



## Advancing newborn health: The Saving Newborn Lives initiative

A. Tinker<sup>a\*</sup>, R. Parker<sup>b</sup>, D. Lord<sup>a</sup> and K. Gear<sup>a</sup>

<sup>a</sup>*Saving Newborn Lives, Save the Children US, 2000 L St. NW, Washington, DC 20036, USA;*

<sup>b</sup>*Bloomberg School of Public Health, Johns Hopkins University, Baltimore, MD, USA*

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Until recently, newborn health was virtually absent from the global health agenda. Now, assistance agencies, national governments and non-governmental organisations are increasingly addressing this previously neglected issue of close to four million newborns dying every year. The experience of the Saving Newborn Lives initiative documents some of the progress that has been made and the challenges and opportunities that lie ahead. Since the start of the initiative in 2000, targeted research, focused on overcoming the key barriers to improved newborn survival, has demonstrated low-cost, community-based interventions and strategies that can significantly reduce newborn mortality. Building on what has been learned from this and other efforts to date, the challenge now is to reach the millions of newborns still at risk.

**Keywords:** newborn; community-based care; advocacy; neonatal mortality; state-of-the-art

### Introduction

#### *The invisible newborn*

Until the twenty-first century, newborn health was virtually absent from policies, programmes and research in developing countries. Almost one-half of all births occurred at home often without skilled assistance, postnatal services were scarce and traditional practices, such as delayed breastfeeding, contributed to high newborn mortality rates. In these contexts, with 99% of the nearly four million newborn deaths occurring in developing countries, mothers and newborns frequently went without life-saving care, and newborn deaths remained relatively invisible and neglected (Lawn *et al.* 2004a, 2005, Zupan and Aahman 2005).

Addressing newborn mortality also proved to be a challenge on other fronts. Since the magnitude and dimensions of the problem were not widely recognised, neonatal mortality reduction was not included as a priority for development assistance. Furthermore, given the models of newborn care at that time, solutions were commonly perceived as complex and costly. Finally, neonatal health fell between two well-established global and country-level programmes – maternal and child health – and was not embraced by either the safe motherhood or child survival initiatives (Martines *et al.* 2005). Despite the high burden of neonatal deaths in developing countries, newborns lacked attention in both global and country agendas.

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\*Corresponding author. Email: [atinker@savechildren.org](mailto:atinker@savechildren.org)

### ***Recognising the need to address the gap***

At the turn of the century, research documented that while under-five mortality had decreased significantly over the preceding three decades, newborn mortality remained virtually unchanged. In fact, the proportion of under-five deaths that occurred in the first month of life had reached nearly 40% (Darmstadt *et al.* 2005, Lawn *et al.* 2005). Further studies would show that a majority of these newborns were dying from three major causes: birth asphyxia; infection and complications from preterm birth and that one-half of these newborns died the day they were born (Lawn *et al.* 2005). The global community began to recognise that Millennium Development Goal (MDG) 4 – to reduce the under-five child mortality rate by two-thirds by 2015 – would not be reached unless neonatal mortality was substantially reduced.

Despite the perceived complexity and high cost of reducing newborn mortality, historical data from the developed countries demonstrated significant declines in neonatal mortality well before advanced care technology and facilities became available. These reductions in mortality were associated with increased use of basic services and practices, including antenatal care coverage, improved care in childbirth, breastfeeding and neonatal-infection management associated with the availability of antibiotics. Furthermore, the experiences of some developing countries, like Sri Lanka, demonstrated significant improvement in neonatal health by investing in similar strategies, the majority being key maternal health interventions (Martines *et al.* 2005). Maternal health advocates recognised that many interventions which benefited newborns would improve the survival of both mother and baby, since the highest risk of death for mothers and newborns alike occurs during and immediately after delivery. The world started to take notice – newborn death represented an alarming percentage of under-five deaths, and newborn health was a critical link bridging maternal and child health. Reducing neonatal mortality was emerging as a priority for achieving maternal and child health goals.

### ***Demonstration of cost-effective strategies***

The impetus to act intensified when the Society for Education, Action and Research in Community Health (SEARCH) published a landmark study in 1999 demonstrating the reduction of neonatal mortality by more than 60% using village women trained to provide home-based neonatal care in a remote area of central India (Bang *et al.* 1999). The package of interventions included antenatal education and care during and after delivery, assistance when the newborn showed signs of birth asphyxia, providing antibiotics for suspected neonatal sepsis and identifying high risk neonates (essentially premature and low birthweight (LBW) babies) for more frequent follow-up. This study and others illustrated the potential to avert up to 70% of neonatal deaths through the use of surprisingly simple and affordable measures, such as ensuring clean delivery, treating infections with antibiotics, promoting early and exclusive breastfeeding and keeping newborn babies warm (Bang *et al.* 1999, 2005). This evidence base provided the momentum to initiate a more concerted effort to address newborn mortality.

### ***Launch of Saving Newborn Lives (SNL) initiative***

Within this context, and with the support of the Bill & Melinda Gates Foundation, Save the Children USA initiated the Saving Newborn Lives (SNL) programme to improve neonatal health and survival. The initiative was launched in June 2000 at a workshop that brought together key newborn health experts and partners to develop a consensus on a strategic framework for advancing newborn health. From the start, efforts focused on informing policy-makers and programme managers *why* it is essential to improve newborn health, *what* can be done affordably and in a sustainable manner to improve newborn health and *how* to integrate newborn care into existing health care programmes.

### **Overview of the Saving Newborn Lives (SNL) initiative**

A synthesis of the SNL strategy, key activities, accomplishments and lessons learned during the first six years of the initiative are presented below. By documenting the efforts of Save the Children and its partners, the synthesis attempts to contribute to an understanding of what progress has been made and to identify the challenges and opportunities ahead for ensuring that newborns across the world survive and get a healthy start in life.

### ***Strategic framework***

Since 2000, the initiative has aimed to bring attention to the magnitude and dimensions of newborn mortality, develop the evidence for effective interventions and create links with both maternal and child health constituencies, emphasising integration of neonatal programmes into existing structures and opportunities.

Following the development of a conceptual framework for newborn care that addressed the major causes of newborn mortality, five objectives were agreed upon: (1) strengthening and expanding proven maternal and newborn care practices; (2) adapting and refining promising model programmes; (3) advancing the state-of-the-art; (4) mobilising commitment and resources and (5) establishing strategic partnerships (Marsh *et al.* 2002).

### ***Participating countries***

Research, advocacy and programme support was initiated in 12 countries where nearly half of the world's neonatal deaths occurred: Bangladesh; Bolivia; Ethiopia; Guatemala; India; Indonesia; Malawi; Mali; Myanmar; Nepal; Pakistan and Vietnam. Countries were selected using criteria such as magnitude and severity of need, potential for achieving national impact and presence of a well-established Save the Children country office or, in the case of India, links with strong local organisations working in maternal, newborn and child health (MNCH). Research studies were also conducted in Egypt, Laos, South Africa and Zimbabwe. In 2006, following a second grant from the Gates Foundation, SNL added programmes in Ghana, Mozambique, Nigeria, Tanzania, Uganda and Afghanistan.

In each country, Save the Children has collaborated with government, NGOs and other stakeholders to analyse the state of newborn health, disseminate and discuss

the findings and recommendations, develop consensus on a strategic plan, establish the local leadership team, advisory groups and partnership networks, and initiate programme action as well as a monitoring and evaluation plan. A global headquarters team, based in Washington, DC, provides technical and management leadership and support and links with global partners.

### **Strengthening and expanding proven practices**

Despite significant knowledge gaps about effective and feasible ways to reduce newborn mortality in developing country settings, several existing evidence-based interventions showed potential. SNL identified four primary activity areas for strengthening and expanding proven newborn care practices: maternal and newborn care training for health workers to improve basic services; introduction of skin-to-skin Kangaroo Mother Care (KMC) as a means to improve the thermal regulation of newborn babies; behavioural change communication (BCC) approaches to promote healthful maternal and newborn practices and community mobilisation for maternal tetanus immunisation.

#### ***Training in evidence-based care and introduction of Kangaroo Mother Care (KMC)***

A number of tools were developed, tested and disseminated to promote the integration of newborn care into pre-service and in-service training programmes for maternal and child health, including the *Care of the Newborn Reference Manual*, an education and training guide designed for use in low-resource settings (Bell *et al.* 2004). The manual was adopted by national Ministries of Health in eight countries for training public and private sector health providers. In Pakistan, for example, SNL assisted the Ministry of Health in training over 3000 health care providers and 4000 lady health workers in maternal and newborn care, and postgraduate institutes and nursing schools adopted the training package.

KMC-training manuals were also adapted for use in several countries, and orientation and training were provided to key hospital staff in India and Malawi. In Malawi, Zomba Central Hospital was developed as a regional KMC-training centre, leading to the establishment of KMC wards in seven more hospitals. By 2005, studies showed that LBW babies had gained weight faster through KMC than incubator care, infection rates had lowered and mothers were able to go home earlier, freeing-up space and staff in already-crowded hospitals. In 2005, the Malawi Government issued national KMC guidelines, and KMC is now incorporated in pre-service training. Lessons learned from the scale-up process are informing continuing expansion of KMC in Malawi, as well as the introduction and expansion of KMC in other countries, such as Tanzania and Ghana (see Figure 1).

#### ***Behaviour change communication and community mobilisation***

Improving newborn care requires community health promotion and empowering families, since the majority of births in the world's poorest countries occur at home.

SNL developed a guide, *Qualitative Research to Improve Newborn Care Practices* (Parlato *et al.* 2004), and conducted formative research in each country as the basis for consultation with government and development of BCC strategies and materials.

**Lessons Learned from Scaling up Kangaroo Mother Care in Malawi**  
(Excerpt from *Retrospective Evaluation of Kangaroo Mother Care in Malawian Hospitals*)

- The scale-up process should be integrated into the health care system and other programmes and packages and should not be driven vertically.
- Leadership should be by the Ministry of Health and local officials and not by NGOs, expatriates and outside consultants.
- Implementation should be according to a locally adapted and owned model, starting with whatever resources are available.
- Babies should not be discharged directly from tertiary care to home, but should move through a continuum of care. KMC starts with messages in antenatal care. It is practised in obstetric care with skin-to-skin contact and breastfeeding immediately after birth and continued in neonatal care with intermittent and continuous KMC, ultimately linking to postnatal care for referral and follow-up.
- Off-site training that takes health workers out of the system for five or more days at a time is not practical, but short, off-site training for selected leaders followed by on-site facilitations by a central trainer who devolves responsibility to local supervisors may be more effective.
- Continuous monitoring of quality through on-site facilitation, supervision and moral support is essential.

Figure 1. Building on the existing health system to expand a proven, low-cost intervention for low birthweight babies, Malawi Zomba Central Hospital became a training and demonstration center for introducing and expanding Kangaroo Mother Care throughout the country.

Source: Bergh *et al.* (2007).

These BCC materials have been endorsed and adapted for ongoing use by national governments in several countries, resulting in notable improvements in key maternal and newborn care practices. In Pakistan, for example, a BCC and community mobilisation strategy contributed to reducing neonatal tetanus mortality. Results of formative research showed that a door-to-door campaign using female vaccinators, combined with support from fathers, husbands and community leaders, were important for a successful immunisation campaign (Rasmussen and Ali 2003). Using social mobilisation and BCC strategies to generate demand among at-risk women, Save the Children partnered with the government of Pakistan, UNICEF, WHO and Japan International Cooperation Agency to help implement the maternal and neonatal tetanus elimination campaign. As a result, 12 million women were successfully vaccinated against tetanus, leading to a 50% drop in tetanus-related newborn deaths (Krift *et al.* 2005). Using guidelines developed from the Pakistan experience, a similar approach brought positive results partnering with the governments of Mali and Ethiopia (Boggs *et al.* 2006).

### ***Documenting changes in practice***

In demonstration projects in six countries, existing community health workers were trained to provide basic maternal and newborn care in the home and promote healthy household practices and appropriate care-seeking. After 18 months of implementation, evaluations documented substantial improvements. The percentage of mothers whose births were attended by a skilled provider increased in five of the six countries. Immediate breastfeeding within one hour of birth increased in all project areas. Among babies born at home, the proportion of newborns and their mothers who received a postnatal visit within three days more than doubled in five

countries. In Bangladesh, for example, immediate breastfeeding rose from 39 to 76% and postnatal care rose from 2 to 32% in project areas (Save the Children 2005, Seims 2008).

### Adapting and refining promising model programmes

Strengthening and expanding coverage of proven, evidence-based newborn care interventions could improve the health and survival of millions of newborns. Yet, understanding if and how model programmes could succeed in diverse settings and at scale was important for encouraging widespread implementation of both proven and new interventions (see Figure 2).

### *Society for education, action and research in community health (SEARCH) and the Ankur project*

The landmark SEARCH study in India demonstrated that home-based maternal and newborn care could dramatically reduce newborn mortality in a low-resource, high-mortality setting. Yet, while the results were impressive, it was not clear that this model programme could work as effectively in other settings or be taken to scale. In order to test its replicability, SNL supported a replication of the SEARCH model by seven NGOs in rural, urban and tribal settings in Maharashtra State. Findings from this project (called Ankur) showed a dramatic 51% reduction in neonatal mortality

Building the Evidence for Community-based Newborn Health				
Model in India	Replication in India	Replication in Bangladesh	Preventive care alone in India	Government model in Pakistan
<p><b>1. SEARCH</b> 1993–1998 India</p> <p>Home-based newborn care (HBNC) in Gadchiroli District</p> <p>60% NMR reduction</p>	<p><b>2. Ankur</b> 2001–2005 India</p> <p>HBNC replicated in seven rural, urban and tribal districts</p> <p>51% NMR reduction</p>	<p><b>3. Projahnmo</b> 2001–2006 Bangladesh</p> <p>HBNC replicated in Sylhet district</p> <p>34% NMR reduction</p>	<p><b>4. Shivgarh</b> 2003–2006 India</p> <p>HBNC with community mobilisation and BCC only</p> <p>54% NMR reduction</p>	<p><b>5. Hala</b> 2003–2005 Pakistan</p> <p>HBNC through existing CHW system (preventive care with referral)</p> <p>28% reduction in pilot areas</p>

Figure 2. Testing model packages of care in diverse settings demonstrated that community-based interventions were effective in significantly reducing newborn mortality and that immediate and early postnatal interventions were a critical component of the continuum of care.

Sources:

1. Bang *et al.* (1999).
2. Bang (2008).
3. Baqui *et al.* (2008).
4. Kumar *et al.* (2008).
5. Bhutta *et al.* (2008).

between the baseline and third year of intervention, almost equivalent to the 60% reduction seen in the original SEARCH study (Bang 2008). Findings from SEARCH and the Ankur project are informing the design of a training curriculum for a new cadre of community health workers that the national government expects to deploy throughout rural India.

### ***Projahnmo***

To assess the replicability of the SEARCH home-based newborn care model in a larger population (500,000) in a Bangladeshi setting, Save the Children and the United States Agency for International Development (USAID) cosponsored a trial called Projahnmo in rural Sylhet District, conducted by the Johns Hopkins University (JHU) and the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR, B) in collaboration with government and several local institutions. Key elements of the home-care package included two antenatal visits and three postnatal home visits during the first week by female community health volunteers, as well as referral for sick babies, government-health system strengthening and treatment at home in instances of referral failure. Neonatal mortality was reduced by 34% among those receiving home-care compared to those receiving existing care (Baqui *et al.* 2008). Lessons learned from this study are now being used by the government of Bangladesh with assistance from donors such as USAID to scale-up home-based newborn care services, and are also shaping USAID newborn programming in Nigeria, Rwanda and Malawi (USAID and ACCESS 2008).

### ***Shivgarh***

A further understanding of the relative effectiveness of alternative intervention packages and delivery strategies became the next challenge. In the remote district of Shivgarh, Uttar Pradesh, India, the King George Medical University and local partners collaborated with JHU to evaluate a package of behaviour change and community mobilisation interventions to improve maternal and newborn care practices, with a special focus on addressing hypothermia. Unlike the other implementation research supported by SNL, interventions focused on key behaviours, and did not include antibiotics or other medical care. The intervention utilised community workers and community members to promote birth preparedness, clean delivery, hygienic umbilical cord care, skin-to-skin care, breastfeeding and keeping the baby warm. Skin-to-skin care of the newborn was almost universally accepted, initiation of breastfeeding on the first day increased from 21 to 75%, and results showed a dramatic 54% reduction in neonatal mortality in the intervention area compared to those receiving no intervention (Darmstadt *et al.* 2006, Kohn 2008, Kumar *et al.* 2008). This strategy has been successfully integrated into the child survival programme of Uttar Pradesh and is currently being scaled-up to a population of over 30 million. The study in Shivgarh, as well as a study in Makwanpur, Nepal, involving women's community groups, demonstrated the potential impact of preventive care on neonatal mortality (Morrison *et al.* 2005).

### ***Hala***

In Pakistan, SNL supported an effort to test the effectiveness of a newborn care package within the existing system involving the two main providers of primary care in the country: lady health workers (LHWs) and traditional birth attendants. In the rural district of Hala, in Sindh, Pakistan, the Community-based Perinatal and Newborn Care Intervention Trial was initiated by Aga Khan University in partnership with Save the Children, WHO and the government. This effectiveness trial tested a newly designed LHW newborn health training package including home visits, training for traditional birth attendants, community mobilisation and group education sessions. Neither injectable antibiotics nor resuscitation equipment was provided at the community level, but training was strengthened at primary and secondary care facilities. In the intervention area, newborn mortality fell by 28% and the proportion of deliveries conducted by skilled attendants at public sector facilities increased from 18 to 30% (Bhutta *et al.* 2008). The Hala evidence is providing the impetus for the government and other partners to increase newborn health care within the nationwide LHW programme.

### **Advancing the state-of-the-art**

In Nepal in 2001, Save the Children and WHO held a workshop to review existing neonatal research in developing countries and to prioritise outstanding issues (Coco *et al.* 2002). A systematic review of the evidence on the efficacy and effectiveness of interventions to reduce perinatal and neonatal mortality followed (Bhutta *et al.* 2005, Haws *et al.* 2007, Darmstadt *et al.* 2008). In addition, a comprehensive global review and synthesis of available information on stillbirths was conducted which provided the first country-specific estimates of numbers and rates and identified opportunities for improving policies and interventions to reduce the more than three million stillbirths that occur each year (Stanton *et al.* 2006). Other reviews were undertaken to expand the global evidence base for specific topics, such as birth asphyxia (Lawn *et al.* 2007). Programme experience and research also revealed important implementation questions regarding the optimal timing, frequency, content and delivery mode of postnatal care. These reviews advanced the state-of-the-art and informed the design of the research studies which followed, some of which are described below.

### ***Infection prevention and management***

Infection is the leading cause of neonatal mortality, responsible for 36% of newborn deaths (Lawn *et al.* 2005). The SEARCH and Projahnmo studies demonstrated that community-based models which included infection management could be highly effective, as described earlier. However, there was little experience or evidence to show how to introduce and scale-up community-based management of newborn infections within government systems.

In Nepal, SNL supported the Morang Innovative Neonatal Intervention (MINI) study, conducted by John Snow, Inc., to test whether neonatal infections could be diagnosed and managed through a national cadre of community health volunteers and government community health workers already managing pneumonia in older infants



and children. While the study was not designed to measure the impact of infection management on newborn mortality, preliminary findings indicated that high coverage of a timely and complete course of antibiotics for serious newborn infections could be delivered by Nepal's existing health system. This study informed a decision by the Ministry of Health to include community management of newborn infection as part of a 10-district replication of a community-based newborn care package (Sharma 2006).

### ***Birth asphyxia prevention and management***

Birth asphyxia causes 23% of neonatal deaths globally and treatment has generally been available only in facilities (Lawn *et al.* 2005). A global review of the state-of-the-art related to the prevention and management of birth asphyxia at the community level documented critical gaps in knowledge, including evidence needed regarding how best to intervene, as well as the long-term implications of improved birth asphyxia management.

Implementation research in Indonesia helped close this knowledge gap, and demonstrated the feasibility and impact of training community midwives to recognise and manage babies who do not breathe at birth using a simple resuscitation device (see Figure 3).

In Mali, a study with the Centre for Research and Documentation on Child Survival (CREDOS), a Ministry of Health research organisation, was initiated to test management of birth asphyxia by community-based birth attendants in very basic settings. The results of this study are providing the evidence and tools for community-based prevention and management of birth asphyxia to be integrated into maternal and child health programmes nationwide.

### ***Care for small babies***

Complications of preterm birth directly account for 27% of neonatal deaths globally. Although only 15% of newborns are estimated to be of LBW (less than 2.5 kg at

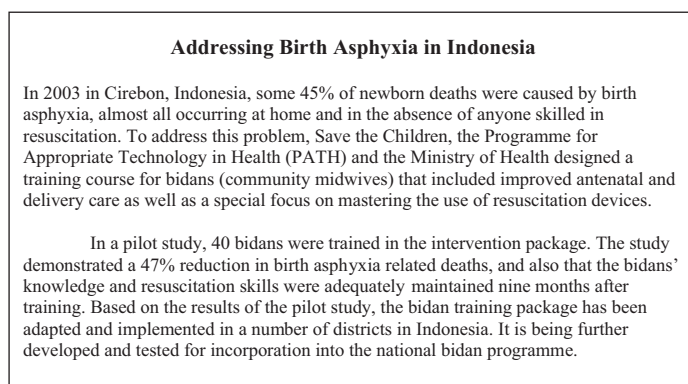


Figure 3. Research demonstrated the cost-effectiveness of training community-based health workers to manage infection and birth asphyxia in low-resource settings. Such treatment was previously only available in health facilities.

Source: Ariawan *et al.* (2007).

birth), the condition is a contributing factor in 60–80% of newborn deaths, and in some countries in South Asia, more than one quarter of babies are born with LBW (Lawn *et al.* 2005, UNICEF 2007). LBW contributes to neonatal mortality by increasing a baby's risk and susceptibility to a number of life-threatening conditions, such as hypothermia. Prevention and management of hypothermia is therefore critical to improve survival of LBW newborns. While KMC is an evidence-based practice of mothers' providing skin-to-skin contact for LBW babies in hospitals, the effectiveness and feasibility of this care in community settings was not known. Studies in India and Bangladesh helped increase global understanding of how to prevent and manage hypothermia in low-resource settings, although further evidence of the effectiveness of community-based KMC is still needed, including in sub-Saharan Africa settings.

The study in Shivgarh, India, described in the previous section, emphasised preventive interventions, such as skin-to-skin care for hypothermia management, and the mortality impact was significant (Kumar *et al.* 2008). Based on the high prevalence of hypothermia and resources lacking to combat it, a recent gathering of experts recommended that skin-to-skin care should be considered for all babies (Darmstadt *et al.* 2006, Save the Children and USAID 2008).

A study specifically designed to assess the impact of community-based KMC on newborn mortality was conducted in partnership with BRAC and the Population Council in Sylhet, Bangladesh. The study aimed to provide community KMC to all babies, not strictly to LBW babies only and the main outcome showed no effect. While the initial results were disappointing, a sub-group analysis estimated a significant mortality decrease among babies weighing less than 2 kg (Sloan *et al.* 2008). Thus, while the earlier SEARCH and Projahnmo studies demonstrated that community-based sepsis management had a particularly strong impact on the survival of LBW babies, the studies in Shivgarh and Bangladesh showed the potential for community-based KMC to also have an impact.

### ***Early postnatal care***

These and other recent studies provide evidence that effective preventive and curative care during the early postnatal period saves newborn lives, and that previous guidelines, recommending postnatal care visits at six hours, six days and six weeks after birth, needed to be revised (Winch *et al.* 2005). The mounting body of evidence demonstrated that the majority of newborn deaths were occurring during the first two days following birth, and that early intervention was needed to promote and support behaviours, such as warming and breastfeeding, as well as detecting, treating and/or referring complications early. For example, an analysis of data from the Projahnmo study suggested that a home visit within two days of birth was associated with a two-thirds reduction in newborn mortality, as compared to no visit (Baqui *et al.* 2009). Other recent research, which estimated that up to 22% of newborn deaths could be prevented if breastfeeding begins within the first hour, has also led to a new emphasis on promotion of *immediate* as well as *exclusive* breastfeeding (Edmond *et al.* 2006). As noted earlier, in studies, such as in Projahnmo, early postnatal care, combined with antenatal counselling, led to significantly improved breastfeeding practices (Mannan *et al.* 2008). Postnatal care during the first two days of life has the greatest potential to save lives during the continuum of care

period, yet it currently reaches fewer mothers and children than any other intervention during that period (UNICEF 2008).

### ***New tools and technologies***

Some of the reviews and studies have led to the development of new technologies, tools and guidelines. For example, a multi-centre study of clinical signs in seriously ill newborns, undertaken by multiple partners and supported by SNL, WHO and USAID, identified a simple set of clinical signs that could be used in an algorithm for non-physician clinic workers to identify newborns with severe illness (The Young Infants Clinical Signs Study Group 2008). This finding has led to a revised Integrated Management of Childhood Illness (IMCI) algorithm. WHO, JHU, Aga Khan University, Save the Children and other partners developed an improved neonatal verbal autopsy tool to capture and categorise underlying causes of neonatal deaths in the community, and it is now being used in a number of research studies. To assess causes of death at facility level, Save the Children collaborated with WHO to refine and expand the use of the Perinatal and Maternal Death Audit tool.

A number of new technologies were developed, including a simplified handheld scale for non-literate users, to facilitate the accurate identification and management of LBW and very LBW newborns (Mullany *et al.* 2006, Darmstadt *et al.* 2007b). In addition, simplified gentamicin dosing regimens aimed for use in UNIJECT syringes were developed to facilitate practical, cost-effective delivery of antibiotics for neonates with sepsis (Darmstadt *et al.* 2007a).

#### **National and Regional Strategies**

In collaboration with governments and other partners, SNL conducted situation analyses in nine countries to assess the status of maternal and newborn health as well as existing health services and practices. These were used for developing consensus on strategic plans for improving newborn care. Regional strategies were also developed to increase awareness about the burden of newborn mortality, generate support for improving newborn survival, and recommend actions for strengthening programmes and policies.

For example, SNL, in collaboration with colleagues from 14 agencies, developed a strategic document for Africa entitled *Opportunities for Africa's Newborns: Practical data, policy and programmatic support for newborn care in Africa*. Published by the PMNCH and launched at the 2006 Pan-African Congress, the book provided new data, case studies of countries making progress and information on effective policy dialogue and action. Building on consensus among several international agencies and local experts, the book increased the focus of Africa's leading policy-makers and health specialists on newborn health and provided recommendations for further action.

A similar approach followed in Latin America through collaborating with leading health and governmental institutions in the preparation of the strategic document *Reducing Neonatal Mortality and Morbidity in Latin America and the Caribbean* (LAC). In 2007, Ministers of Health in 14 LAC countries endorsed the strategy, committing improved programming for maternal, newborn and child health.

Figure 4. The development and dissemination of reliable data and consensus-building on national and regional strategies provided the basis for mobilising commitment and resources for scaling up newborn health.

Sources: Interagency Working Group for the Reduction of Maternal and Neonatal Mortality (2007). Lawn and Kerber (2006).

### **Mobilising commitment and resources**

Mobilising commitment and resources at national, regional and global levels is critical for scaling up newborn health programmes to ensure widespread and lasting impact. Maternal and newborn health assessments and strategies, global and national advocacy, improved data on costs and cost-effectiveness, and increasing access to information and tools strengthened support for evidence-based newborn care (see Figure 4). Save the Children's comprehensive report on *State of the World's Newborns* launched in collaboration with the Institute for Child Health in 2001, peer-review journal articles, and a policy series published with the Population Reference Bureau helped place newborn health on the global agenda (Costello *et al.* 2001, Tinker and Ransom 2002, Bhutta *et al.* 2003a, 2003b, Daly *et al.* 2003, Yinger and Ransom 2003, Lawn *et al.* 2004b, Sines *et al.* 2006, 2007). Building partnerships with governments and other organisations, including forming and leading an inter-agency Healthy Newborn Partnership early on, facilitated information sharing, coordination and consensus building.

### ***Lancet series***

Following the 2003 *Lancet* series on child survival, SNL led a *Lancet* Neonatal Survival Steering Team that coordinated the synthesis of evidence, built consensus around conclusions and drafted papers on the state-of-the-art on newborn health (Lawn *et al.* 2004a, 2005, Martines *et al.* 2005, Darmstadt *et al.* 2005, Horton 2005, Knippenberg *et al.* 2005). The 2005 *Lancet* series on neonatal health, as well as subsequent articles in the *Lancet* and other peer-reviewed journals, contributed significantly to increased awareness about the magnitude of newborn mortality and the effective approaches available to address it, and helped stimulate commitment and adoption of evidence-based interventions and strategies by governments and assistance agencies (Lawn *et al.* 2006).

### ***Cost of newborn care***

To effectively mobilise resources behind increasing commitment, policy-makers and planners need reliable information on the cost of adding newborn health to national health systems. SNL participated with partners in modelling the costs of reaching 90% coverage in the 51 highest mortality countries with the 16 interventions recommended in the *Lancet*. It was estimated that US\$2.23–4.37 billion would avert 38–68% of neonatal deaths, at an extra cost per death averted of US\$1100–3900, which compared very favourably with other highly cost-effective health intervention packages. The cost analysis particularly strengthened the investment case for postnatal family and community care, which were found to have relatively high impact (10–27%) at relatively low cost (US\$0.38–0.75 billion; Darmstadt *et al.* 2005, 2008). SNL developed costing and cost-effectiveness guidelines, which have provided a standardised framework for its programmes and projects.

### ***Financing newborn care***

While it is not possible to reliably quantify the increase in financial resources specifically for newborn health, total aid for MNCH rose from US\$2.1 billion in 2003 to US\$3.5 billion in 2006, and per capita aid to the 68 countries most in need nearly doubled for MNCH (Greco *et al.* 2008). Donors, such as UNICEF, the World Bank and the development agencies of the USA, Norway, UK and Canada have added newborn health interventions in numerous countries as part of their broader health support. In 2004, USAID launched a global programme (ACCESS) providing US\$75 million for maternal and newborn health. The Gates Foundation has also broadened its support for newborn health, including a US\$24 million grant to the Programme for Appropriate Technology in Health (PATH) for strengthening newborn health in India through NGOs (Sure Start). However, even with this increase in funding, the total amount of aid for MNCH-related activities is far below the US\$10 billion that experts estimate is needed annually (Partnership for Maternal, Newborn & Child Health 2008).

### ***Global and national policies***

Many development organisations, such as WHO, UNICEF and USAID have repositioned MCH as MNCH, have hired new staff to work on newborn health, and are increasing efforts to strengthen and expand newborn care within their large-scale programmes. The 2005 World Health Report, in which MCH was expanded to MNCH to explicitly include the newborn, reflected the important paradigm shift, as did the MDG Task Force report, the launch of the global Partnership for Maternal Newborn and Child Health (PMNCH), the 2005 Delhi Declaration, the Countdown to 2015 Reports and UNICEF's State of the World's Children reports (World Health Organization 2005, UNICEF 2008). At the national level, newborn health has been added to health policies and programmes in numerous countries in Africa, Asia and Latin America.

### ***Establishing strategic partnerships***

Given the magnitude of the problem and challenges to address it, global and country-level partnerships are essential to mobilising commitment and achieving impact at scale. Save the Children has shaped and participated in several health coalitions and actively sought partnerships with donors and international organisations to integrate and strengthen newborn health in ongoing programmes. For example, SNL leads the Child Health Epidemiology Reference Group (CHERG) neonatal group as it advances planning for new epidemiological work for estimating the global burden of disease.

### ***Inter-agency partnerships***

One of the first steps of the SNL initiative was to spearhead the establishment of a multi-organisation Healthy Newborn Partnership in 2000 (see Figure 5). As part of the effort to institutionalise newborn health within the maternal and child health context and support a continuum of care strategy, Save the Children joined with

**The Healthy Newborn Partnership: Generating Global Commitment for Newborn Health**

In 2000, Save the Children formed the Healthy Newborn Partnership (HNP) with Johns Hopkins University, USAID, UNICEF, the World Bank and the World Health Organisation. By 2005, the HNP had grown to include 42 organisations, governments and professional associations. The partnership's objectives were to raise awareness about the problem of neonatal mortality, mobilise support for newborn health and facilitate inter-agency communication and coordination.

The HNP advocated for newborn health in international forums, such as conducting a high-level briefing at the 2002 United Nations General Assembly Special Session for Children, as well as meetings of the first ladies of West Africa and the Economic Community of West African States. HNP meetings held in Bangladesh and Ethiopia helped stimulate the governments to set neonatal mortality reduction targets and incorporate training curricula into national guidelines. The HNP met annually, shared a website, and provided a mechanism for exchanging research and programme experience and reaching global consensus on causes, strategies, interventions and indicators.

Figure 5. Creating strategic partnerships with maternal and child experts, health professional organisations, and donor and government officials helped raise attention to a neglected issue and strengthen the constituency for newborn health.

Source: Lawn, *et al.* (2004b).

WHO and UNICEF in 2005 to create a unified PMNCH and served as a member of the PMNCH Board of Directors from 2005 to 2009.

***Bridging the gap between maternal and newborn health***

Save the Children was one of the early proponents of the continuum of care strategy, which has two inter-related dimensions. One is to promote coordinated care, from adolescence through pregnancy, delivery, the immediate postnatal period and childhood, with particular attention on childbirth and the early neonatal period when the risk is highest. It emphasises that safe childbirth is critical to the health of both women and newborns, and that a healthy start in life is an essential foundation for future development. Equally important is the second dimension, which emphasises the need for links between households, first-level health services and referral facilities – critical links that are often lacking (De Graft-Johnson *et al.* 2005, Tinker *et al.* 2005). The SNL programme has given priority to creating and disseminating the evidence on the impact of interventions at household and community levels, where most newborns die (Bhutta *et al.* 2005, Darmstadt *et al.* 2005, Haws and Darmstadt 2007, Haws *et al.* 2007). While beyond its specific mandate, SNL promoted and coordinated closely with programmes to improve women's access to family planning and emergency obstetric care services in view of their significant impact on newborn health and survival.

***Partnering with health care professionals***

Partnerships with health professionals are critical to furthering the acceptance and expansion of newborn health interventions. For example, Save the Children collaborated with the International Paediatric Association to launch an international newborn health initiative in Africa in 2005 and with the International Federation of

Obstetrics and Gynaecology in the development of a training programme for resource-poor settings. Collaboration with the International Confederation of Midwives has included support for the training and equitable deployment of midwives, since midwifery skills are critical to safe childbirth.

### **Challenges to scale-up**

The SNL initiative faced the challenge of how to scale-up proven interventions quickly, efficiently and successfully with catalytic inputs in some of the most under-resourced health systems in the world. Progress was made in several countries, such as India, Nepal, Pakistan and Bangladesh. Obstacles, particularly in Africa, included health worker shortages, limited research capacity, weak government systems and high administrative costs. In a number of countries, resistance from the medical establishment or other policy-makers slowed down the acceptance of the delegation of certain responsibilities, such as community health workers' provision of injectable antibiotics to manage neonatal sepsis.

### **Lessons learned for future efforts**

Lessons learned from SNL evaluations and reviews, defining what is possible and critical for success, have proven useful for informing the design of the continuing project, and may be helpful to other similar programmes.

### ***Policy and programme impact***

Initiating policy and programme changes at the country level is possible in a relatively short timeframe when key stakeholders are engaged as partners from the outset. Situation analyses helped generate awareness and build a coalition of committed partners. In addition, in countries where local champions in government and/or civil society were identified and supported, more rapid and sustainable changes occurred.

Promoting the integration of newborn health into existing programmes – rather than vertical newborn care – facilitated stakeholder acceptance and improved the potential for institutionalising newborn care in country policies, programmes and practices.

### ***Training***

Effective training programmes share a number of characteristics that have maximised uptake and adoption in the programme countries.

Involving key experts early in the process to achieve consensus on content as well as using global materials to strengthen or update existing country programmes and curricula have been important. The latter were most successful when materials were adapted and field tested locally taking into account the specific level, knowledge and skills of providers to be trained, scope of practice and realities of work situations and available resources, and prior training. At the same time, providing early stakeholder orientation to the training materials and promoting their incorporation

into pre-service training curricula and application to existing programmes, such as IMCI, proved essential for sustainability and scale-up.

In addition to the process of material development, hands-on as well as didactic training and periodic follow-up training helped trainees achieve and maintain knowledge and skills. Phased, on-the-job training facilitated the learning process, saving time and minimally disrupting existing services. However, to ensure programme impact, training needs to be accompanied by simultaneously assessing and addressing the other components of successful programme implementation, including assurance of adequate funding and supplies, equipment and facilities, sufficient supportive supervision and well-planned monitoring and evaluation.

### ***Behavioural change communication (BCC)***

Targeted behaviour change strategies can be effective in improving newborn care practices, such as clean delivery practices, drying and warming, breastfeeding and appropriate care-seeking. Key factors identified as important for successful BCC strategies include:

- Rigorous *formative research and monitoring* that give programmes the information needed to develop effective BCC strategies, monitor progress and make adjustments as necessary to maximise impact.
- A *limited set of priority messages* that are simple, adapted for the local context, achievable and repeated frequently.
- *Mobilisation of partners and communities* in problem identification, planning and use of data for decision-making and action.
- The use of *multiple communication channels* ranging from inter-personal communication to various media, and engaging opinion leaders, such as grandmothers, village leaders and national policy-makers to reinforce critical messages and facilitate their acceptance by the target population.
- *Cultural sensitivity and negotiation with target audiences*, explaining why a practice or behaviour is important, relating this to local contexts and beliefs and, when appropriate, reinforcing existing beneficial practices, resulting in more ready acceptance of behaviour change.

### ***Development of effective newborn health indicators***

To plan and implement neonatal health care strategies and programmes effectively, accurate information about newborn health must be available. Until recently, however, there were virtually no specific indicators of neonatal health or health care that were universally accepted and used, except, to some extent, the neonatal mortality rate. To implement and evaluate newborn health interventions and strategies effectively, SNL found it necessary to:

- Generate reliable information on the causes of death of newborns and contributing sociocultural, logistic and health care factors through verbal autopsy and perinatal death audits.
- Collaborate with partners to develop a core set of newborn health indicators to measure effectiveness. This involved achieving consensus among experts and programme implementers that resulted in a practical and measurable set of indicators covering antenatal care, delivery and postnatal care.



- Test selected indicators to improve the reliability of information on mothers' knowledge, recall of care and behaviour change.
- Promote the incorporation of newborn care indicators in routine tracking and monitoring systems and surveys, such as the USAID-funded Demographic and Health Surveys, UNICEF's Multi Indicator Cluster Surveys (MICS), and the Countdown to 2015 for Maternal, Newborn and Child Survival.

### **Looking forward: the unfinished newborn health agenda**

Newborn health has become a higher priority on the global health agenda, and significantly more is known about the number, causes and timing of neonatal deaths, effective technical interventions, BCC approaches, training and implementation strategies and measurement indicators. In several countries, newborn health is now an integral component of national health strategies and operational plans and is being strengthened and expanded.

Yet, for millions of infants born each year, much more needs to be done to improve their chances of survival and provide them a healthy start in life. Building on what has been learned, capitalising on the momentum generated, and collaborating with partners, Save the Children continues its efforts to reduce newborn mortality around the world.

While the initiative's first six years focused primarily on South Asia, more attention is now directed to sub-Saharan Africa where progress has been slower and the newborn mortality rates remain the highest. Relatively small efficacy trials have led to larger effectiveness trials and operations research to test delivery of scalable, integrated packages, especially those that fill the postnatal care gap. Most studies not only measure access to newborn care services and utilisation of newborn care practices, but also include a costing component, human resource tracking and other health system process measures. Researchers are increasingly from local institutions, partnerships are broader given growing support for newborn health, and more emphasis is being placed on integrating newborn health into large-scale, national health systems.

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