



THE LIVING PROOF PROJECT

U.S. investments in global health are working.

Significant progress has been achieved over the last decades in improving the health of children around the world, and in reducing the number of children who die from treatable and preventable conditions and diseases. Increased global focus and innovative tools are needed to ensure that the number of child deaths continues to fall, and to achieve greater progress on improving the health of mothers and their newborns.

Child deaths have been declining steadily since the 1960s,¹ and the rate of progress has accelerated in the past decade.² Much of the recent progress has been due to the increased use of key interventions, such as immunization, vitamin A supplementation, and the use of insecticide-treated mosquito nets to prevent malaria. By contrast, however, maternal and newborn health has seen little improvement in the poorest countries. Encouragingly, there is now rising political and financial commitment to reduce maternal and newborn deaths through expanded access to priority interventions, health systems strengthening, innovative technologies, and behavior change programs.

Global Progress

Global action to improve child health in developing countries has gained significant momentum over the past decade. More recently, the health of mothers and their newborns has also been recognized as an important priority.

Global spending on maternal, newborn, and child health (MNCH) increased by 64 percent, from \$2.1 billion in 2003 to almost \$3.5 billion in 2006, with child health accounting for more than two-thirds of total aid to MNCH.³ In 2006, the two leading contributors supporting MNCH were the United States government and the World Bank, which collectively contributed \$1.4 billion.⁴

Recently, the **Consensus for Maternal, Newborn and Child Health (2009)**⁵ set out key action steps to save the lives of more than 10 million women and children between 2009 and 2015. Agreed to by a broad coalition of governments, nongovernmental organizations, and international health agencies, the Consensus aims to accelerate progress towards the **Millennium Development Goals (MDGs)** for maternal and child health. These call for a reduction in deaths among children under age 5 by two-thirds (MDG 4) and among pregnant women by three-quarters (MDG 5) from 1990 levels by 2015.

The Consensus is supported by pledges of substantial additional funding from the members of the Task Force on Innovative Financing for Health Systems,⁶ with a stronger focus being placed on maternal and newborn health. It is also supported by a range of existing organizations and new partnerships:

- The most important organizations in the United Nations (UN) system dealing with maternal, newborn, and child health are **UNICEF**, the **United Nations Population Fund (UNFPA)**, and the **World Health Organization (WHO)**. UNICEF supports a range of programs on maternal, newborn, and child health and is the world's largest supplier of vaccines for children in developing countries. UNFPA focuses on reproductive health, supporting programs to promote safe pregnancy and childbirth, family planning, and the sexual and reproductive empowerment of women. WHO provides normative guidance and tools for the support of MNCH as well as critical technical assistance at the country level.
- The **Partnership for Maternal, Newborn and Child Health**, the **White Ribbon Alliance** and the **Countdown to 2015** work with the global community towards achieving MDGs 4 and 5. Together, they have increased the visibility of child health, and, more recently, that of maternal and newborn health.
- The **GAVI Alliance** (formerly the Global Alliance for Vaccines and Immunisation), launched in 2000, finances programs in the poorest countries to scale up access to immunization and fosters the development and introduction of new vaccines and technologies. GAVI has committed \$4 billion to countries through 2015.

Innovation and Scientific Advances

Further improvements in child health are possible through continued innovation in prevention and treatment. New technological advances focused on maternal and newborn health also show great promise. Equally important are

WHAT IS MATERNAL, NEWBORN, AND CHILD HEALTH?

Maternal, Newborn, and Child Health (MNCH) refers to an effective and integrated continuum of care that delivers basic services to mothers and their infants at critical points, and to children in their first five years of life, with the goal of ensuring the health and survival of each.¹⁴ The lifetime risk of a woman dying from pregnancy-related causes (maternal death) in the developing world is 1 in 76, compared with 1 in 8,000 in the industrialized world.

Of all deaths worldwide among pregnant women, infants, and children under age 5, about 99 percent occur in developing countries, with the highest death rates recorded in Sub-Saharan Africa and South Asia.

Maternal and newborn health are closely related, and often require the same interventions. Globally, 536,000 women died from causes related to pregnancy and childbirth in 2005, and 3.7 million newborn infants died in 2004.¹⁵ A limited number of interventions can prevent most maternal and newborn deaths. These include better prenatal care, having a skilled health assistant during birth, access to emergency obstetrics and newborn care, postnatal visits, and antibiotics to treat infections of mothers and newborns. Adequate nutrition and education to improve health, and good hygiene practices are also key.¹⁶

Improvements in child health are closely associated with the availability of basic, cost-effective prevention tools (vaccines, insecticide-treated bed nets, vitamin A supplementation), and access to treatment against infectious diseases (including antibiotics, oral rehydration therapy and zinc, pediatric ARVs, and anti-malarial drugs). Access to clean water and sanitation is also key. The majority of children under 5 die of five preventable or treatable diseases: pneumonia, diarrhea, serious newborn infections, prematurity, and birth asphyxia. Malaria, measles, and HIV/AIDS are also significant causes of under-5 deaths.

operational innovations focused on the delivery of life-saving interventions to mothers, newborns, and children in countries where health systems are weak.

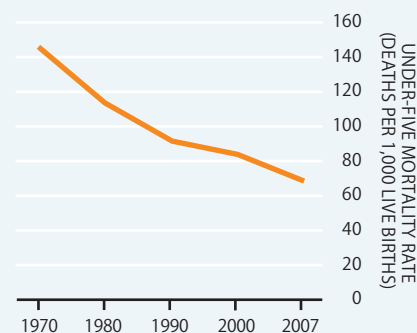
Key innovations to improve maternal and newborn health include the following:

- **Postpartum hemorrhage** (severe bleeding after delivery—a leading cause of maternal deaths) can now be treated with oxytocin. It can be administered by community health workers to women in rural settings using **Oxytocin Uniject**, a pre-filled, single-use syringe which is being piloted in several countries.⁷
- **Infections of the umbilical cord**—very common among infants in developing countries—can be prevented by cleaning the umbilical cord with a solution called **chlorhexidine**. Trials suggest that chlorhexidine could reduce newborn deaths by one-third.⁸
- **Topical emollient therapy**—application of sunflower seed oil to improve the function of the skin and prevent infections—decreased hospital-acquired infections in very preterm infants by 40–50 percent, and newborn deaths by 24 percent in one trial in Bangladesh.^{9, 10}

Key innovations with significant potential to further reduce under-5 child deaths include:

- **Pneumococcal vaccines** prevent common forms of pneumonia, the leading vaccine-preventable killer of children under age 5 worldwide.
- **Rotavirus vaccines** can prevent the most common cause of diarrhea, causing about 500,000 deaths and two million hospitalizations among children each year. **Zinc supplementation**, used in conjunction with **oral rehydration therapy**, can also significantly reduce diarrhea among children.¹¹
- **Prevention of mother-to-child transmission (PMTCT)** of HIV/AIDS can be achieved through the timely administration of antiretroviral treatment to HIV-infected pregnant women and their newborns. It greatly reduces the risk of HIV transmission from mother to child.

GLOBAL DECLINES IN CHILD MORTALITY



Source: World Bank, World Development Indicators

- **Intermittent Preventive Treatment** in pregnancy (IPTp) and **Long-Lasting Insecticide-treated Bed Nets (LLINs)**—the latter of which incorporates insecticides directly into net fibers—have each been proven to effectively reduce the risk of malaria infection among pregnant women.

Operational research on innovative strategies to ensure the delivery of life-saving interventions to mothers and their children is also yielding promising approaches in need of further exploration:¹²

A study in rural Nepal showed that great reductions in newborn and maternal deaths can be achieved through community-based strategies. Women's group activities influenced women to seek prenatal care, childbirth with a skilled birth attendant, and better hygiene, resulting in a 30-percent reduction in neonatal mortality and an 80-percent reduction in maternal mortality.¹³

Results

Significant progress has been made in reducing child deaths: the global under-5 death rate dropped from approximately 180 deaths per 1000 live births in 1960 to 90 per 1000 in 1990.¹ Since then, the global under-5 death rate has been further reduced (by 28 percent) to 65 deaths per 1000 live births in 2008. The total number of child deaths declined from 12.5 million in 1990 to 8.8 million in 2008.

One key reason for the global progress in child health is that many preventive child health interventions can be routinely scheduled, and many treatment interventions can be carried out at the community level. The following preventive interventions have been increased substantially:

- **Dramatic increase in immunization coverage:** Global coverage with key child immunizations has increased from less than 5 percent in 1974 to approximately 80 percent today. More than 2.5 million deaths are avoided each year just through immunization against diphtheria, tetanus, pertussis, and measles. New vaccines have been added to the original schedule of vaccines, including the hepatitis B and Hib vaccines.¹⁷ WHO estimates that, with GAVI support, a cumulative 213 million additional children had been reached with these new and underused vaccines by 2008, preventing 3.4 million deaths.¹⁸
- **Scale-up of bed net distribution to prevent malaria:** The Global Fund alone has financed the distribution of 70 million insecticide-treated nets in malaria-endemic countries between 2002 and 2008.¹⁹ The number of African children protected by an insecticide-treated bed net increased from 1.7 million in 2000 to 20.3 million in 2007.²⁰

- **Increased vitamin A supplementation:** Providing children with supplementation is an effective strategy for eliminating vitamin A deficiency, which makes children much more susceptible to serious diseases. Coverage with two doses per year increased from 16 percent in 1999 to 62 percent in 2007.²¹

Health infrastructure has been established in many countries, allowing progress in providing HIV/AIDS prevention and treatment to mothers, infants, and children:

- Coverage of services to prevent mother-to-child transmission in developing countries increased dramatically, from 10 percent in 2004 to 45 percent in 2008.²²
- The number of children receiving antiretroviral treatment increased rapidly from 75,000 in 2005 to 275,700 in 2008.²²

Coverage with a number of interventions associated with maternal and newborn health is also increasing slowly:

- More than three-quarters of women in developing countries received prenatal care from a skilled health worker at least once during pregnancy in 2005, compared to only 60 percent in the mid-1990s.²³

- The percentage of births that were attended by a skilled birth attendant increased from 47 percent in 1990 to 61 percent in 2006.

Moving Forward

While significant progress has been made in improving child health, sustained efforts are essential to ensure that the number of deaths among children under age 5 continues to fall.²⁴ In Africa, Oceania, and parts of South Asia, child mortality remains high and rates of decline are far too slow to hold out any prospect of achieving MDG 4.

This holds true even more so for maternal and newborn deaths. Between 1990 and 2005, the global maternal mortality ratio barely dropped, from 430 to 400 per 100,000 live births.²⁵ Progress towards MDG 5 is thus much too slow. Newborn deaths also need a focused effort as 41 percent of deaths among children under 5 occur in the first month of life.²⁵

Additional funding is essential to achieve stronger progress on maternal, newborn, and child health. An estimated additional \$10.2 billion is needed annually to ensure universal coverage of maternal, newborn, and child health interventions to achieve MDGs 4 and 5.²⁶

COUNTRY SPOTLIGHT: COMMUNITY-BASED NEWBORN CARE IN NORTHERN INDIA

In the state of Uttar Pradesh, India, community health workers promoted preventive newborn care practices through targeted household visits and community mobilization, resulting in a 54-percent reduction in newborn deaths.^{28, 29}

Uttar Pradesh is a poor, rural state in Northern India, accounting for a quarter of newborn deaths in India, and for 8 percent of all newborn deaths in the world. In 2003, public health researchers from the Johns Hopkins Bloomberg School of Public Health and King George Medical University in Lucknow,

India, initiated a newborn health program in Shivgarh block in Raebareilly district, a rural block of 120,000 people, to find out whether and to what extent a community-based strategy can change unhealthy birth and early newborn care behaviors and reduce newborn deaths. More than 80 percent of the women in Shivgarh give birth at home, and dangerous traditional practices pose additional risks to the survival of newborns. Cutting the umbilical cord is an important cultural ritual, and if the traditional cord-cutter was busy or unable to travel, the baby remained attached to the

placenta. It was not uncommon that a newborn spent its first hours lying alone and wet on the floor. This traditional practice greatly increased the risk of hypothermia, which can kill infants or makes them more susceptible to other deadly disease such as serious infections.

The researchers designed a community-based project called Saksham (Empowered). The community workers taught pregnant women and their families simple but essential practices to prevent hypothermia and improve hygiene. As the community

workers had a great knowledge about local beliefs and were regarded as trustworthy, they were able to persuade pregnant women and their families to adopt the new practices. Within 18 months, newborn deaths had dropped by 54 percent.



Increase services and care at the community level

Identifying and expanding effective strategies that build on existing community capacities is critical to delivering health-care services to mothers and children, especially in situations where health systems are weak. Evidence indicates that simple actions at the community level can reduce newborn mortality by 37 percent.

Improve access to emergency services

While many life-saving interventions can be implemented at the household and community level, some services can only be provided by skilled health workers in well-equipped facilities. Reducing deaths among mothers and newborns requires 24-hour availability of emergency health services.²⁷ This is also true for complicated cases of child and newborn illnesses.

Behavior change and supportive environment

Mothers often do not access existing care or practice preventive behaviors for various cultural, financial, and societal reasons. Creating a supportive environment is critical to ensuring that women seek out services, alter day-to-day behavior, and adopt healthy practices that safeguard them from disease.

Endnotes

1. UNICEF, *Progress for Children: A World Fit For Children Statistical Review*, No. 6 (New York: UNICEF, 2007).
2. The average annual rate of decline for 2000–2008 is 2.3 percent, compared with 1.4 percent for 1990–2000, http://www.unicef.org/media/media_51087.html (accessed September 30, 2009).
3. Funding is channeled through multiple avenues, including MNCH-specific initiatives, programs to strengthen health systems, and disease-specific interventions (e.g., immunization campaigns).
4. G. Greco, et al., “Countdown to 2015: Assessment of Donor Assistance to Maternal, Newborn, and Child Health between 2003 and 2006,” *Lancet* 371 (2008): 1268–1275. The four other major donors for MNCH in 2006 were the Global Fund to Fight AIDS, Tuberculosis and Malaria, the United Kingdom government, the European Union, and the GAVI Alliance, which together contributed \$1.1 billion.
5. The Consensus for Maternal, Newborn and Child Health can be found at <http://www.who.int/pmnch/en/>.
6. Partnership for Maternal, Newborn and Child Health, “Investing in Our Common Future: Healthy Women, Healthy Children,” http://www.who.int/pmnch/events/2009/20090923_mnchconsensusstory/en/index.html (accessed September 30, 2009). Multi-year financial pledges announced at the UN High Level Event, on Sept 23, 2009, totaled more than \$5 billion.
7. An alternative in pill form is Misoprostol, which can be self-administered and is recommended by the World Health Organization in situations where Oxytocin is unavailable.
8. PATH, “Chlorhexidine for Umbilical Cord Care,” 2009, http://www.path.org/files/TS_update_chlorhexidine.pdf.
9. G. L. Darmstadt, et al., “Effect of Topical Treatment with Skin Barrier-Enhancing Emollients on Nosocomial Infections in Preterm Infants in Bangladesh: A Randomized Controlled Trial,” *Lancet* 365 (2005): 1039–1045.
10. G. L. Darmstadt, et al., “Effect of Skin Barrier Therapy on Neonatal Mortality Rates in Preterm Infants in Bangladesh: A Randomized, Controlled, Clinical Trial,” *Pediatrics* 121 (2008): 522–529.
11. Countdown to 2015 Working Group, *Tracking Progress in Maternal, Newborn & Child Survival: The 2008 Report* (New York: UNICEF, 2008).
12. WHO/UNICEF Joint Statement, *Home Visit for the Newborn Child: a Strategy to Improve Survival* (Geneva: WHO, 2009).
13. D. Manandhar, et al., “Effect of a Participatory Intervention with Women’s Groups on Birth Outcomes in Nepal: Cluster Randomized Controlled Trial,” *Lancet* 364 (2004): 970–979.
14. Maternal health refers to the health of women during pregnancy, childbirth, and the postpartum period. Newborn health refers to the health of children during the first 28 days of life.
15. WHO, *World Health Report 2005—Make Every Mother and Child Count* (Geneva: WHO, 2005).
16. V. Rhee, et al., “Maternal and Birth Attendant Hand Washing and Neonatal Mortality in Southern Nepal,” *Archives of Pediatric & Adolescent Medicine* 162 (2008): 603–608.
17. WHO, *Global Immunization Data*, 2009, http://www.who.int/immunization/newsroom/GID_english.pdf.
18. GAVI Alliance, *Progress Report 2008* (Geneva: GAVI Alliance, 2008).
19. Global Fund to Fight AIDS, Tuberculosis and Malaria, *Scaling Up for Impact: Results Report 2008* (Geneva: Global Fund, 2009).
20. A. Noor, et al., “Insecticide-Treated Net Coverage in Africa: Mapping Progress in 2000–07,” *Lancet* 373 (2009): 58–67.
21. UNICEF, “ChildInfo: Monitoring the situation of children and women,” http://www.childinfo.org/vitamina_progress.html (accessed September 30, 2009).
22. WHO, UNAIDS, UNICEF, *Towards Universal Access: Scaling Up Priority HIV/AIDS Interventions in the Health Sector—Progress Report 2009* (Geneva: WHO, 2009).
23. UNICEF, *Progress for Children: A Report Card on Maternal Mortality*, No. 7 (New York: UNICEF, 2008).
24. C. J. L. Murray, et al., “Can We Achieve Millennium Development Goal 4? New Analysis of Country Trends and Forecasts of Under-5 Mortality to 2015,” *Lancet* 370 (2007): 1040–1054.
25. UNICEF, *The State of the World’s Children 2009: Maternal and Newborn Health* (New York: UNICEF, 2009).
26. Partnership for Maternal, Newborn and Child Health, “A Global Call for G8 Leaders and Other Donors to Champion Maternal, Newborn and Child Health,” press statement, 19 April 2008, <http://www.who.int/pmnch/media/news/2008/g8globalcall.pdf>.
27. UNFPA, “Safe Motherhood: Providing Emergency Obstetric and Newborn Care to All in Need,” <http://www.unfpa.org/mothers/obstetric.htm> (accessed September 30, 2009).
28. V. Kumar, et al., “Impact of Community-Based Behavior Change Management on Neonatal Mortality: A Cluster-Randomized, Controlled Trial in Shivgarh, Uttar Pradesh, India,” *Lancet* 372 (2008): 1151–1162.
29. G. L. Darmstadt, et al., “Introduction of Community-Based Skin-to-Skin Care in Rural Uttar Pradesh, India,” *Journal of Perinatology* 26 (2006): 597–604.

The Living Proof Project is a multimedia initiative intended to highlight successes of U.S.-funded global health initiatives. Millions of lives have already been transformed and saved with effective, affordable solutions. We have the knowledge, innovative technologies and proven tools to do much more. The content for this progress sheet was developed by the Global Health Group at the University of California, San Francisco and SEEK Development in Berlin. It is also available online at www.livingproofproject.org.