged to take action to promote newborn care, educate others.	CARE Bolivia (El Alto)
<i>Grupos de hombres</i>	Men's groups	Groups of men who learn about newborn health care issues and recognition of danger signs at community meetings, and are encouraged to take action to promote newborn care, educate others.	CARE Bolivia (El Alto)
<i>Médicos, enfermeras, enfermeras-matronas</i>	Formal health care workers	Facility-based, formally-trained personnel of the MOH system who handle normal deliveries and obstetric emergencies.	CARE Bolivia (El Alto)PCI (Cochabamba)
<i>Manzaneras/os</i>	Pregnancy surveillance volunteers	Villagers chosen by the community to lead local epidemiological surveillance activities related to obstetric and neonatal care.	CARE Bolivia (El Alto)PCI (Cochabamba) Note: in Cochabamba (PCI), <i>manzaneras/os</i> are part of each village's epidemiological surveillance committee, and are responsible to registering pregnant women, monitoring referrals during pregnancy, birth, and the postpartum period.
Defensores de la salud	Health defenders	These individuals are responsible for "social vigilance," such as monitoring social conflict and detecting violent behavior (organized or not) in the community.	Villagers chosen by the community as representatives of the "civil society," charged with making sure interventions are implemented at the local level by the ministries of health and education
Red de farmacias	Network of friendly pharmacies	Cooperate to lower costs for drugs and supplies for safe childbirth and treatment of early childhood illnesses.	CARE Bolivia (El Alto)

3.5. CASE STUDY: TECHNICAL OBSTETRIC AND NEONATAL CARE AT THE COMMUNITY LEVEL IN HONDURAS

The Setting

From 1999 until 2003, Catholic Relief Services (CRS) worked in cooperation with COCEPRADII (a local NGO) and the Honduran Secretary of Health to implement a four-year project to reduce maternal and child mortality in Intibucá Department. Honduras is the third poorest country in Latin America, and its health indicators are among the weakest in the LAC region. In Intibucá Department, which is one of the poorest in Honduras, CRS worked with 95 of the most underserved communities. Direct beneficiaries of the project included 11,324 children under five years old and 11,310 women of reproductive age.

The Project

The Intibucá Community Based Child Survival Program was designed to reduce maternal and child mortality. The project included the implementation of activities related to four integrated intervention arms: safe motherhood and newborn care, birth spacing through the lacto-amenorrheic method (LAM), pneumonia case management, and diarrhea prevention and case management. All four components worked synergistically to improve maternal and child health; however, due to the subject matter of this report we will give greater emphasis to the safe motherhood/newborn care and LAM components of the project.

The Safe Motherhood and Newborn Care arm of the Intibucá Community Based Child Survival Program had two main objectives: 1) to improve the ability of women, families, and TBAs to address obstetric emergencies at the community and health center level and 2) to improve access to first level referral facilities for pregnant women with obstetric emergencies through the development of community emergency transportation plans. The Lacto-Amenorrheic Method arm aimed to encourage breastfeeding of children under six months as a means for birth spacing as well as prevention of diarrhea.

Quantitative data collection at baseline, midterm, and at program end using a KPC survey and lot quality assurance sampling (LQAS) methodology permitted measurement of the impact of the interventions. Qualitative outcomes were obtained through focus group discussions with program participants including TBAs



and emergency committee members. Some of the evaluation results are included in this report.

The People Implementing the Intervention

CRS staff on the program included one program manager, one health coordinator, three field supervisors, and 15 health educators. Community members and health workers involved in the program included birth attendants, assistant birth attendants, formal health care workers, and emergency committees. Their roles are summarized in Table 12.

Interventions to Improve Maternal and Newborn Health

This program improved maternal and neonatal health through interlinked community-based interventions designed to meet four main objectives: 1) to improve awareness and careseeking behaviors within families, 2) to build technical and referral capacity of TBAs, 3) to improve access to care, 4) improve breastfeeding rates, and 5) to maintain data on maternal and child health indicators through a Health Information System (HIS).

Activities across the four intervention arms (activities for child survival are not profiled here due to the scope of this paper) were integrated with each other, and personnel implementing the intervention often had roles in multiple intervention arms. For example, community health workers conducting growth monitoring and sick child recognition were also involved in increasing mothers' awareness of danger signs and promoting emergency committees. These interventions were linked together by educational programs and data collection/dissemination systems.

TABLE 12. ROLES OF COMMUNITY MEMBERS AND HEALTH WORKERS IN THE INTIBUCÁ COMMUNITY BASED CHILD SURVIVAL PROGRAM

Spanish title	English title	Role in implementation
<i>Educadoras/os de salud</i>	Health educators	15 individuals who provided supervision and support to the TBAs and emergency committees. They also formed linkages between community groups and the health center and hospital staff, and collected and reported maternal and child health data (complications, birth outcomes, etc) to CRS field supervisors.
<i>Parteras</i>	TBAs	Traditional birth attendants who were trained in a hospital environment in technical interventions or obstetric first aid. TBAs also conducted home visits, often using these to promote the LAM method.
<i>Parteras ayudantes</i>	Assistant TBAs	Community members selected by the project to help TBAs and take on many of the health education roles that TBAs traditionally performed in the community, to increase community knowledge about danger signs. However, assistant TBAs were rejected by the TBAs because they were not selected in the traditional way and apprenticed to more senior TBAs, and the role of assistant TBAs was limited for this reason.
<i>Personal de salud</i>	Formal health care workers	MOH personnel trained by the American College of Nurse Midwives as “trainers of trainers” in Home-Based Lifesaving Skills (HBLS), who in turn educated TBAs, community-based health professionals, and community health workers in these skills.
<i>Comites de emergencia</i>	Emergency committees	Groups of community members trained in community mobilization and methodologies to design emergency transportation plans. Emergency committees in each community designed their own emergency transportation plan, including funding and transport schemes, using community input. Emergency committees then put the plans into action to transport women to health facilities for referrals.

Next Steps and Lessons Learned

The final evaluation for this project has been completed, with a number of findings pertaining to operational issues in neonatal health care. Supplementing the results from the KPC survey, the HIS monitoring and evaluation system developed by this project allowed measurement of referrals and institutional births. The project succeeded in increasing the proportion of institutional births from 16 to 23%, implying an increase in presence of skilled birth attendants at births. Additionally, in 17% of all pregnancies, women, family members, or TBAs recognized a risk factor or danger sign that required and resulted in a referral to a first-level health facility. At the end of the project, 100% of communities had developed their own transportation plans under the leadership of emergency committees. Exclusive

breastfeeding in children under 6 months of age increased from 32 to 63%.

Mothers demonstrated in the KPC survey an increased knowledge of danger signs during pregnancy. Postpartum visits from TBAs and formal health care workers increased dramatically from baseline. More women exclusively breastfed their newborns and the number of women who understood the LAM method for birth spacing rose to 82%.

Importantly, the project has found that training TBAs in emergency obstetrics skills is possible, particularly in hygienic practices/equipment sterilization and the technique of bimanual uterine compression. Almost all TBAs were able to understand and repeat hygienic practices and equipment sterilization. While postpartum hemorrhage is a rare complication, some TBAs demonstrated ability to identify the uterus by surface

TABLE 13. INTIBUCÁ COMMUNITY BASED CHILD SURVIVAL PROGRAM INTERVENTION COMPONENTS

Objective	Intervention	Activities
Improving awareness and careseeking behaviors within families	Training women and their families to identify risk factors and danger signs during pregnancy and delivery	<ul style="list-style-type: none"> • Holding educational sessions for families and community groups. • Home visits to pregnant women to identify danger signs and provide information about how to deal with them.
Building technical and referral capacity of TBAs	Training and supervising TBAs in danger sign recognition and emergency obstetric skills	<ul style="list-style-type: none"> • Training formal health care workers (doctors and nurses) to become Trainers of Trainers in Home Based Life Saving Skills (HBLSS), including hygienic practices and sterilization of equipment, they were instructed in emergency post partum hemorrhage treatment, and neonatal resuscitation. • Having HBLSS-trained formal health care workers modify and adapt the program to train community level TBAs and other health professionals in a hospital setting. • Providing regular supervision to TBAs
Improving access to care	Establishing emergency committees in the community to coordinate transportation to first-level referral facilities for complications	<ul style="list-style-type: none"> • Establishing an emergency committee for each community. • Training emergency committees in community mobilization techniques and methodologies to develop emergency transportation plans • Designing emergency transportation plans, including fundraising and transport schemes, for each community. • Having TBAs and CHWs promote emergency committees to women and their families. • Training community members how to activate and sustain the emergency committees.
Improving breastfeeding rates	Encouraging proper use of the lacto-amenorrheic method among community women for immediate and exclusive breastfeeding to promote good nutrition, prevent disease, and encourage birth spacing.	<ul style="list-style-type: none"> • Training TBAs, community volunteers, and health facility personnel in LAM. • Having LAM-trained TBAs and health professionals educate other community members through home visits, mother's groups, community meetings, and prenatal care.
Maintain data on maternal and child health indicators through a Health Information System (HIS)	Monitoring of birth outcomes through detection of pregnant women, identification of pregnancy related health problems and outcomes for both mother and child.	<ul style="list-style-type: none"> • Team identified and reported each new pregnancy in all communities. • Monitoring of mothers' compliance with prenatal care activities and referrals • Documenting reasons for referral and birth outcomes • Giving enhanced education and counseling to women based on needs identified in the HIS system.

anatomy and apply bimanual compression during hemorrhage. Most TBAs had never learned any lifesaving skills before they received training from the project. The training manual provided information for trainers to teach TBAs about bimanual uterine compression when excessive bleeding occurs due to uterine atony, and to activate the referral system through the emergency committees. While there are many obstetric emergencies that may not be amenable to teaching

TBAs, community based child survival projects could train TBAs to recognize and manage preeclampsia and infection, although currently TBAs are not allowed to measure blood pressure.

The project has also successfully linked TBAs more effectively with the local health system, resulting in an increase in referrals and an increase in births in health facilities. Training TBAs in the hospital environment, and using health personnel (doctors and nurses) as

trainers, permitted the development of closer ties between the TBAs and the formal health system, and at the same time promoted recognition of the role of the TBAs at the community level. This contact improved communication and built confidence, and was a definite factor in increased use of the formal health system.

Significant improvement in access to care was made using the community-based approach based on both risk factors and danger signs, exemplified through the use of community mobilization techniques to set up emergency committees and design their own emergency transportation plans. The expertise of the local NGO partner, COCEPRADII, in establishing and maintaining water committees for water projects, was an invaluable model for the formation of these committees.

During the implementation phase, the program designed and put into operation a system of surveillance for maternal and newborn health that allowed for the collection of 7 of the 17 indicators recommended by WHO and UNICEF to measure the impact of reproductive health programs. The system is managed and maintained through community resources and feeds information into the health information system of the

Ministry of Health. Between September 2001 and September 2003 this community-based system collected information on 2,123 pregnancies, and the project could thereby document a reduction in the Perinatal mortality rate.

Issues of sustainability and expansion of interventions were also important considerations as the project ended in 2003. The emergency committee system was designed to be sustainable, and much of the technical skills training for health professionals and TBAs (particularly the train-the-trainers methodology) may prove sustainable. However, there was insufficient funding to maintain the number of educational sessions for families, or to keep the health educators in their project capacities.

Source: (Anderson et al., 2004).

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Lessons Learned

4.1. Operational and Technical Issues

While almost all of the case studies in the previous section are still ongoing and have not yet been evaluated, a number of lessons learned about improving neonatal health care are emerging from these cases. These operational and technical issues offer NGOs and their partners working in LAC countries clear opportunities to improve project effectiveness. The following operational and technical issues will be examined in this section:

1. The need for multiple roles and a range of personnel
2. Roles CHWs and TBAs can perform
3. Interventions to include in an essential newborn care package
4. Possible solutions to long start-up periods for neonatal health care projects
5. Differing technical considerations in rural and periurban areas
6. Improving utilization rates where facility services are available
7. Building sustainability and scalability through partnerships

There is a need for multiple roles and a range of personnel in project implementation.

Many different types of people and/or groups need to be involved in neonatal health care interventions. Due to the complexity of newborn care and the importance of maintaining a continuum of care, there is no one type of volunteer, health worker or community group that can take on all of the different aspects of implementation. Even the simplest health education interventions reviewed and profiled in this report have

at least three key types of people or groups. A range of different people need to be involved, each with distinct responsibilities during the antepartum, intrapartum and postpartum periods, as summarized in the following table,

TBAs and CHWs can be Incorporated Effectively Into Interventions.

Where present, TBAs and CHWs have been incorporated into all the interventions profiled in the case studies. Their involvement has not been without difficulty, as in CARE Peru, where the relationship between TBAs and formal health care workers has been strained. However, in many places, TBAs and CHWs are routinely involved in the prenatal period and/or the birth process and can coordinate referrals in cases of complications. TBAs successfully increased the referral rate in Honduras to 17%, and increased the percentage of institutional births significantly.

From these cases alone, it is not possible to prescribe uniform key competencies for TBAs or CHWs as a single group. In considering TBAs, the level and quality of their skills vary considerably from community to community, as does the availability of support

TABLE 14. DIFFERENT PEOPLE AND GROUPS INVOLVED IN COMMUNITY-BASED NEONATAL CARE INTERVENTIONS, FROM CASE STUDIES

Case study/ organization	Site	Number of different groups involved	People or groups involved				
			TBAs	CHWs	Women's groups	Health workers	Others
CARE Peru	Juliaca: urban town in remote rural area	5	X	X		X (doctors, nurses, nurse- midwives)	
CARE Nicaragua	Matagalpa Department: mixed urban city and rural surroundings	5	X	X			Health Brigadiers, obstetric health brigade drivers, lactation consultants
SNL: PCI Bolivia	Valle Alto (rural) and Valle Bajo (low-income urban): 2 areas in Cochabamba	6	X	X		X	Curanderos tradicionales, manzaneros, defensores de la salud
SNL: CARE Bolivia	El Alto: 4 periurban districts	8	?	X	X	?	Pharmacies, Health defenders, "Star" health promoters, men's groups, manzaneras
SNL: Save the Children	Oruro: rural area	3	X	X			Manzaneras
SNL Guatemala	Ixil Triangle Area: 3 urban areas in remote mountainous highlands	3		X (more facilitators/ data managers than CHWs, though)	X		Vigilantes
CRS Honduras	Intibuca Department: 95 communities, largely rural	6	X	X		X	Health educators, emergency committees

from the formal health care system (Ross, 1998), implying similar variations in their capability to perform technical interventions correctly and reliably depending on the presence or absence of support. In some cases where support is available, such as the example of CRS Honduras, TBAs may be able to be trained in fairly technical interventions, such as bimanual compression to treat hemorrhage. In considering CHWs, their role in communities can vary from

that of a *técnico* (technical specialist) to that of a *promotora* (female health promoter), as described in Box 4. Ideally, all CHWs could serve in the key competencies listed for *técnicos*, but the training required to upgrade the skills of *promotoras* to *técnicos* is complex and may not be practicable for all communities. Incorporating CHWs and TBAs successfully into neonatal care interventions appears to depend on the skill level and traditional role of the particular CHW

or TBA in the community, as well as the existing general and health infrastructure (Ross, 1998). Suggested key competencies for the range of individuals who may be present at births (as well as *promotoras*, who are usually not present at births but may have important roles to play during the prenatal and postnatal periods) are listed in Table 15; these competencies have been assembled based on interventions common to a majority of the projects highlighted in the case studies, as well as recommendations espoused by

CARE for “very poor” and “poor” maternal health settings (Ross, 1998). In very poor maternal health settings, roles for TBAs and *promotoras* can be strengthened; in poor maternal health settings, there may be a potential role for *técnicos* and the administration of obstetric first aid (life-saving skills) and immediate newborn care interventions, as well as increased emphasis on referrals because infrastructure makes them more possible. Mothers and relatives are included because in communities where home births are com-

TABLE 15. SUGGESTED KEY COMPETENCIES IN NEWBORN CARE FOR CHWS, TBAS, AND MOTHERS/RELATIVES

Type of CHW or TBA	Key competencies
CHW (<i>Técnico</i> /technical specialist), present at birth	<ol style="list-style-type: none"> 1. Ensure pregnant women have TT immunization 2. Promote antenatal care, including treatment of anemia and malaria 3. Provide access to and education about family planning 4. Conduct home visits to promote birth and newborn care preparedness with families 5. Practice “Six cleans” delivery and cord care 6. Recognize danger signs during labor and seek prompt first-level referral 7. Practice appropriate obstetric first aid during delivery 8. Practice immediate newborn care, including: <ul style="list-style-type: none"> • Prompt drying and wrapping or skin-to-skin mother-baby contact • Initiation of immediate and exclusive breastfeeding • Check for normal breathing and simple resuscitation if needed • Prophylactic eye care 9. Recognition of danger signs in newborn at birth and by postnatal home visit within three days after birth, ensuring appropriate immunizations are given
CHW (<i>Promotoras</i> /female health promoters), may or may not be present at birth	<ol style="list-style-type: none"> 1. Encourage TT immunization and newborn immunizations 2. Encourage proper prenatal care 3. Provide education about family planning 4. Encourage use of clean birth kits 5. Encourage immediate and exclusive breastfeeding 6. Encourage immediate newborn care 7. Facilitate community groups 8. Coordinate or work with <i>manzaneras/vigilantes</i> (pregnancy surveillance volunteers) to track pregnant women and monitor birth outcomes 9. Organize community groups for awareness building and transport scheme coordination
Trained TBAs	<ol style="list-style-type: none"> 1. Ensure pregnant women have TT immunization 2. Practice “Six cleans” delivery and cord care 3. Recognize danger signs during labor and seek prompt first-level referral 4. Practice appropriate obstetric first aid during delivery 5. Practice immediate newborn care, including: <ul style="list-style-type: none"> • Prompt drying and wrapping or skin-to-skin mother-baby contact • Initiation of immediate and exclusive breastfeeding • Check for normal breathing and simple resuscitation if needed 6. Recognition of danger signs in newborn at birth and by postnatal home visit within three days after birth
Mothers and relatives (and TBAs without any biomedical training)	<ol style="list-style-type: none"> 1. Develop birth preparedness plan 2. Prepare clean delivery place/tools 3. Get and use safe delivery kit 4. Recognize danger signs during labor and seek care if needed 5. Basic immediate newborn care, including warmth and immediate breastfeeding. 6. Arrange newborn care visit in home or health facility within three days after birth and at six weeks for check-up and immunizations

mon and semi-skilled TBAs are few or nonexistent, family members can be taught to perform some key interventions to improve the condition of the newborn.

There is not yet enough data from the case studies or the literature to determine precisely which danger signs during labor and in the newborn can be identified readily by técnicos, semi-skilled TBAs, and relatives, respectively. It is likely that técnicos can be taught to recognize and respond to a greater number of danger signs than semi-skilled TBAs (who, in turn, probably can be taught to recognize more of these signs than mothers or relatives). Postnatal visits would ideally be performed at least three times, within 24 hours after birth, again at one week, and again at six weeks, however, this standard may be too high in communities where semi-skilled personnel are few and postnatal visits are currently not practiced.

In rural areas, TBAs operate predominantly outside of a biomedical paradigm and often have a rich tradition of local knowledge about the birth process that is passed down from generation to generation. It is in these contexts that upgrading skills through institutional training has frequently failed. The case studies do not distinguish between these semi-skilled TBAs with biomedical training and traditional TBAs who have learned through apprenticeship, but cultural clashes and communication difficulties between TBAs and formal health care workers suggest that efforts to upgrade TBA skills to achieve these key competencies should be carefully considered and based on strong formative research about local beliefs and practices surrounding births.

There are Core Interventions that Should be Included in Any Essential Newborn Care Package.

Because data is scarce regarding the practicability of the interventions being employed in the case studies above, it is difficult to outline an essential newborn care package of interventions. However, judging from consistencies among the projects profiled above, an essential newborn care package at the community level should include training in key competencies for TBAs and CHWs as mentioned above, as well as community-based interventions to create an enabling environment for good newborn health care through sensitization, interpersonal education, and linkages/referrals. Combining training for formal health care workers with training programs for TBAs has been shown to have a synergistic effect, so training for formal health care

workers in quality of care as well as cultural sensitivity is included in this package (Kwast, 1996). A summary of these recommended interventions by target and type of intervention can be found in Table 16.

Building on Existing Community-based MCH Programs and Interventions Reduces Start-up Time.

The complexity of the behaviors being promoted and the numbers of different people and/or groups involved usually mean that a longer start-up period is needed for recruitment, training, and phasing in of project implementation, compared to other child survival interventions. One practical way to decrease this start-up time is to implement newborn health interventions in sites where PVOs/NGOs are already implementing community-based child survival or maternal health activities. Examples of building on pre-existing programmatic infrastructure (both child survival/maternal health and non-health programs) can be found in almost all of the case studies. CARE Peru added a neonatal health care project in the Ixil Triangle three years after it initiated other health intervention activities in the region. To increase recognition of danger signs and encourage communities to develop their own neonatal health proposals, CARE Bolivia capitalized on existing women's and men's groups from a prior maternal and child health intervention to manage diarrheal diseases, prevent HIV/AIDS, and promote basic maternal and child health education. Save the Children began work in Oruro, Bolivia in 2000 to develop a community-based surveillance system for monitoring child illnesses. This program trained community members as data collectors for the surveillance system, which is being expanded under the SNL project to track birth and neonatal illness outcomes. In other cases where maternal and child health programs do not exist, prior experience of local partners in the area can be invaluable. In designing emergency committees to facilitate emergency obstetric transport to health facilities, CRS Honduras drew upon the previous committee-organizing experience of a local water project NGO, COCEPRADII.

Periurban and Rural Areas May Require Different Approaches.

The case studies suggest that different approaches to neonatal health care interventions are required in periurban and rural areas. While both areas suffer a lack of human and financial resources, there are often

TABLE 16. INTERVENTIONS AS PART OF AN ESSENTIAL NEWBORN CARE PACKAGE

Individuals or groups involved in intervention	Type of Intervention			
	Awareness/sensitization	Technical skill training	Interpersonal Counseling/Education	Improving referrals and linkages
Mothers/Families	<ul style="list-style-type: none"> • Holding meetings of pregnant women • Providing families with birth preparedness information • Providing families with safe delivery kits • Training families to recognize danger signs 	<ul style="list-style-type: none"> • Training mothers to initiate breastfeeding immediately and exclusively for six months+. • Training mothers where home deliveries are common to dry and wrap newborns immediately. • Training mothers to recognize and seek care for perinatal danger signs. 	<ul style="list-style-type: none"> • Helping families with birth preparedness planning • Using education or counseling to help mothers and families recognize danger signs 	<ul style="list-style-type: none"> • Helping mothers and families to recognize danger signs • Encouraging mothers and families to seek care outside the home for problems
TBAs/CHWs	<ul style="list-style-type: none"> • Holding regular meetings of TBAs to teach skills, discuss experiences, and refresh training 	<ul style="list-style-type: none"> • Training TBAs/CHWs to provide TT immunization, how to perform simple resuscitation, and immediate and exclusive breastfeeding. • Training TBAs/CHWs to recognize danger signs. • Training TBAs/CHWs to perform postnatal visits, including immunizations and monitoring for signs of infection. 	<ul style="list-style-type: none"> • Having TBAs/CHWs serve as educators for mothers and/or community groups 	<ul style="list-style-type: none"> • Training TBAs/CHWs to recognize danger signs • Having TBAs/CHWs how to initiate serve as referral coordinators
Community	<ul style="list-style-type: none"> • Holding Community meetings to discuss neonatal health • Using participatory methods such as community auto-diagnosis • Having communities participate in the development of behavior change/ IEC materials (radio/ TV/print) 		<ul style="list-style-type: none"> • Providing education about neonatal health at women's groups and men's groups 	<ul style="list-style-type: none"> • Arranging community transport schemes
Health facilities		<ul style="list-style-type: none"> • Providing quality of care training in essential newborn care 		<ul style="list-style-type: none"> • Providing cultural sensitivity training to improve TBA/formal health care worker relationships

important differences in accessibility of health services, technical competence of providers at the primary and/or secondary levels of care, and capacity to handle complications through surgeries such as Caesarian sections or other high-tech interventions.

In established periurban areas, health facilities capable of handling deliveries and/or birth complications may exist, whereas in many rural areas, facilities with obstetric and neonatal care capabilities can be nonexistent. Women and newborns in fast-growing periurban areas, such as El Alto in Bolivia, may have access to some of these health facilities but still be unable to receive care. Long waits are common at facilities in these overcrowded areas where health system infrastructure development has not been able to keep pace with population growth. In other cases, emphasis on facility-based births in urban and periurban areas is leading to high levels of Caesarian sections in cases where they may not be medically necessary, or where the quality of care may be poor. Importantly, the proximity of low-income periurban areas to hospitals in urban centers reduces geographic barriers to care, potentially diminishing delays in accessing care. However, while periurban areas often offer improved access to care compared to remote rural areas, they may still display low rates of utilization of health services. These may be largely due to cultural differences, described in the following section.

It is also important to analyze the impact of geography and access to health services on the roles assigned to traditional birth attendants, promotoras (health promoters), técnicos (technical specialists), trained midwives, nurses, and doctors. In periurban areas with geographically accessible health systems, interventions are needed to link communities to existing health care systems; in cases of overburdened periurban health care systems, such as in El Alto, Bolivia, interventions are needed to encourage self-care with referrals in case of emergencies. In rural areas without any formal health care system, the roles of traditional birth attendants may expand, and mothers and family members may be able to learn how to recognize danger signs in the mother and the newborn, as well as some basic technical interventions in immediate newborn care. In rural areas where transportation to a referral hospital or obstetric care facility is possible, interventions like CARE Nicaragua's Sobrevivencia Infantil Program or CRS Honduras'

Community-Based Child Survival Program may be appropriate. This intervention trains TBAs in immediate newborn care interventions for normal births, but facilitates referrals to a hospital in cases of emergency through an arranged transport scheme.

Cultural Barriers Affect Utilization of Formal Health Care Systems.

Women may face cultural, economic, psychological, technical, and administrative barriers to their ability to access health care services (Kwast, 1996). Several of the case studies have identified apparent cultural barriers to access and utilization of care. In periurban areas and rural areas where facility-based deliveries are available, births may still occur in the home because mothers feel more respected by traditional birth attendants or their family members than formal health care workers. Mothers appreciate care that matches their understanding of the birth process; particularly in rural areas, mothers have respect for health providers who understand their customs and speak the same language. Mothers may not access care when their infants are sick due to cultural beliefs about the meaning of the illness, and/or perceptions of the newborn as too vulnerable to be taken out of the home. In many cases, medical decisions are made based on non-medical rationales, determined more by what is culturally appropriate than what is medically needed (Kwast, 1996). When they do seek care outside of the home, mothers may be unfamiliar with the formal health care system and apprehensive about differences in language or culture.

The relationship between TBAs and formal health care workers also deserves mention. This relationship is characteristically strained by perceptions of superiority among formal health care workers, and has been worsened by government policies that have aimed to eliminate the role of the TBA. Where TBAs still exist (primarily in rural areas), they can serve as potentially vital links between communities and referral facilities, but the value of this role can easily be compromised if they have poor-quality interactions with formal health care workers. CARE Peru found that strengthening TBAs' (parteras') skills in referring complicated births was hindered by the fact that MOH health care workers had poor rapport with parteras. Continued negative interactions may discourage parteras from coordinating referrals for women with obstetric complications or sick newborns.

Interventions that encourage stronger relationships and cultural understanding between formal health care workers and the women and TBAs who have contact with them may help to encourage higher rates of facility-based deliveries and appropriate care-seeking behaviors. In addition to having some degree of familiarity with the language of their patients, formal health care workers would also benefit from familiarity with the cultural beliefs of their clients surrounding childbirth and infant care. This type of sensitization training can be combined successfully with quality of care training for formal health care workers (O'Rourke, 1995). An example of this kind of intervention in the case study can be found in PCI's activities in Cochabamba, Bolivia, which includes cultural sensitization training (in addition to quality-of-care training) for formal health care workers to encourage warmer interactions with mothers and TBAs. CRS Honduras bridged the gap between TBAs and the formal health care system by providing training for TBAs in the hospital environment, which built communication and trust.

Scalability and Sustainability Can Be Improved By Vertical and Horizontal Partnerships.

Neonatal health interventions are a fairly new class of interventions, and will require the mobilization of significant political will at the national level before they are incorporated into government health programs in LAC countries. Mobilization of political will depends on the formation of strong vertical partnerships, as well as examples of successful pilot interventions at the community level, which depend largely on strong horizontal partnerships.

Strong vertical partnerships from the community level through district health centers all the way to national level health care systems are required to communicate the need for neonatal health interventions and the success of pilot projects to policy makers. Scaling up projects that have proven successful at the community level will be slow or impossible without effective partnerships between the many different actors at multiple levels of the health care system. The example of PROCOSI/SNL Bolivia shows that rapid gains can be made in incorporating neonatal health into national strategic plans and fostering better care through improvements in health care training and enabling schemes such as maternal and newborn health insurance. In the case studies we have profiled, SNL Bolivia (PROCOSI)

provides the best example of strong vertical partnerships from the community level to the national level. Importantly, both SNL Bolivia (PROCOSI) and SNL Guatemala have undertaken newborn health advocacy efforts at the district and national levels, made possible by these vertical partnerships.

It is important to remember that mobilizing political will to scale up projects to the national level also depends on the effectiveness of pilot projects. The planning and execution of successful newborn health interventions can require substantial coordination between community members, NGOs/PVOs, and government agencies, health facilities, and/or universities (where present). The success of these projects relies on cultivating strong horizontal partnerships within communities that respect local knowledge, customs, and status held by individuals and groups, including TBAs, CHWs, NGOs, women's groups, formal health care workers, and local government heads. One example of the way a PVO/NGO can cultivate these horizontal partnerships is illustrated by CARE Nicaragua in Matagalpa, which has coordinated a team of community members (CHWs, TBAs, lactation counselors, and emergency transport drivers) to attend births and coordinate referrals to the hospital in Matagalpa City where needed. CARE Nicaragua works to maintain horizontal partnerships both within communities and between communities, personnel and officials from the referral hospital, and local government agencies.

4.2. Roles for PVOs and NGOs

PVOs and NGOs have key roles to play in the effective implementation of neonatal health care interventions for several reasons. Neonatal mortality is highest in underserved communities that are hardest to reach, areas typically targeted by PVOs and NGOs (Gellert, 1996; Levinger and McLeod, 2002; Winch et al., 2002). PVOs and NGOs bring to the table their technical expertise in neonatal care interventions, awareness of cultural and situations in the communities where they work, and well-developed systems for dissemination of results (Levinger and McLeod, 2002). Accountable to donor agencies and accustomed to working in low-resource environments, PVOs and NGOs are adept at developing creative, cost-effective solutions.

Because they have the trust of communities in which they have a long-term presence, as well as relationships with other NGOs/PVOs and various

levels of government, PVOs and NGOs also have the ability to function as a bridge between communities, district-level health structures, and national ministries of health (Levinger and McLeod, 2002). PVOs and NGOs excel at developing creative partnerships between different actors involved in neonatal health, and in being responsive to expectations of donor agencies and requirements of governments in countries where they work, particularly ministries of health.

Four main strengths of PVOs and NGOs identified by Levinger and McLeod apply in the context of neonatal health (Levinger and McLeod, 2002):

- 1) Their work is predominantly community-focused, if not community based,
- 2) The wide circulation of the results of their work serves an advocacy and fundraising role,
- 3) They rely on partnerships for success (a crucial component in the development of a effective continuum of newborn care), and
- 4) They cultivate sustainability, capacity-building, and ability to take projects to scale.

Another unique strength of PVOs and NGOs is their ability to effectively promote local involvement (Gellert, 1996). The community focus of PVOs and NGOs offers an opportunity not only to raise awareness about neonatal health issues at the community level, but also to design programs for effective self-care and basic technical interventions within the home. Government approaches to neonatal health care that are not community-focused, particularly in areas where births do not occur in health facilities, fail to address many of the causes of neonatal mortality because they do not affect behaviors during and immediately after delivery. Community-focused approaches that encourage community dialogue and/or formative research can also capture important knowledge about local cultural beliefs and practices that could otherwise hinder the success of interventions. By educating community members directly or encouraging communities to identify and solve their own problems, community-focused participatory approaches can educate and prepare women for childbearing, and strengthen the skills and readiness of community members who serve as birth attendants for these women.

Reports like this one that circulate the results of the work of PVOs and NGOs help to build awareness of the growing number of neonatal health care programs, and permit sharing of lessons learned and areas for further

study. Without adequate data, documentation, or dissemination, the plight of the ‘invisible newborn’ would remain unaddressed. The efforts of PVOs and NGOs to monitor and evaluate their programs contributes to the ability of successful pilot programs to scale up to district or national level, the mobilization of political will in LAC countries and funding from donor countries, and the overall awareness of successful interventions to prevent neonatal mortality.

Working in a spirit of cooperation rather than competition, PVOs and NGOs readily form partnerships with other PVOs and NGOs (as in the case of PROCOSI), as well as with government agencies (Levinger and McLeod, 2002). PVOs and NGOs are involved in different capacities in different initiatives, and so can maintain constructive partnerships that allow them to serve as a bridge between other actors in neonatal health, including community members, influential community groups, traditional healers, ministries of health, and bilateral and multilateral development agencies.

Because PVOs and NGOs value cost-effective innovations and community capacity building, their programs are likely to be both sustainable and able to be brought to scale (Levinger and McLeod, 2002). Because they have strong accountability to donor agencies, PVOs and NGOs maximize cost-effectiveness of programs and often develop innovative solutions to problems (Gellert, 1996). PVOs and NGOs offer unique skills to build up communities’ capacity to address neonatal mortality by themselves, which builds sustainability of behavior changes (Gellert, 1996). PVOs and NGOs also routinely replicate successful experiences in other locations. When evaluation research finds approaches to be cost-effective, PVOs and NGOs can help take these lessons learned to scale, often relying on the relationships they maintain with ministries of health and other PVOs and NGOs to aggregate or coordinate resources (Levinger and McLeod, 2002). From their breadth of experience in a wide range of unique local environments, PVOs and NGOs also recognize that simple replication of a program from another setting is unlikely to succeed without substantial planning and research, a feature that helps assure that interventions are suited to their particular context.

Barbara Kwast notes that many different categories of interventions are critical to build a holistic community-based maternity care program (these categories extend naturally to neonatal care as well), including

TABLE 17. CLASSES OF ACTIVITIES UNDERTAKEN BY PVOS/NGOS IN CASE STUDIES

Case study	Activity domains					
	Service delivery	Training	Financial resource mobilization	Research and innovation	Policy advocacy	Networking
CARE Nicaragua	X	X	X			
CARE Peru	X	X	X	X (surveillance)		
SNL Guatemala	X	X		X	X	
SNL Bolivia	X	X	X	X	X	X

** Categories of activity domains from (Levinger and McLeod, 2002).

training, IEC, management and supervision, logistics, research/monitoring/evaluation, and policy formulation (Kwast, 1996). PVOs and NGOs are well suited for substantial roles in all these different types of maternal and neonatal care interventions, according to Levinger and McLeod: they note that PVOs and NGOs are active providers of service delivery, training, financial resource mobilization, research and evaluation, policy advocacy, and networking (Levinger and McLeod, 2002). Table 17 demonstrates the range of activity domains in which the PVOs and NGOs from the case studies are involved: the example of SNL Bolivia shows that PVOs and NGOs can be engaged in activities across this wide spectrum. While PVOs and NGOs rarely provide all the available services in each of these domains, they are often key actors in several different domains, whereas other actors, such as hospitals or universities, may only be active in one or two of these domains. Because many PVOs and NGOs are active at the community level, the sub-district and district level, the national level, and even the international level, they can provide communication and service linkages between communities and the institutions meant to serve them.

4.3. Agenda for Program Evaluation and Operational Research

Data is scarce to support or question the effectiveness of neonatal health care interventions, largely because many of them have only recently begun. The case studies profiled in this document are ongoing, and while several have baseline data (SNL Bolivia and SNL Guatemala), most of the projects have not yet

ended, and may have baseline data but no mid-term or final data to disseminate. We can expect that evaluation and process data from the case studies will be forthcoming, and will offer important findings for the design of future neonatal health interventions in LAC countries.

As they complete and disseminate midterm and final results, projects outlined in the case studies will continue to shed light on operational issues in neonatal health, suggesting improved strategies and best practices for change. Policymakers and program planners need good data to best allocate resources and evaluate program performance. Data collection and evaluation on newborn health is a task that has been performed typically at the facility level, not at the community level, where most newborns die (Ross, 1998; SNL, 2001). With the exception of the documented success of CRS in Intibucá, Honduras, the scarcity of data on the effectiveness of community-based neonatal health interventions suggests a number of potential opportunities for program evaluation and operational research.

- Cost and cost effectiveness:
 - What is the comparative cost and cost-effectiveness of different models for implementation of community-based newborn health interventions?
- Sustainability:
 - How sustainable are complex multi-component newborn health interventions? Could interventions be made less complex to enhance their sustainability while still maintaining their effectiveness?
 - What is the comparative feasibility of using volunteers versus salaried/incentivized personnel

to conduct newborn health interventions? Are there ways of rewarding personnel without jeopardizing sustainability?

- Performance:

- How reliably can TBAs and CHWs serve in the key competencies outlined above? Are there additional key competencies they can perform?
- What danger signs in newborns can be accurately recognized at the household level? By a TBA or CHW? At the facility level? At the secondary facility level?

- Cultural considerations:

- What approaches can be used to overcome cultural and linguistic differences between mothers/TBAs and formal health care workers? Can these approaches bring about an increase of utilization of referral services?
- What are good models for successfully upgrading TBA skills and altering harmful traditional prac-

tices such as fetal massage so that they might be beneficial?

- Are there successful models of behavior change strategies that work with, rather than against, current local beliefs and practices regarding neonatal health?

- Documentation and dissemination:

- Can a standard list of neonatal health indicators be employed in neonatal care interventions in LAC countries? (Most of the case studies profiled in this report have not measured relevant newborn care indicators other than prenatal TT immunization rates.)
- What data collection and evaluation methods should be used by PVOs/NGOs working on newborn health care to improve the breadth and quality of data from projects? What are the training needs of PVOs/NGOs in these areas?



Conclusions

Further reductions in <5 mortality in LAC countries will require focusing on neonatal mortality. Reducing neonatal mortality is no easy task, but there is hope: simple and effective interventions already exist. The remaining challenge is operationalizing these low-tech interventions, already being undertaken by the PVOs and NGOs profiled in the case studies in this report. Unsurprisingly, efforts to reduce neonatal mortality are most needed in remote rural areas and periurban shantytowns that suffer the highest rates of neonatal mortality,

primarily because of the lack of skilled care during the four key periods related to newborn health: preconception, the prenatal period, delivery, and the postnatal period.

The case studies presented in this report represent some of the only examples of community-based neonatal health care interventions in LAC countries. Community-based approaches are ideal vehicles for neonatal health interventions among underserved populations because in these areas, the majority of neonatal deaths happen at the household or community level, not in health facilities. Little is known currently about the precise causes of neonatal death in many of these communities because of the invisibility of the newborn and inadequate reporting of birth outcomes. In areas with few resources, communities themselves benefit from working to address their neonatal health problems through communal autodiagnosis and training in self-care. Using a participatory, community-based approach helps communities in areas with overburdened health systems become less dependent on these systems. Communities in areas too far from health facilities for routine facility-based care can use this same approach to maximize their capability to handle normal births and prioritize referrals for complications.

This report has considered the roles that can be assumed by different actors in community-based interventions to reduce neonatal mortality. While data concerning the overall effectiveness, cost-effectiveness, and sustainability of the case study interventions have not yet been released for any of the case studies, similarities between the projects allow the postulation of some key competencies for TBAs, CHWs, and other individuals present at births, as well as a preliminary consideration of the kinds of interventions that could be incorporated into any neonatal care package. The experiences of the PVOs and NGOs in the case studies suggest an expanded role for some TBAs and CHWs in performing technical interventions for immediate newborn care, but more information is needed about the specific interventions TBAs and CHWs can perform reliably at the community level. They also encourage the consideration of community groups not only as recipients of educational information but as generators and transmitters of this information. Training of health personnel in quality of care is an important complementary intervention, but it is rarely the focus of these community-based interventions because of the rarity of facility-based care for normal births. Still, there is clearly a need for better linkages within communities

and improved referrals in cases of complications. In rural areas, improvement could take the direct form of emergency transport brigades, or the more abstract form of warmer, more respectful interactions between health care professionals and the mothers who need their help. Training health care professionals to treat TBAs and CHWs with respect can also improve community-referral facility linkages: better treatment will encourage TBAs and CHWs to seek referrals when they are necessary. In addition, further attention is needed to follow-up of both mothers and newborns in the community after they are seen in health facilities, or after problems are identified in the community. Linkages need to be formed and strengthened with existing networks and community groups who could take responsibility for this kind of follow-up.

While both rural and periurban areas may have high rates of neonatal mortality, as well as similar lacks of resources, there are important differences to consider in program planning for these two general contexts. Rural areas are more likely to face geographic limitations on the feasibility of referrals, and rely more heavily on lay volunteers or a few skilled birth attendants. Periurban areas, on the other hand, are more likely to have access to care, but have such heterogeneous populations that utilization of services is likely to be lower due to cultural unfamiliarity or discomfort with the formal health care system. In rural areas as well as periurban areas, programs must consider cultural barriers to careseeking for newborn illnesses, often bound up in traditional beliefs and practices about childbirth and the vulnerability of the newborn. Addressing these barriers will require respecting local knowledge and, in many cases, considering the merits of a non-biomedical behavior change paradigm to introduce new practices that harmonize with local beliefs and knowledge. Formative research can help identify these beliefs and knowledge areas, and

interventions such as cultural sensitization trainings for formal health care workers and vocal support for newborn careseeking from culturally respected figures may help to overcome barriers to careseeking. For some case studies little information was available on outcomes, while for others evaluations are currently underway. Further effort is needed to define outcomes that should be measured in all new programs, so that progress can be measured in the future.

Because they serve the poorest of the poor, PVOs and NGOs are ideally suited to lead efforts to reduce neonatal mortality, particularly in underserved areas such as remote rural areas and periurban shantytowns. Here, they often already provide the only available health care, contributing a combination of skills in community mobilization and capacity-building, technical assistance, advocacy, and networking. PVOs and NGOs are valuable leaders and partners in neonatal health because their work centers on communities, where interventions to prevent neonatal deaths must begin. Already working in these communities to protect the health of mothers and children, these PVOs and NGOs are poised to expand their role to include protecting the health of newborns. As the case studies demonstrate, integrating neonatal care with existing maternal health interventions can reduce start-up time and address the problems of maternal and neonatal mortality simultaneously. Naturally facilitating constructive partnerships, PVOs and NGOs serve as vital bridges between the concerns of volunteers who understand both their particular communities' needs and the neonatal health objectives of local and national ministries of health. The work of PVOs and NGOs in LAC countries promises to generate effective models of community-based neonatal health care, build social community capital, and advocate for national resources to save newborn lives.

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