



Newborn Health

April 2006

More Than 4 Million Newborns Die Each Year, Even Though Effective and Inexpensive Interventions Exist

Ten thousand newborns die each day—an extremely high level of mortality given that the technology to save them exists and, in most cases, can be provided at a relatively low cost. Of the 4 million known newborn deaths each year, the majority occur in sub-Saharan Africa and South Asia (see table).

Addressing newborn mortality requires a continuum of care—or the linking of health and reproductive services for women from adolescence through pregnancy, delivery, and beyond; and for newborns into childhood, young adulthood, and beyond. This continuum creates a particular challenge in poor countries struggling with inadequate levels of skilled care and unstable health care systems. Nevertheless, community-level interventions form a first step.

Magnitude and Causes

About 1 million newborns (infants under the age of 28 days) die during their first day of life, another 2 million die during

their first week, and 1 million more die before reaching one month of age. Another 3.3 million children are stillborn each year. When stillbirths are included among deaths, about half of all deaths of children under age five occur within the first 28 days of life. This neonatal period is the point in the continuum of care when services are most likely lacking, particularly in poor communities, where most deaths occur.

Three causes of death—infections (36 percent), preterm birth (28 percent), and asphyxia (23 percent)—account for the majority of neonatal deaths. Low birthweight (LBW) is a major risk factor. An estimated 20 million LBW infants (weighing less than 2,500 grams) are born each year. Some 60 to 80 percent of newborn deaths occur in LBW infants.

Effective Interventions

Effective interventions exist and can be delivered at low cost. Up to 40 percent of neonatal deaths could be averted with

Neonatal Mortality Rate (NMR) and Neonatal Deaths by Region for 2000

Region	Neonatal deaths per 1,000 live births (NMR) (range across countries)	Neonatal deaths in thousands (percent)	Percentage of deaths during the neonatal period among children under five
World	30	3,998 (100)	38
High-income countries	4 (1–11)	42 (1)	63
Low- and middle-income countries	33 (2–70)	3,956 (99)	38
<i>Region</i>			
Africa	44 (9–70)	1,128 (28)	24
Americas	12 (4–34)	195 (5)	48
Eastern Mediterranean	40 (4–63)	603 (15)	40
Europe	11 (2–38)	116 (3)	49
South Asia	38 (11–43)	1,442 (36)	50
Western Pacific	19 (1–40)	514 (13)	56

Source: Authors' calculations, based on NMRs and under-five mortality, WHO and UNICEF estimates. Lawn, J. E., J. Zupan, G. Begkoyian, and R. Knippenberg. 2006. "Newborn Survival." In *Disease Control Priorities in Developing Countries*, 2nd ed., ed. D. T. Jamison, J. G. Breman, A. R. Measham, G. Alleyne, M. Claeson, D. B. Evans, P. Jha, A. Mills, and P. Musgrove, table 27.1. New York: Oxford University Press.

home- and community-based solutions, such as keeping a newborn warm and clean, breastfeeding regularly, protecting against infection through proper hygiene, and treating infections with antibiotics in a timely manner. Access to skilled and emergency prenatal and postnatal care can save many more newborn lives.

Not only are high-impact, low-cost, feasible interventions available, but they could avert close to 70 percent of the world's newborn deaths. Studies in India and Sub-Saharan Africa indicate that a newborn health package can be added to existing maternal and child health programs at an average cost of US\$0.50 per capita per year and would reduce newborn deaths by up to 15 percent at the family-community level and about US\$0.20 per capita for a 22 percent reduction in newborn deaths at the clinical care level.

The following interventions have been shown to positively impact newborn health and survival:

Essential newborn care at the time of birth. The World Health Organization defines essential newborn care as the care of the newborn at birth, including cleaning, drying, and warming the infant; initiating exclusive breastfeeding early; and caring for the umbilical cord. Essential care of the newborn is necessary for all infants and is ideally provided by a trained birth attendant, but in the absence of skilled care, can be carried out by others, including family and community members. These practices help reduce newborn illnesses, especially infection. When implemented at the family-community level, these practices could reduce newborn mortality by up to 40 percent.

Newborn resuscitation. Approximately 5 to 10 percent of newborns do not breathe on their own and require stimulation. Basic resuscitation using a self-inflating bag and air is lifesaving for the majority of these newborns. Evidence is growing that most newborns can be successfully resuscitated without the use of oxygen. Low-cost versions of the self-inflating bags and masks are now available for less than US\$5 and are the recommended device for resuscitation. Achieving wider coverage of resuscitation is a challenge, however, because nearly 50 percent of the world's babies are born at home.

Extra care for small babies. Given that a high proportion (60 to 80 percent) of newborn death occurs in LBW babies, targeting this group with additional care can help to improve newborn survival. A number of community-based studies have identified small babies and provided them with extra care at home, especially feeding, warming, and cleanliness. The reported newborn mortality reductions range from 25 to 42 percent. One low-cost, low-tech means of warming an infant is through kangaroo mother care, which involves continuous skin-to-skin contact between mother and baby to keep the baby's temperature stable and promote breastfeeding. Although comprehensive data are lacking, a review found that serious illnesses were reduced by about 60 percent at the six-month follow-up visit.

Emergency care for ill newborns. Emergencies, such as complications of preterm birth, asphyxia, and infections, are a significant cause of newborn death worldwide. Among these, infection is the most prevalent and management of infection one of the most feasible interventions to scale-up. A 2003 analysis of community-based trials of management of newborn pneumonia in Africa and Asia showed a 27 percent reduction in newborn mortality. A 1999 study in rural India showed a 62 percent reduction in newborn death with a home-based package for newborn infection that included an injected antibiotic. The cost of this intervention was estimated at US\$5.30 per newborn treated and included the time of community health workers and the cost of equipment and drugs.

For More Information

Lawn, J. E., J. Zupan, G. Begkoyian, and R. Knippenberg. 2006. "Newborn Survival." In *Disease Control Priorities in Developing Countries*, 2nd ed., ed. D. T. Jamison, J. G. Breman, A. R. Measham, G. Alleyne, M. Claeson, D. B. Evans, P. Jha, A. Mills, and P. Musgrove, 531–50. New York: Oxford University Press.

Jamison, D. T., S. A. Shahid-Salles, J. Jamison, J. E. Lawn, and J. Zupan. 2006. "Incorporating Deaths Near the Time of Birth Into Estimates of the Global Burden of Disease." In *Global Burden of Disease and Risk Factors*, ed. A. D. Lopez, C. D. Mathers, M. Ezzati, D. T. Jamison, and C. J. L. Murray, 427–63. New York: Oxford University Press.