Newborn survival: changing the trajectory over the next decade

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The first month of a baby’s life is surrounded by emotion and new experiences. The mother and father are learning how to be parents, interpreting and responding to the myriad of different cries, sounds and movements. Parents everywhere are concerned that their new baby is warm, safe and feeds well. The first month is one of soaring hopes and possibilities. Yet that month, and especially the birth and first few days after, carries the highest risk of death for mothers and newborns and the highest risk of long-term disability, for example after preterm birth, labour complications, infections or severe jaundice. Moreover, under-nutrition during the 1000-day period from conception through age 2 years has life-long consequences, including increased risk for infectious diseases, intellectual impairment, reduced economic productivity, and increased risk for adult-onset cardiovascular diseases and diabetes.

During the last decade the world has changed in many ways with urbanization, rapid uptake of communication technologies such as cell phones and changing lifestyles and health outcomes. In some countries, newborns face a more certain future than 10 years ago, yet in other countries very little has changed. Worldwide, 3.1 million newborns still die each year, and most of these deaths are preventable (Lawn et al. 2012).

This series presents a comprehensive analysis of the changes in newborn care and survival over the last decade at global level, as well as five detailed country assessments undertaken by over 60 experts from governments and multiple organizations, in order to better understand the process of taking solutions to scale and how to accelerate progress towards reductions in mortality and morbidity.

Recognition of the importance of newborn survival globally and nationally was stimulated by the Millennium Development Goals (MDGs), notably MDG 4 for child survival, to reduce under-five mortality by two-thirds from 1990 to 2015, and closely linked with MDG 5, to reduce maternal mortality by three-quarters (Lawn et al. 2005). Between 2000 and 2010, progress towards both MDGs 4 and 5 has accelerated, with an annual rate of reduction of 2.9% mortality for children 1–59 months, and 2.3% for maternal mortality (Lawn et al. 2012). Having specific targets and the focus of national governments and donors have been critical factors in this increased progress since 2000. Even if the targets for child and maternal mortality are not met at global level, many countries will come closer than they otherwise would have. However, progress in reducing newborn deaths has lagged behind post-neonatal under-five mortality at only 1.7% per year from 1990 to 2000, and despite some improvement is still only 2.1% per year for 2000–2010 (Lawn et al. 2012). This is 40% slower progress than for older children and 30% slower than for maternal mortality. Because of the more rapid decline in post-neonatal and child survival,
the proportion of under-five deaths that occur in the first month of life is increasing and is now more than 40%. In some countries in South Asia, over half of all under-five deaths occur in the first month of life (Lawn et al. 2012). Globally, the causes of under-five deaths are changing, with complications of preterm birth now the number two cause after deaths due to pneumonia, and with ‘birth asphyxia’ deaths as common as those due to malaria (Blencowe et al. 2012; Liu et al. 2012). It is clear that new programmatic approaches are needed which specifically target the major causes of and risk factors for newborn deaths.

Progress in improving newborn survival has been slow and the global averages hide increasing regional, national and subnational disparities. For sub-Saharan Africa, on average, there has been no statistically significant change in neonatal mortality over the past decade. Without a dramatic change in the trajectory for Africa it is estimated that it will take over 150 years for an African newborn to have the same chance of survival as one born in Europe or North America (Oestergaard et al. 2011). In sharp contrast, five African countries have reduced neonatal deaths by over 25%, more than double their neighbours. Important lessons emerge from this supplement, especially around seizing opportunities to promote community-based newborn care, and to integrate newborn care interventions into frontline health worker delivery platforms, and especially into facility-based maternity care, which is already being scaled up (Mbonye et al. 2012; Zimba et al. 2012).

At the same time, there are dozens of countries, mostly middle-income countries in Eastern Europe and Latin America, which have halved neonatal deaths in the last decade. As advanced previously in The Lancet Neonatal Survival Series (Darmstadt et al. 2005), the analysis in paper 1 of this supplement demonstrates while rapid progress in neonatal survival in these countries was linked with economic progress, significant improvements occurred in the absence of economic progress. Sri Lanka, for example, halved neonatal deaths due to prematurity despite a destabilizing internal conflict and weak economic growth, through extending their strong primary care system with effective referral level newborn care (March of Dimes et al. 2012). Despite limited economic growth and recurrent political instability, Bangladesh and Nepal are on track to meet MDG 4 and have reduced neonatal mortality by 4.0% and 3.6% per year since 2000 (Pradhan et al. 2012; Rubayet et al. 2012).

Countries that have achieved increases in contraceptive use, and concurrent reductions in fertility, have also made more progress. Countries with high risk of neonatal death and little change in fertility increasingly dominate the top 10 countries for number of newborn deaths. In contrast, Brazil has graduated off this list and Bangladesh has moved from 5th to 8th. This progress is due to reducing births as well as improving neonatal survival, and the two appear to be synergistic. Adolescent pregnancy, closely spaced births and high parity all place women at higher risk of adverse pregnancy outcomes. Family planning remains one of the most cost-effective ways to reduce maternal and neonatal deaths as well as stillbirths (Pattinson et al. 2011). Contraceptive services empower couples to choose the number and timing of their pregnancies, linking to smaller families, improved survival, educational gains and economic growth (Gribble and Voss 2009; Bloom and Canning 2011).

This series highlights a lack of wide-scale coverage for proven and highly cost-effective newborn care interventions and the need for better data on the implementation status of interventions that are being scaled up, such as kangaroo mother care and neonatal resuscitation. In the middle of this decade, The Lancet Neonatal Survival Series identified a menu of evidence-based interventions that could reduce neonatal deaths by more than two-thirds (Darmstadt et al. 2005; Darmstadt et al. 2007). Since that time, these interventions have been refined, adapted and applied in varied contexts. For example, home-based care for mothers and babies is now being implemented in many countries, although few countries have reached more than 50% coverage, especially of early postnatal visits (WHO et al. 2009; Pradhan et al. 2012; Zimba et al. 2012). More births are being assisted by skilled birth attendants, especially due to increases in facility-based deliveries, but quality of care in facilities has not kept pace (Zimba et al. 2012). Some key behaviours, such as immediate and exclusive breastfeeding, have made encouraging gains, especially in Africa (Requejo et al. 2012). There is also momentum associated with innovative products, such as chlorhexidine cleansing of the umbilical cord, simplified devices for neonatal resuscitation, and opportunities to accelerate progress for neglected high impact commodities such as antenatal corticosteroids for preterm birth, linked to the UN Commission on Life-Saving Commodities for Women and Children (United Nations 2012).

One of the likely reasons for slow progress in the scale up of newborn care services and practices is that funding remains low. For most countries, national sources provide the majority of health financing, either from government, families or private sector; however tracking resources for reproductive and maternal, newborn and child health (MNCH) remain limited. A new analysis of donor funding databases presented in paper 1 shows there has been a significant increase in donor funding for MNCH and a marked increase in the mention of the word ‘newborn’ since the mid-2000s, yet by 2008 only 6.3% of MNCH funding even mentioned the word ‘newborn’ and just 0.1% (US$5.49m) exclusively targeted newborns (Lawn et al. 2012). Despite 2.6 million third trimester stillbirths (Couzens et al. 2011), the words ‘stillbirth’ or ‘fetal’ are absent in donor funding databases (Pitt et al. 2012). In short, it appears that with few exceptions donors have not yet focused specific attention—and resources—on newborn care within maternal and child health care programmes.

This series includes evaluations of progress along a pathway for change for newborn survival in Bangladesh, Nepal, Pakistan, Malawi and Uganda. These country case studies applied a systems analysis approach, examining changes in mortality, coverage, funding, health systems, and context. A standard policy and programme timeline tool and a set of 27 ‘scale up readiness benchmarks’ related to agenda setting and policy formulation were applied to assess national progress towards programme readiness for implementation of newborn health interventions at scale (Moran et al. 2012).

All of the five countries highlighted have reduced neonatal mortality, four of the five have annual rates of change that are greater than their regional averages, and remarkably, three are
on track to reach MDG4 targets, bolstered by their progress in reducing neonatal deaths (Pradhan et al. 2012; Rubayet et al. 2012; Zimba et al. 2012). The context varies within and across countries as well as the entry points and approaches taken, and the challenges faced have been different.

There is no ‘cookie cutter’ approach to saving newborn lives. Instead a systematic step-by-step approach is key, using data and evidence to assess the situation, identify solutions and drive continuous programme improvement; and ensuring consensus and commitment (Knippenberg et al. 2005). These case studies highlight lessons learned about this step-by-step approach and what works and what does not (Table 1).

Institutionalization

Repeating the 4-step programme cycle above to increase coverage and quality of care in order to reach institutionalization of newborn survival, the point at which public demand, political commitment and resources for quality services to promote and preserve newborn health have been normalized in a society.

Adapted from Knippenberg et al. (2005) Lancet Neonatal Survival Series.
engagement of these groups as network agents for the sharing and spread of knowledge also underpins the spread of health care solutions. A Newborn Steering Committee in Uganda has changed the policy and programme landscape for newborn care and has also been catalytic for improved linkages across the continuum of care (Mbonye et al. 2012). Civil society, coupled with professional and academic opinion leaders, was critical for development and approval of a national newborn health strategy in Bangladesh (Rubayet et al. 2012). In Pakistan, a partnership of academics and NGOs has helped shape national policy and their continued engagement will be critical for accountability. Despite Pakistan facing humanitarian disasters and political instability, newborn care has been integrated into a large-scale frontline health worker delivery platform (Khan et al. 2012). In Malawi, newborn care has been integrated into a comprehensive national health sector strategy, building especially on the momentum for maternal health care services (Zimba et al. 2012). All five countries have used locally-adapted evidence to inform the design and implementation of a national community-based maternal and newborn care strategy that is being taken to scale. A recurring theme is the use of data and evidence to inform policies and programmes, with locally-generated evidence often found to be critical in creating the ownership needed for adoption and replication at scale. However, the pathway from evidence to research is often complex and non-linear, with site visits to view successful programmes sometimes as influential as peer-reviewed publications (Rubayet et al. 2012).

A common thread in these countries is the importance of bringing life-saving newborn care interventions closer to communities, and of engaging user groups, such as frontline workers and mothers in a jointly-owned process of intervention design and adaptation. Frontline health workers are often the first and only link families have to health care in low-income countries, especially in remote and rural areas. Social and behavioural change cannot be left out of the conversation when discussing newborn care, whether innovations are technical or behavioural. Cultural beliefs often reinforce harmful newborn care practices, such as giving water or tea as the first liquid instead of breast milk or using cow dung to dress the umbilical cord (Darmstadt 2007). Understanding the mechanisms underlying behaviour change at a population level, appreciation of the sociocultural context of newborn care behaviours and risk factors for morbidity and mortality, co-design of communications messages with the community, and negotiation for improved practices through an active process of behaviour change management are all critical for success (Kumar et al. 2010).

Achieving impact at scale starts with a spark, a catalyst that triggers a chain reaction. The progress made in the countries highlighted in this supplement can be a catalyst for other countries, showing that change is possible in these challenging settings. With the deadline for MDG 4 rapidly approaching and neonatal mortality increasing in its proportion of child mortality, this supplement brings optimism that change is possible but highlights the need for more concerted efforts to advance newborn care within the continuum of women’s and children’s health (Ban 2010). The challenge for newborn survival is now more apparent than ever, thanks to better data on mortality and cause-of-death, but it is clear that progress in implementation is not fast enough, despite encouraging changes in attention, and in some countries, rapid changes in policy (Shiffman 2010; Lawn et al. 2012).

Yet it is also clear that the conditions for more rapid and sustainable change at scale are increasingly in place, including greater understanding of how to harness social and organizational partnerships for the spread of innovations and availability of a number of products that could energize accelerated programme change. More investments are needed to integrate what we know works into large-scale delivery systems, applying the science of social and behaviour change. Empowered and well-connected frontline workers will be critical to the delivery of integrated, high-quality care to mothers and their newborns.

Over the last decade, the global health community and families in countries have changed previously unquestioned beliefs—today it is no longer acceptable for someone who is HIV positive to not be treated just because they live in a low-income country. It is no longer acceptable for women to die while giving birth or for men and women to not be able to plan their families due to lack of access to contraceptives. As impatient optimists, we believe that the next decade will bring transformational change for newborns and it will no longer be acceptable for babies around the world to die of preventable causes.

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**References**


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