



*State of the*  
**WORLD'S MOTHERS 2006**

Saving the Lives of  
Mothers and Newborns



*Save the Children is the leading independent organization creating real and lasting change for children in need in the United States and in more than 40 countries around the world.*

*Save the Children is a member of the International Save the Children Alliance, comprising 27 independent, national Save the Children organizations working in more than 100 countries to ensure the protection and well-being of children.*

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### On the cover:

Grace, a mother in Malawi, holds Tumtumfwe, her baby girl who was born two months early, weighing only 2.2 pounds. Through a Save the Children program, Grace learned to provide "kangaroo mother care," keeping the baby close to her skin to stay warm and breastfeeding every hour. After one week, Tumtumfwe gained 3.5 ounces.

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## Saving the Lives of Mothers and Newborns

**In commemoration of Mother's Day**, Save the Children is publishing its seventh annual *State of the World's Mothers* report. By focusing on the 60 million mothers in the developing world who give birth every year with no professional help and the 4 million newborns who die in the first month of life, this report helps to bring attention to the urgent need to reduce infant mortality around the world. The report also identifies countries that are succeeding in improving the health and saving the lives of mothers and babies, and shows that effective solutions to this challenge are affordable – even in the world's poorest countries.



## Foreword

All children, no matter where they are born, deserve a healthy start in life. But the harsh reality is that every year, 4 million newborns die within the first month of life – that’s equivalent to the number of babies born in the United States annually. Almost all of these deaths (99 percent) occur in developing countries.

It’s tragic that millions of newborns die every year, especially when these deaths are so easily preventable. Three out of four newborn deaths could be avoided with simple, low-cost tools that already exist, such as antibiotics for pneumonia, sterile blades to cut umbilical cords, and knit caps to keep babies warm.

This report examines the causes of newborn mortality and the solutions available to save lives. It highlights countries that are making significant progress and shows what they are doing right. Most important, this report challenges us to do as much to protect mothers and children in poor countries as we do in rich countries.

Saving newborn lives is a major priority for the Gates Foundation. We’re proud to support the work of Save the Children and other organizations that are making a difference for millions of children, whether they live in a remote village in Malawi or an urban slum in India.

No investment in global health has a greater return than saving the life of a child. By providing all mothers and newborns access to effective care, we can help meet the United Nations’ Millennium Development Goal of dramatically reducing deaths among children under age 5. Success will require all of us to work together – governments, donors, nongovernmental organizations, and health professionals. With sufficient resources and political resolve, we can ensure a healthy start, and a promising future, for children everywhere.



Melinda French Gates

*Co-chair, Bill & Melinda Gates Foundation*



MOZAMBIQUE

# Introduction

Mother and newborn. It is life's most basic partnership. Yet how many of us fully understand the needless tragedy that so many mothers face each day around the world – the loss of a baby due to preventable diseases or lack of basic health care.

Every year, our *State of the World's Mothers* report reminds us of the inextricable link between the well-being of mothers and that of their children. Almost 75 years of on-the-ground Save the Children experience has demonstrated that when mothers have health care, education and economic opportunity, both they and their children have the best chance to survive and thrive.

But what about those who are not surviving? Every year, 60 million women give birth at home with no skilled care. More than 500,000 women die from complications of pregnancy and childbirth, 4 million newborn babies die every year before they are a month old, and 3 million are stillborn.

Nearly all maternal and newborn deaths occur in developing countries where pregnant women and their infants lack access to basic health-care services – before, during or after delivery. And most of these deaths could be prevented at a modest cost.

While infant and child mortality rates in the developing world have declined significantly in recent decades, little progress has been made to reduce death rates for mothers and newborns. To address the global challenge of saving mothers' and babies' lives, Save the Children is working on six fronts:

- First, Save the Children is increasing awareness of the challenges and solutions to maternal and newborn survival. This report highlights countries that are succeeding – and failing – in saving newborn lives. It calls attention to areas where greater investments are needed and shows that effective strategies are working, even in some of the poorest places on Earth.
- Second, Save the Children is encouraging action by mobilizing citizens and organizations in the United States and around the world to reduce maternal, infant and child mortality, and to advocate for better policies and increased funding for proven programs.
- Third, we are getting the job done. Our groundbreaking *Saving Newborn Lives* program, launched in 2000 with a grant from the Bill & Melinda Gates Foundation, has identified what works to save newborn lives and introduced some 20 million women and babies in a dozen countries to the benefits of newborn care. We have trained more than 13,000 health-care providers to promote basic tools and newborn care practices such

as vaccines to prevent tetanus, antibiotics to treat infections, a clean razor blade to cut the umbilical cord, immediate and exclusive breastfeeding, and drying and wrapping the baby to keep it warm. These simple practices alone could save 3 out of 4 newborn lives.

- Fourth, we are working to make motherhood safer. Throughout the developing world, we provide high-quality care during pregnancy, delivery and immediately after birth. We help improve mothers' nutrition. And we provide access to family planning information and services so couples can plan their pregnancies at safe intervals.
- Fifth, we are preparing the next generation of mothers in the developing world through education, health services and nutrition programs for girls. We work in partnership with government agencies and local organizations to ensure that girls from poor communities go to school and stay in school. We provide food where girls and boys are undernourished, improve water quality and sanitation, and encourage healthy behaviors such as hand-washing.
- Finally, here in the United States, we are helping tomorrow's mothers to create a brighter future by improving education for children in impoverished rural areas. Through our in-school and after-school literacy programs in Appalachia, the Mississippi River Delta, California's Central Valley and in Native American and Hispanic communities in the Southwest, children – both girls and boys – are learning to read and to succeed.

We count on the world's leaders to take stock of how mothers and newborns are faring in every country. Investing in this most basic partnership of all – between a mother and her newborn – is the first and best step in ensuring healthy children, prosperous families and strong communities.

Every one of us has a role to play. Please read the Take Action section of this report, and visit [www.savethechildren.org](http://www.savethechildren.org) on a regular basis to find out what you can do to make a difference.

Charles F. MacCormack  
*President and CEO, Save the Children*

# Key Findings and Recommendations

Every year, 60 million women in the developing world give birth at home, without a skilled person to help them. Approximately 4 million newborns die each year from disease or complications of childbirth before they have seen a month of life, and more than 3 million are stillborn.

Newborn mortality is one of the world's most neglected health problems. While there has been significant progress in reducing deaths among children under age 5 over the past decade, mortality rates among babies during the first month of life have remained relatively constant.

This year's *State of the World's Mothers* report shows which countries are succeeding – and which are failing – in saving the lives of mothers and their babies. It examines the ways investments in health care, nutrition, education and communication can make a difference for newborns, mothers, communities and society as a whole. It also points to low-cost, low-tech solutions that could save the vast majority of these young lives.

## Key Findings

- 1. Childbirth is often a death sentence for a mother and her baby.** Both are at great risk of dying as a result of complications during pregnancy and childbirth. When mothers are malnourished, sickly or receive inadequate care before or during birth, their babies face a high risk of disease and premature death. The past century has witnessed a revolution in health care, yet millions of women still endure the risks of pregnancy and childbirth under conditions virtually unchanged over time. Tragically, thousands of maternal deaths and millions of stillbirths and newborn deaths result from preventable or treatable causes. These deaths occur mostly in the first hours and days after birth. While there have been significant declines in infant and child mortality in the developing world in recent decades, there has been little progress in reducing death rates for mothers and newborns. *(To read more, turn to pages 8-18.)*
- 2. Newborn and maternal death rates are highest in the poorest, most disadvantaged places.** Nearly all newborn and maternal deaths occur in the developing world (99 and 98 percent, respectively). The highest rates are in Africa and South Asia. The majority of newborn deaths occur in just 10 countries, many with very large populations (such as India and China) and others with very high percentages of newborns dying (such as Afghanistan, Democratic Republic of the Congo and Tanzania). More than 60 percent of the world's maternal deaths occur in these same 10 countries.

### Saving the Lives of Mothers and Newborns:

### A Snapshot

Every year, 60 million women give birth at home, without the help of professional birth attendants with delivery skills.

Every minute, a woman meets her death during pregnancy or childbirth, seven newborns die before their first month of life and 20 children die before reaching their fifth birthday.

Newborn deaths account for 40 percent of all deaths among children under age 5.

Four million newborns die every year – mostly due to easily preventable or treatable causes such as infections, complications at birth and low birthweight.

Nearly 60 percent of infant deaths occur in the first month of life. Among those, more than three-quarters (3 million per year) die in their first week. And up to half (2 million per year) die in their first 24 hours.

Nearly all newborn and maternal deaths (99 and 98 percent, respectively) occur in developing countries where pregnant women and newborns lack access to basic health care services – before, during and after delivery.

Sources: *The Lancet*, UNFPA, *Partnership for Maternal, Newborn and Child Health*, Population Reference Bureau, *Save the Children*, World Health Organization

Especially high newborn mortality rates are seen in countries that have suffered recent armed conflict, such as Liberia and Sierra Leone. Babies born to poor mothers in rural areas face perhaps the greatest challenges to survival. An analysis of 50 developing countries found that babies born to the poorest mothers were almost 30 percent more likely to die than babies born to the richest mothers. The same analysis found that newborns in rural areas were 21 percent more likely to die than those in urban areas. Disparities within some countries are even more dramatic. *(To read more, turn to pages 10-12.)*

- 3. Countries that save newborn lives also improve their prospects for economic growth and social development.** The alarming number of newborn deaths – and the human suffering each one represents – is reason enough to focus more attention on newborn survival. But it is also important to look at the cost of newborn deaths to society as a whole. There are lifetime

consequences when mothers do not receive adequate care and newborns get an unhealthy start in life. These babies are particularly vulnerable to illnesses that can impede their physical and cognitive development throughout childhood, which in turn reduces adult economic productivity and contributes to many other problems. Newborns who get a healthy start in life are more likely to reach their full potential, with benefits for themselves, their families and society as a whole. *(To read more, turn to page 13.)*

#### **4. Political will matters more than national wealth.**

Our *Newborn Scorecard*, which analyzes the problem in 78 developing countries, found that a number of relatively poor countries are doing an admirable job of improving the health and saving the lives of mothers and babies. Colombia, Mexico, Nicaragua and Vietnam are performing far better than other developing countries. These countries have invested in critical newborn care, better health for mothers, education for girls and national strategies to promote healthy behaviors, monitor progress and plan accordingly. A separate analysis of newborn mortality relative to gross domestic product found Eritrea, Indonesia, Nicaragua, Philippines, Tajikistan and Vietnam making great strides in newborn survival despite limited financial resources. *(To read more, turn to pages 19-21 and 29-36.)*

**5. The price tag to save newborn lives is one the world can afford.** A major barrier to progress on newborn survival has been the erroneous perception that only expensive, high-level technology and hospital-based care can save newborn lives. The truth is that low-cost interventions could reduce newborn deaths by up to 70 percent. Experts recently estimated that it would cost the international community an additional \$4.1 billion per year to provide life-saving information and care to the mothers and babies who need services most. *(To read more, turn to page 28.)*

### **Recommendations**

#### **1. Ensure the well-being of tomorrow's mothers.**

By improving the overall well-being of girls and young women, communities can ensure healthy mothers give birth to healthy babies, and thus save a significant



VIETNAM

percentage of mothers' and newborns' lives. The three most effective interventions for future mothers are education, nutrition and access to modern contraceptives. Educated girls tend to marry later and begin childbearing later in life, when their bodies are better developed. Well-nourished girls also grow up to be healthier mothers who pass these advantages on to their infants. And family planning saves the lives of mothers and babies by enabling women to avoid pregnancy when they are too young or too old, and to space their births at healthy intervals. *(To read more, turn to page 24.)*

**2. Invest in low-cost, low-tech solutions that save lives during pregnancy, at birth and immediately after birth.** Most newborn and maternal deaths could be prevented at a modest cost by ensuring access to life-saving tools and approaches, including tetanus immunizations for pregnant women, a skilled attendant at childbirth, prompt treatment of newborn infections and education about the importance of proper hygiene, warmth and breastfeeding for infants. These practices can prevent 3 out of 4 newborn deaths. *(To read more, turn to pages 25-27.)*

**3. Expand the availability of good quality care immediately after childbirth.** Because the vast majority of newborn and maternal deaths occur in the first hours and days after birth – and only a tiny minority receive care during this highly vulnerable period – there is untapped potential to save lives by improving access to care after birth. Postnatal care has the potential to save

*The quality of children's lives depends on the health, security and well-being of their mothers. Research shows that two factors make a vital difference in the well-being of mothers and children: female education and access to, and use of, voluntary family planning services.*

20 to 40 percent of newborn lives. But to date, postnatal care for mothers and newborns has received relatively little emphasis in public health programs. (To read more, turn to pages 26-28 and 36.)

**4. Increase government support for proven solutions that save the lives of mothers and babies.** In order to meet internationally agreed upon development goals to reduce child deaths and improve mothers' health, life-saving services must be increased for the women and newborns who need help most.

The United States should demonstrate leadership toward these goals by passing the *CHILD and Newborn Act* (HR 4222). This bill will authorize increased resources to save the lives of mothers and babies and require a comprehensive U.S. strategy for improving newborn, child and maternal health. These should be new funds – not taken from other accounts critical to the survival and well-being of children, such as family planning, basic education and AIDS prevention. (To read more, turn to page 39.)

## The 2006 Mothers' Index: Sweden Tops List, Niger Ranks Last, United States Ranks 10th

Save the Children's seventh annual *Mothers' Index* compares the well-being of mothers and children in 125 countries. The *Index* uses six indicators measuring the status of women: lifetime risk of maternal mortality, use of modern contraception, births attended by skilled personnel, prevalence of anemia among pregnant women, female literacy, and participation of women in national government; and four indicators covering the well-being of children: infant mortality, nutritional status, primary school enrollment and access to safe water.

The *Mothers' Index* also provides information on an additional 48 countries for which sufficient data existed to present findings on women's indicators or children's indicators, but not both. When these are included, the total comes to 173 countries.

Sweden, Denmark and Finland top the rankings this year, as they did last year. The top 10 countries, in general, attain very high scores for mothers' and children's health and educational status. Niger ranked last among the 125 countries surveyed. The 11 bottom-ranked countries – ten from sub-Saharan Africa – are a reverse image of the top 10, performing poorly on all indicators. The United States placed 10th this year, tied with the United Kingdom.

Conditions for mothers and their children in these bottom countries are grim. On average, 1 in 12 mothers dies from pregnancy-related causes. One in 8 children dies before his or her first birthday, and 1 in 9 children suffers from malnutrition.

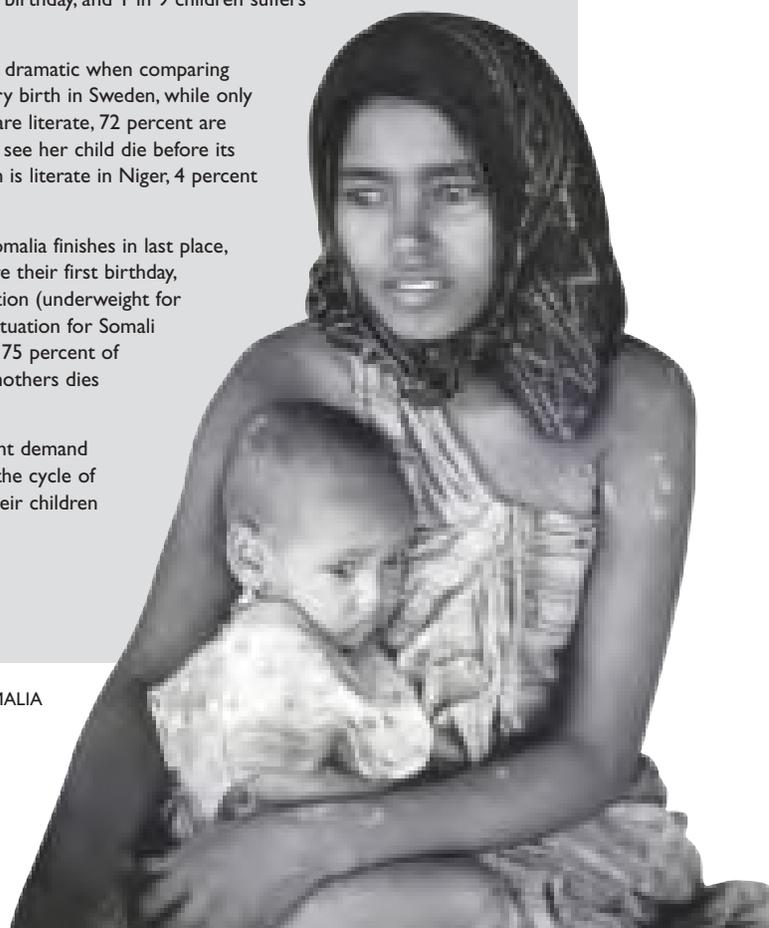
The gap in availability of maternal and child health services is especially dramatic when comparing Sweden and Niger. Skilled health personnel are present at virtually every birth in Sweden, while only 16 percent of births are attended in Niger. Nearly all Swedish women are literate, 72 percent are using some modern method of contraception, and only one in 333 will see her child die before its first birthday. At the opposite end of the spectrum, only 1 in 10 women is literate in Niger, 4 percent are using modern contraception, and 1 child in 7 dies before age 1.

Zeroing in on the children's well-being portion of the *Mothers' Index*, Somalia finishes in last place, behind 166 other countries. There, 133 infants of every 1,000 die before their first birthday, 17 percent of children are suffering from moderate or severe malnutrition (underweight for height) and 71 percent of the population are without safe water. The situation for Somali mothers is equally dismal: 78 percent of pregnant women have anemia, 75 percent of all babies are delivered without trained health personnel, and 1 in 10 mothers dies in childbirth.

The human despair and lost opportunities that these numbers represent demand that mothers everywhere be given the basic tools they need to break the cycle of poverty and improve the quality of their own lives, as well as that of their children and generations to come.

See the Appendix for the *Complete Mothers' Index and Country Rankings*.

SOMALIA



*Newborn Deaths:*

**WHERE AND WHY THE YOUNGEST LIVES ARE MOST AT RISK**



VIETNAM

# Why Newborns Die

World leaders, meeting in 2000 under the auspices of the United Nations, committed to reducing by two-thirds the number of children who die before reaching age 5. This is one of eight Millennium Development Goals to tackle hunger, poverty and disease.<sup>1</sup> In order to meet this “child survival” goal, the world must do more to save the lives of newborn babies – those in their first four weeks of life – who account for 40 percent of deaths among children under age 5.<sup>2</sup>

Newborn mortality is one of the world’s most neglected health problems. While child death rates overall have been reduced by roughly 14 percent over the past decade,<sup>3</sup> mortality rates of children during the first month of life have remained relatively constant at around 30 per thousand births, now resulting in 4 million deaths per year.<sup>4</sup>

This alarming number of newborn deaths – and the human suffering each one represents – is reason enough to focus more attention on newborns. But also important is the fact that healthy newborns are likely to enjoy better health in childhood and later life. Newborns who get off to an unhealthy start are particularly vulnerable to illness and death during their first year. They also may develop disabilities and are generally less likely to reach their full potential, with unfortunate consequences for themselves, their families and society as a whole.

In many countries, the odds are stacked against mothers and their babies when both are most vulnerable. Throughout the developing world, expectant mothers and their newborns run a gauntlet of health risks with little or no support or health care. Many of them do not survive the ordeal.

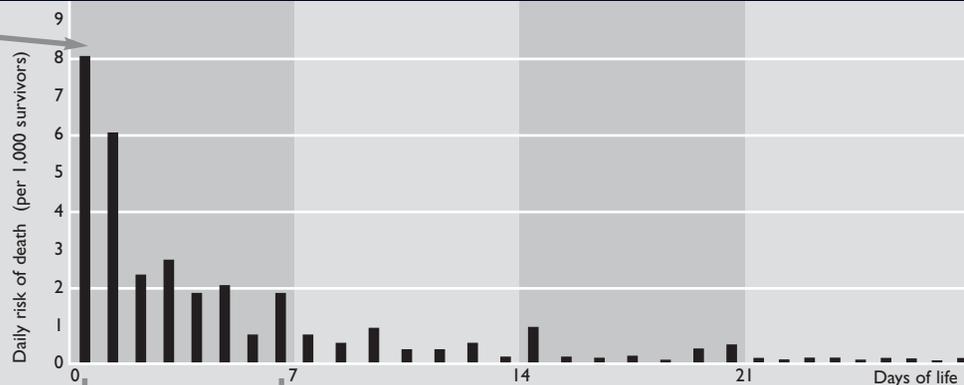
The timing of newborn deaths is especially disturbing. Research shows that the first days and hours of a baby’s life are most critical. More than 7 million infants die each year between birth and 12 months of age. Nearly 60



BANGLADESH

## In the First Month of Life, the First Day and Week are Most Risky

Up to **50 percent** of newborn deaths are in the first **24 hours** – 2 million deaths per year

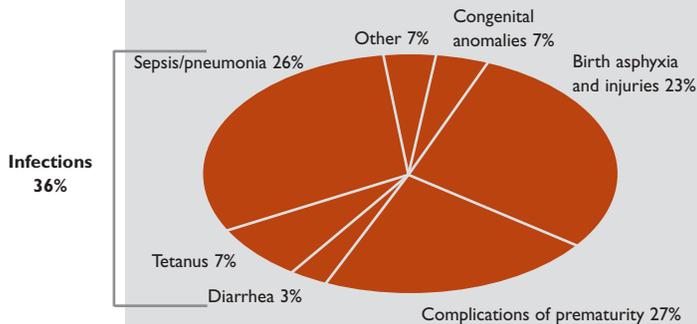


A child’s risk of dying on the first day of life is about 500 times greater than their risk of dying when they are one month old. The first hours and days of a baby’s life are critical.

**75 percent** of newborn deaths are in the first **week** – 3 million deaths per year

Source: ORC Macro, 2006. MEASURE DHS STATcompiler. <http://www.measuredhs.com>, April 6, 2006. Based on analysis of 38 DHS datasets (2000 to 2004) with 9,022 neonatal deaths. Analysis J Lawn.

## Causes of Newborn Deaths



Estimated distribution of direct causes of 4 million newborn deaths for the year 2000 based on vital registration data for 45 countries and modeled estimates for 147 countries.

Source: J. Lawn, S. Cousens and J. Zupan "4 Million Neonatal Deaths: When? Where? Why?" *Lancet* 2005; 365: 891-900.

percent of these deaths – an estimated 4 million – occur in the first month of life. Among those who die in the first month of life, more than three-quarters (3 million) die in their first week. Among those who die within the first week, half die in the first 24 hours of life (up to 2 million).<sup>5</sup>

What causes so many newborns in developing countries to die each year? Problems that are virtually unheard of today in wealthier countries – easily preventable or treatable conditions such as tetanus, infections, diarrhea or poor care during childbirth.

According to the most recent estimates, infections account for 36 percent of newborn deaths (tetanus, sepsis, pneumonia and diarrhea). Complications from prematurity explain a further 27 percent, and complications from birth asphyxia cause another 23 percent.<sup>6</sup> An important secondary factor in 60 to 80 percent of all newborn deaths is low birthweight (a weight of less than 2,500 grams – or 5 pounds, 8 ounces – at birth).<sup>7</sup>

In addition to inadequate care of the baby, another major cause of newborn deaths in developing countries is the poor health of mothers, especially during pregnancy, delivery and the early postpartum period. Many pregnant women are inadequately nourished, overworked and may still be recovering from a previous pregnancy. For many mothers, health care during this critical period – particularly during and immediately after birth – is virtually nonexistent. It is estimated that each year 60 million women in developing countries give birth at home with no professional health care whatsoever,<sup>8</sup> and about 529,000 women die in childbirth or from complications of pregnancy.<sup>9</sup>



ETHIOPIA

## Where Newborns Die

At the heart of the newborn survival problem is a stubborn and widening gap between the health of the world's rich and poor. Virtually all (99 percent) of newborn deaths occur in developing countries.<sup>10</sup>

A mother in sub-Saharan Africa, for example, is 30 times as likely as a mother in an industrialized country to lose her newborn in the first month of life.<sup>11</sup> One in five mothers in sub-Saharan Africa has lost at least one newborn baby – a commonplace but largely untold tale of grief.

The newborn mortality rate (44 per 1,000 live births) is highest in Africa, and highest of all in western Africa. Southeast Asia has a lower newborn death rate (38 per 1,000), but because of that region's higher population density, it accounts for 36 percent of the world's newborn deaths. India alone accounts for more than a quarter of the world's newborn deaths.<sup>12</sup>

Especially high newborn mortality rates are seen in countries with recent wars or civil unrest, such as Afghanistan, Angola, Iraq, Liberia and Sierra Leone.

Babies born to poor mothers in rural areas face great challenges to survival. They are often born at home, without any contact with the health system. The mother might be aided at delivery by a neighbor or family member or by no one at all. In Africa, for example, less than 40 percent of women deliver with a skilled attendant. This figure is even lower in South Asia.<sup>13</sup> In some communities, such as certain rural areas of India, a woman gives birth in the filthiest area of the hut, the newborn is placed on the dirt floor immediately after birth, and breastfeeding is discouraged for several days. The mother and her newborn are often left in isolation for up to two weeks for the purpose of fending off evil spirits. This is just one example of cultural practices that are harmful to newborns.

An analysis of 50 developing countries found that babies born to mothers in the poorest fifth of a population were almost 30 percent more likely to die compared to those in the richest fifth. The same analysis found that babies born to mothers in rural areas were 21 percent more likely to die compared to those in urban areas.<sup>14</sup>

Disparities *within* some countries are especially dramatic. For example, in India, babies born to the poorest mothers die at a rate that is 56 percent higher than babies born to the richest mothers. And in Bolivia, the newborn mortality rate is 70 percent higher among the poor.<sup>15</sup>

In Bolivia, Niger, Peru and Vietnam, babies born in rural areas die at a rate that is more than 50 percent higher than those born in urban areas.<sup>16</sup>



BOLIVIA

## Most Newborn and Maternal Deaths Occur in Just 10 Countries



More than two-thirds of all newborn deaths (2.7 million out of 4 million each year) occur in just 10 countries. Many of these countries have very large populations (such as India and China) and others have very high percentages of newborns dying

(such as Afghanistan, Congo and Tanzania). These are places where mothers are also at high risk of death during pregnancy or childbirth – more than 60 percent of maternal deaths occur in these same 10 countries.

### Countries With the Highest Numbers of Newborn Deaths Also Have High Rates of Maternal Death

Country	Ranking for number of newborn deaths	Number of newborn deaths	Ranking for number of maternal deaths	Number of maternal deaths
India	1	1,098,000	1	136,000
China	2	416,000	9*	11,000
Pakistan	3	298,000	3	26,000
Nigeria	4	247,000	2	37,000
Bangladesh	5	153,000	8	16,000
Ethiopia	6	147,000	4	24,000
Democratic Republic of the Congo	7	116,000	4	24,000
Indonesia	8	82,000	12**	10,000
Afghanistan	9	63,000	7	20,000
United Republic of Tanzania	10	62,000	6	21,000
		<b>2,682,000 newborn deaths</b> Approximately 66 percent of global total	<b>325,000 maternal deaths</b> Approximately 61 percent of global total	

\*Tied with Angola and Kenya (not shown).  
\*\*Tied with Uganda (not shown).

Source: Newborn deaths: Joy Lawn, et al. "4 Million Neonatal Deaths: When? Where? Why?" *The Lancet*; Maternal deaths: World Health Organization, United Nations Children's Fund and United Nations Population Fund, *Maternal Mortality in 2000: Estimates Developed by WHO, UNICEF and UNFPA* (WHO: Geneva: 2004).

## Newborn Mortality Rates in the Developing World

Rank (out of 78 countries)	Country	Newborn deaths (per 1,000 live births)	Rank (out of 78 countries)	Country	Newborn deaths (per 1,000 live births)
1	Colombia	12	39	Haiti	37
1	Vietnam	12	39	Mozambique	37
3	Mexico	14	39	Swaziland	37
4	Brazil	16	39	Zambia	37
4	Jordan	16	44	Benin	38
4	Kazakhstan	16	45	Cambodia	39
4	Nicaragua	16	45	Chad	39
4	Peru	16	45	Djibouti	39
9	Philippines	17	45	Lesotho	39
10	China	20	45	Nepal	39
10	Egypt	20	45	Timor-Leste	39
10	Guatemala	20	45	Togo	39
10	Indonesia	20	52	Equatorial Guinea	40
14	Guyana	21	52	Myanmar	40
15	Dominican Republic	22	52	Rwanda	40
15	Turkey	22	55	Bangladesh	41
17	Eritrea	24	55	Burundi	41
17	South Africa	24	55	Niger	41
19	Tajikistan	25	58	Malawi	42
20	Bolivia	27	59	Ghana	43
20	Morocco	27	59	India	43
22	Kyrgyzstan	28	59	Lao People's Democratic Republic	43
23	Azerbaijan	29	62	Guinea	44
23	Cameroon	29	62	Mauritania	44
23	Comoros	29	64	Gambia	46
26	Senegal	30	65	Central African Republic	48
26	Zimbabwe	30	65	Congo, Democratic Republic of the	48
28	Burkina Faso	31	65	Guinea-Bissau	48
28	Congo	31	68	Nigeria	49
28	Gabon	31	68	Somalia	49
28	Namibia	31	70	Ethiopia	52
32	Madagascar	32	71	Angola	54
32	Tanzania, United Republic of	32	72	Mali	57
32	Uganda	32	73	Côte d'Ivoire	58
35	Kenya	33	73	Pakistan	58
35	Sudan	33	75	Iraq	59
37	Papua New Guinea	34	75	Sierra Leone	59
38	Yemen	35	77	Afghanistan	60
39	Bhutan	37	78	Liberia	65

Data sources: Newborn deaths: WHO, Draft Neonatal and Perinatal Death Estimates as of January 2005 (unpublished data), supplemental data for 25 countries from ORC Macro/DHS 2000-2005: Bangladesh (2004), Benin (2001), Bolivia (2003), Burkina Faso (2003), Cameroon (2004), Chad (2004), Colombia (2005), Dominican Republic (2002), Eritrea (2002), Ghana (2003), Indonesia (2002-3), Jordan (2002), Kenya (2003), Madagascar (2003-4), Mali (2001), Mauritania (2000-1), Morocco (2003-4), Mozambique (2003), Nepal (2001), Nicaragua (2001), Nigeria (2003), Philippines (2003), Tanzania (2004), Vietnam (2002), Zambia (2001-2). Data from 0 to 4 years preceding survey. MEASURE DHS STATcompiler. <http://www.measuredhs.com>. [Accessed April 4 2006.]

Countries in red are middle-income. Countries in white are low-income. Countries are classified as low- or middle-income based on World Bank classification (2004 gross national income per capita, Atlas method). Low-income is \$825 or less, middle-income is \$826-\$10,065.

# The Costs to Society of Newborn Death and Disease

While newborn survival and health are clearly goals for individuals and families, they are also important for the well-being of society as a whole.

One recent study on the role of health in socioeconomic development looked specifically at diseases during the perinatal period – from the time a fetus is at least 22 weeks through the first week after birth. It noted the lifetime consequences that ensue when mothers do not get adequate nutrition and newborns start life with impaired growth in the womb. These babies are likely to be underweight and to suffer problems ranging from increased risk of death to developmental disabilities, such as poor attention span, to a much higher burden of disease throughout life.<sup>17</sup>

The long-term consequences are enormous. Early disease impedes a child's physical and cognitive development, which in turn reduces adult economic productivity and contributes to many other problems. Children with poor health and reduced learning capacity are more likely to drop out of school, earn lower wages and have difficulty as adults in attaining an adequate standard of living for themselves and their families.<sup>18</sup>

Many conditions that contribute to newborn death also cause severe disabilities. For example, for every newborn who dies of asphyxia, which occurs when the newborn receives an inadequate supply of oxygen immediately before, during or after delivery, another suffers lifelong impairments such as epilepsy, cerebral palsy or developmental delay.<sup>19</sup> The costs associated with such disabilities tax health systems, while caring for sick or disabled children strains families.

The economic costs of such health problems are difficult to measure since newborn deaths often go unreported. However, it is still possible to illustrate how poor newborn health and high infant mortality affect a country's development. Analysts have used computer modeling to project that roughly 100,000 newborns in Senegal alone will develop disabilities resulting from asphyxia and iodine deficiencies between 2001 and 2007.<sup>20</sup> These disabilities will reduce the children's potential lifetime economic contributions by at least \$121 million (in present value), or \$1,210 per newborn. This is a significant loss in a country where the annual income per capita is \$1,720.<sup>21</sup>

Another consequence of poor newborn health and newborn death rates is demographic. Poor families often compensate for children's deaths by having a large number of children. They then have less money to invest in each surviving child's education and health. Thus, the intergenerational cycle of poverty is perpetuated.<sup>22</sup> Historically, women have tended to use modern contraception and to have smaller, healthier families when infant mortality begins to decline and they can be more confident their children will survive. Interventions to reduce newborn and infant mortality can therefore help reduce the number of pregnancies a woman will have, thereby reducing maternal deaths.<sup>23</sup>



ANGOLA

# The Vital Link Between Mothers and Newborns

To a considerable extent, the well-being of a newborn depends on the health and well-being of the mother. When mothers are malnourished, sickly or receive inadequate prenatal or delivery care, their babies face a higher risk of disease and premature death. And where mothers are not educated and where girls marry and begin having babies at very young ages, the risks multiply.

The past century has witnessed a revolution in health care, yet millions of women still endure the risks of pregnancy and childbirth under conditions virtually unchanged over time. Maternal complications take a serious toll on women in the developing world. Tragically, millions of stillbirths and newborn deaths result from preventable or treatable causes, which mostly occur during or immediately after birth.

While there have been significant declines in infant and child mortality in the developing world in recent decades, there has been little progress in reducing death rates for mothers and newborns. And in developing countries, a mother's death in childbirth means almost certain death for her newly born infant.

Newborn death rates are thus highest in the regions where maternal death rates are highest. For example, in sub-Saharan Africa, a woman's risk of dying from maternal causes over her lifetime is 1 in 16,<sup>24</sup> and 1 in every 5 women in sub-Saharan Africa will lose a newborn during her lifetime.<sup>25</sup> In South Asia, 1 in 42 women dies from maternal causes,<sup>26</sup> and 1 in every 7 women loses a newborn.<sup>27</sup> Sub-Saharan Africa and South Asia also have the world's highest rates of stillbirths (32 per 1,000 deliveries). These two regions together account for almost 70 percent of the world's 3.2 million stillbirths each year.<sup>28</sup>

## Selected Newborn and Maternal Indicators by Region

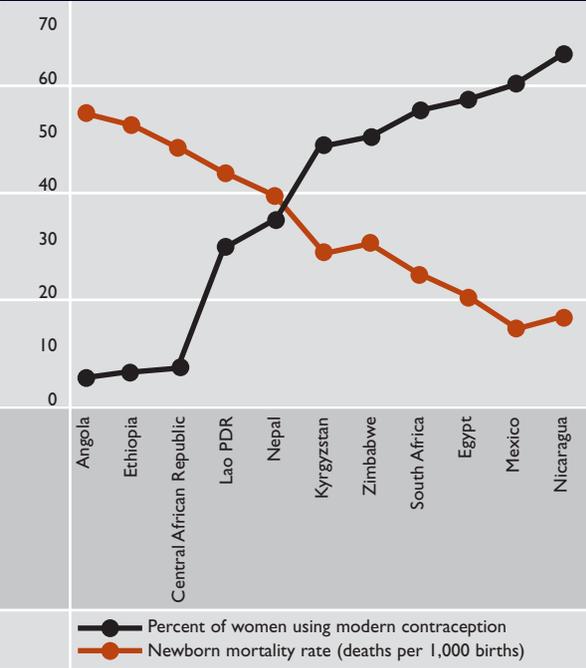
Region	Estimated number of live births per year (thousands)	Newborn mortality rate (per 1,000 live births)	Number of newborn deaths (thousands)	Total fertility rate	Lifetime risk of a mother experiencing a newborn death (1 in number stated) calculated <sup>a</sup>
Africa	25,890	44	1,128	5.4	4
Americas	15,668	12	195	2.4	35
Eastern Mediterranean	15,539	40	603	3.8	7
Europe	9,857	11	116	1.6	57
Southeast Asia	37,901	38	1,443	2.9	9
Western Pacific	26,506	19	512	1.8	29
Overall	131,362	30	3,998	2.7	12

<sup>a</sup>The lifetime risk of a mother experiencing a newborn death is calculated by multiplying the neonatal mortality rate by the total fertility rate. This is a simplification of complex statistical interactions between fertility and neonatal deaths, but is used to illustrate the dramatic differences by sub-region.

Very few countries in the developing world have a reliable system for registering births and deaths. While surveys by governments and international agencies attempt to estimate the size of the problem, there are many sources of potential error, such as under-reporting of newborn deaths and stillborns, and inaccuracies in fixing the time of the deaths (that is, classifying newborn deaths as stillbirths). Other problems include the reluctance of the mother to talk about infant deaths for cultural reasons and the fact that populations surveyed are often in easy-to-reach, relatively advantaged areas, thus introducing questions of sample bias and a tendency to underestimate the problem.

Sources: Table adapted from *Save the Children's State of the World's Newborns 2001*. Estimated number of live births per year: World Health Organization (WHO) *State of the World's Vaccines and Immunization (2003 rev)*; Newborn mortality rate and number of newborn deaths: Joy Lawn, et al. "4 Million Neonatal Deaths: When? Where? Why?" *The Lancet*; Total fertility rate: WHO regions – WHO World Health Statistics 2005, Overall data – PRB 2005 World Fact Sheet. Regional classifications are based on WHO categories. Southeast Asia includes countries of South Asia except for Afghanistan and Pakistan, which are included in the Eastern Mediterranean region.

## Where More Women Use Family Planning, Fewer Newborns Die



Sources: Newborn mortality rate: WHO, Draft Neonatal and Perinatal Death Estimates as of January 2005 (unpublished data), additional data from ORC Macro DHS Surveys (2000-2005); Percent of women using modern contraception: UNFPA, State of World Population 2005.

### Birth Spacing and Newborn Survival

A newborn's health is affected to a great extent by the timing and frequency of the mother's pregnancies. Women who give birth when they are too young or too old, or who have babies spaced too closely together,

place themselves and their newborns at increased risk of complications.

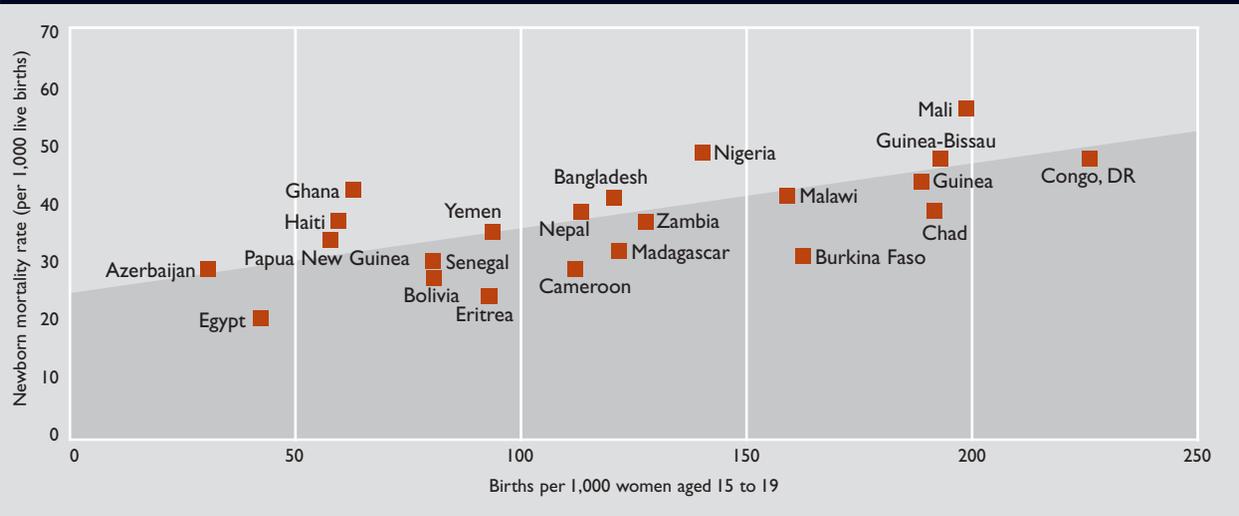
Research clearly shows the association between newborn and infant mortality and birth intervals. For example, a child who is born less than two years after the next oldest sibling is 2.2 times more likely to die than a newborn who arrives after three years.<sup>29</sup> In addition, women who have borne many children are at a higher risk of maternal mortality, and their newborns are at increased risk of death as well.

Effective use of family planning methods can contribute to improved maternal and newborn health by helping women to space their births at intervals that are healthy for them and their babies.

### Complications of Childbirth

Complications of childbirth also have a significant impact on newborns. Almost 25 percent of newborn deaths are the result of problems occurring during delivery.<sup>30</sup> Asphyxia, for example, occurs when a newborn receives an inadequate supply of oxygen immediately before, during or just after delivery. It is often caused by obstructed labor, a complication that also causes

## Where Women Give Birth Too Young, Newborn Lives are at Risk



Sources: Newborn mortality rate: WHO, Draft Neonatal and Perinatal Death Estimates as of January 2005 (unpublished data), additional data from ORC Macro DHS Surveys (2000-2005); Births per 1,000 women aged 15 to 19: UNFPA, State of World Population 2005. Trendline based on data for 78 countries.

8 percent of maternal deaths and many uncounted stillbirths. An estimated 4 million to 5 million newborns suffer from birth asphyxia and more than 1 million die from it each year.<sup>31</sup>

Obstructed labor and asphyxia may go unrecognized and untreated because only about half of deliveries in less-developed countries take place with the assistance of skilled health personnel who can detect, treat or ensure referral care for complications that develop during labor or for an asphyxiated newborn. Mothers and families can also be empowered through health education and birth preparedness to recognize danger signs (in both the mother and newborn) and seek professional help. But this type of health education is often unavailable in the poor, remote areas where so many mothers and newborns die.

Child marriage exacerbates this problem. In developing countries, many girls marry and begin having children when their bodies are not physically mature enough to deliver a baby without complications. Girls in their teens are twice as likely to die from pregnancy and childbirth-related causes compared with older women, and their babies face a risk of dying before age 1 that is 50 percent higher than babies born to women in their 20s.<sup>32</sup>

Fistula – perhaps the most devastating of pregnancy-related disabilities – most often occurs in the poorest countries where child marriage is common and trained doctors and well-equipped hospitals are scarce. Fistula occurs as a result of obstructed labor that is not dealt with in a timely and appropriate manner. The prolonged pressure of the baby's head against a young mother's pelvis cuts off blood supply to the soft tissue surrounding the bladder, rectum and vagina, which can then rot away leaving a hole (fistula) that impairs control of the bladder or bowels. The condition causes great pain, both physical and emotional, and victims are often shunned by their family and community.

## Infections

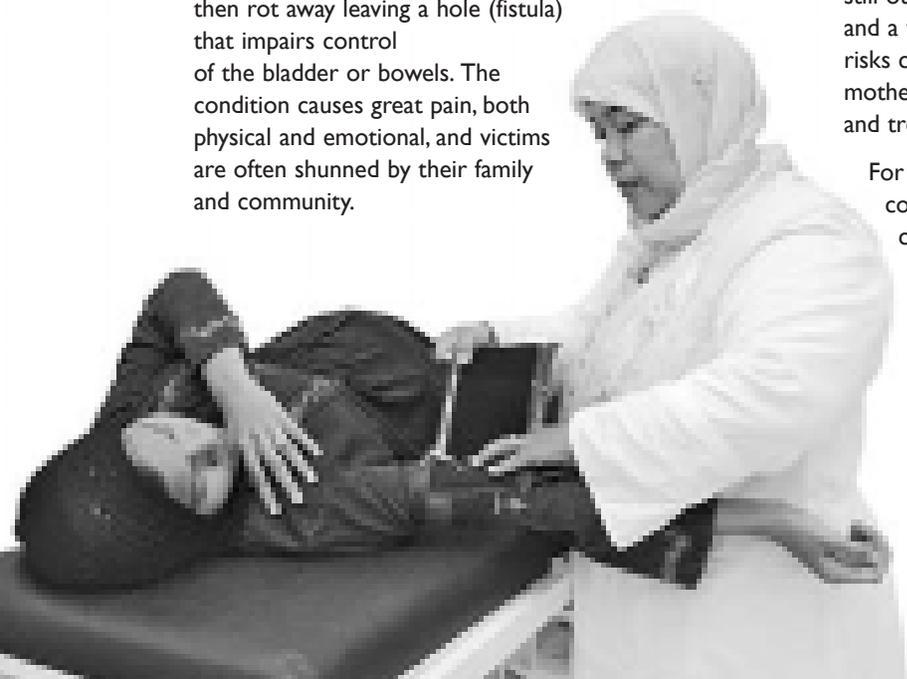
Many stillbirths and newborn deaths from infection could be prevented by better health care for mothers before and during pregnancy, and during and immediately after childbirth.

Hygienic practices such as clean delivery, cutting the umbilical cord with a clean blade, proper cord care, along with early and exclusive breastfeeding, can prevent most of the infections that kill newborns. Birth preparedness – including educating mothers and families to recognize danger signs and plan for emergency transport – can ensure proper treatment and management of complications when they do occur.

Tetanus is another easily preventable illness that can lead to death for both a mother and her baby. Infants are at increased risk of contracting the disease when their umbilical cords are cut with unclean instruments or treated with unhygienic traditional applications such as cow dung. Neonatal tetanus kills more than 200,000 infants each year.<sup>33</sup> Mothers get tetanus from injuries suffered during unclean deliveries. It is estimated that tetanus is responsible for at least 5 percent of maternal deaths, approximately 30,000 per year.<sup>34</sup>

Mothers may pass sexually transmitted infections to their newborns during pregnancy, delivery or breastfeeding. More than one-third of mothers who are infected with HIV and go untreated pass the virus on to their infants during the perinatal period (between 22 weeks of pregnancy and the first week of life). Mother-to-child transmission of HIV resulted in nearly half a million child deaths in 1999 alone.<sup>35</sup> Other sexually transmitted infections can lead to infant blindness, and still others are associated with stillbirth, low birthweight and a variety of other complications after birth.<sup>36</sup> These risks can be greatly reduced through prevention of mother-to-child transmission of HIV, syphilis screening and treatment and other preventive measures.

For example, a pregnant woman in a developing country who is HIV-positive has a 20 to 45 percent chance of transmitting the virus to her baby during pregnancy, delivery or subsequent breastfeeding. This risk can be reduced by about 50 percent through a short course of antiretroviral drugs,





NEPAL

underweight adults. Very short women are more likely to have obstructed labor, which is dangerous for both their own health and the health of their newborns. And thus the cycle continues.

Micronutrient deficiencies also influence the health of the mother and her newborn. For example, iron deficiency (anemia) afflicts about half of all pregnant

and by an even greater percentage if the mother receives longer-term antiretroviral therapy.<sup>37</sup>

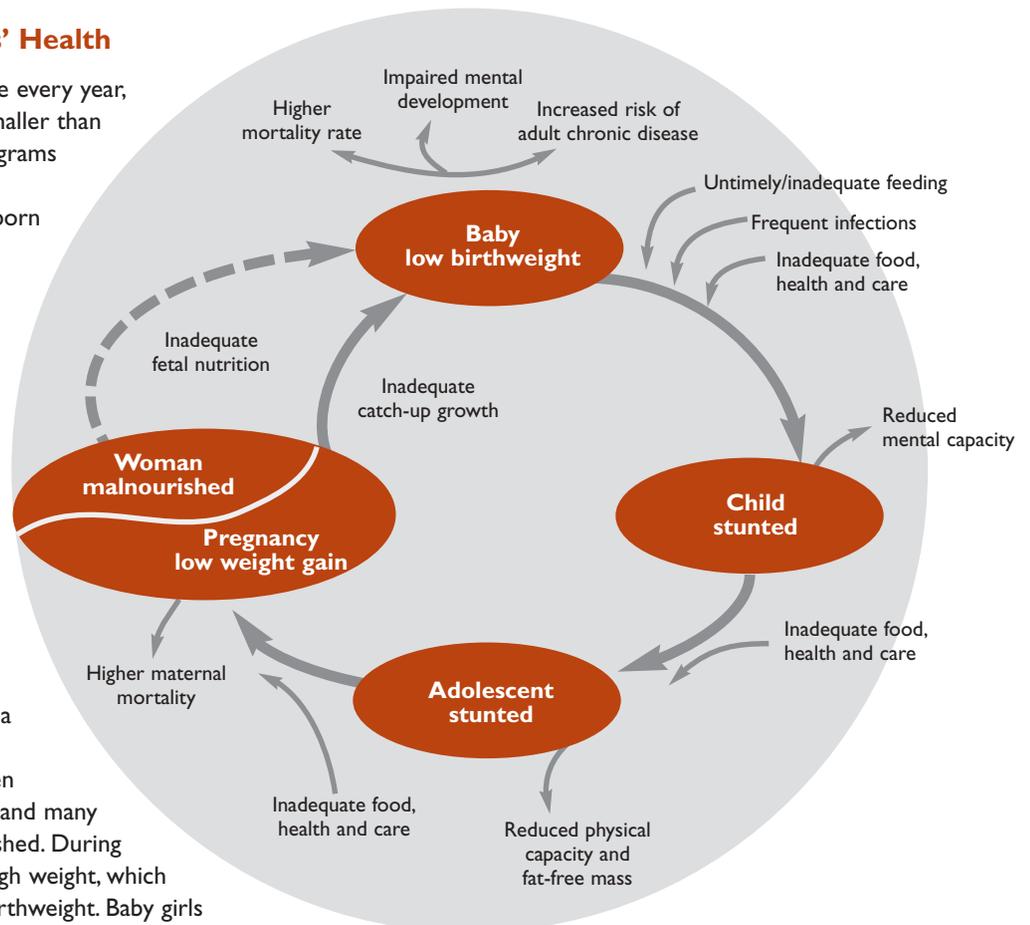
In countries where malaria is endemic, women are more likely to have it during pregnancy than at any other time. Infected women are more apt to have low-birthweight infants, a major risk factor for newborn death. Malaria can cause up to 30 percent of preventable low birthweight and as much as 5 percent of newborn deaths.<sup>38</sup> Malaria is also associated with miscarriages and stillbirths, and women who develop severe anemia from malaria are at increased risk of maternal death.<sup>39</sup> In addition, pregnant mothers who have malaria and are HIV-positive are more likely to pass HIV on to their unborn child.<sup>40</sup> Treatment for malaria in endemic areas, administered during the prenatal period, can reduce the incidence of prematurity and low birthweight by 40 percent.<sup>41</sup>

### Small Babies and Mothers' Health

Of the 4 million newborns who die every year, between 60 and 80 percent are smaller than normal and weigh less than 2,500 grams (5 pounds, 8 ounces) at birth.<sup>42</sup> Worldwide, 18 million babies are born with low birthweight each year.<sup>43</sup> Most of these babies are born too early – before the full nine months of pregnancy – and are called pre-term. Some are full term, but they are small because of poor growth in the mother's womb, which may have been caused by infections such as malaria, untreated high blood pressure or poor nutrition.

The causes of undernourishment in girls and women are complex and often rooted in social or cultural beliefs that put females at a disadvantage when competing for scarce resources. Malnutrition often follows an intergenerational cycle, and many women enter pregnancy malnourished. During pregnancy, they may not gain enough weight, which puts their babies at risk for low birthweight. Baby girls born underweight often grow up to be short,

### Poor Nutrition Throughout the Life Cycle



Source: Adapted from the United Nations ACC/SCN-appointed Commission on the Nutrition Challenges of the 21st Century.



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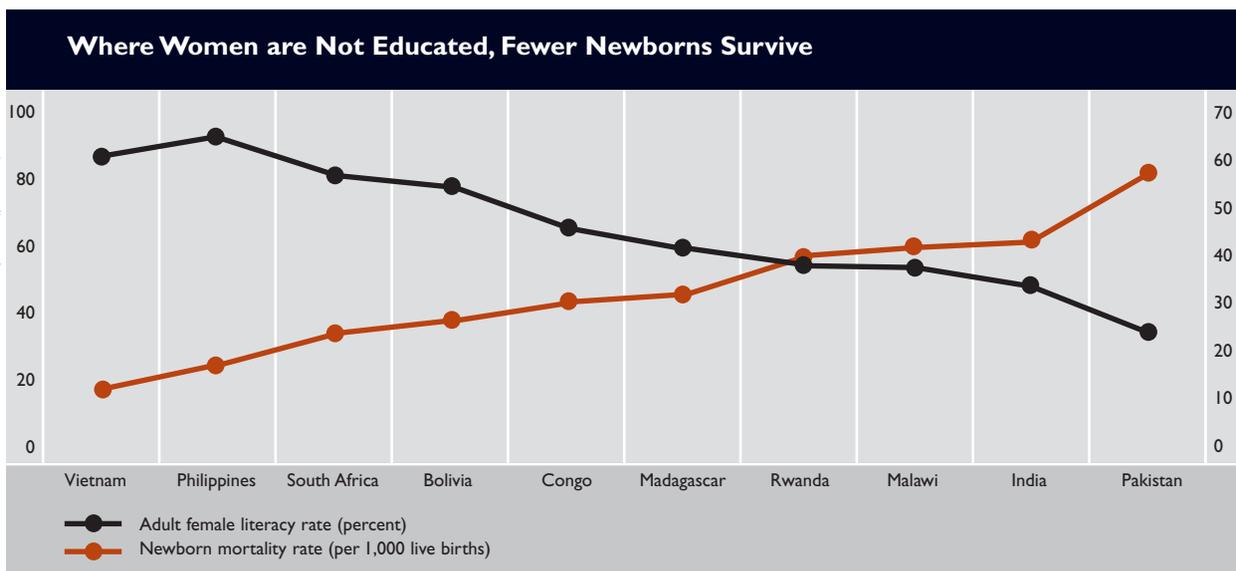
women in developing countries.<sup>44</sup> Mothers with severe anemia are at increased risk of death during childbirth and stillbirth, and their infants are at increased risk of low birthweight, prematurity, cognitive impairments and newborn death.<sup>45</sup>

### Impact of Education

Uneducated mothers are at a severe disadvantage, as are their babies. Mothers who missed out on schooling are more likely to be poor, to get pregnant younger and more often, to have higher rates of newborn and maternal mortality, to be less knowledgeable about family planning and HIV prevention, and to be less prepared to look after the health and well-being of their babies.<sup>46</sup>

Mothers with less education are less likely to receive skilled medical care during pregnancy and childbirth. In Egypt, for example, only 33 percent of women with no education receive any prenatal care, and only 17 percent receive regular prenatal care, while 75 percent of women with secondary or higher education receive prenatal care and 60 percent receive regular care.<sup>47</sup> And in Nigeria, only 15 percent of births among uneducated women are assisted by trained medical personnel, compared to 56 percent, 74 percent and 88 percent of births among women with primary, secondary and higher education, respectively.<sup>48</sup>

Babies born to mothers with little or no education are at greater risk during birth, during the vulnerable early days, and throughout their lives. According to data from 35 recent demographic and health surveys, children of mothers with no education are more than twice as likely to die or to be malnourished than children of mothers who have secondary education or higher, even when controlling for other factors.<sup>49</sup>



Sources: Newborn mortality rate: WHO, *Draft Neonatal and Perinatal Death Estimates as of January 2005* (unpublished data), additional data from ORC Macro DHS Surveys(2000-2005); Female literacy: UNDP, *Human Development Report 2005*.

## Poverty Does Not Have to Be a Death Sentence for Mothers and Newborns

While mothers and babies in the developing world are less likely to receive adequate care during pregnancy, delivery and in the critical days after childbirth, poverty alone does not explain high death rates for mothers and newborns. A number of relatively poor countries are doing an admirable job of tackling this problem, while other countries with greater resources are not doing so well.

Political will and effective strategies have a lot to do with success in saving newborn lives. This is demonstrated by an analysis of newborn mortality rates and gross domestic product (GDP) in 78 developing countries. This analysis uses gross domestic product adjusted for “purchasing power parity” (ppp) to account for differences in the prices of goods and services in the countries and to more accurately compare standards of living.

Many poor countries are making great strides in newborn survival despite limited financial resources, although much remains to be done:

- **Indonesia** – with a GDP per capita of \$3,361 and a newborn mortality rate of 20 per 1,000 – has made a commitment to improving health care for mothers and babies. The majority (92 percent) of pregnant women in Indonesia receive prenatal care, 84 percent are vaccinated against tetanus, and 72 percent of births are attended by skilled personnel.<sup>50</sup> In spite of these positive numbers, the situation remains precarious in many places, particularly underserved rural areas where almost 50 percent of women give birth without skilled attendants and 70 percent have no postnatal care during the six weeks following delivery.<sup>51</sup> To help reduce these rates the president signed a declaration titled “Healthy Indonesia 2010” that includes efforts to enhance the quality, affordability and equity of health services.<sup>52</sup> The Indonesian government is playing an active role in improving maternal and newborn health by embarking on a national newborn health strategy for 2005-2010.<sup>53</sup>
- **Vietnam**, with a per capita GDP of \$2,490 and a newborn mortality rate of 12 per 1,000 – has a strong record of providing services that are critical to newborn health and survival. Most pregnant women (86 percent) in Vietnam receive prenatal care, 90 percent are vaccinated to prevent tetanus and 85 percent of births are attended by skilled personnel.<sup>54</sup> Women in Vietnam tend to stay in school longer and begin having babies later in life, two factors associated with reduced risk of fatal complications during childbirth. More than half

(57 percent) use modern contraception.

(For more about Vietnam, see pages 26 and 30.)

- **Eritrea** has a GDP of only \$849 per person and a comparatively low newborn mortality rate of 24 per 1,000 live births. Effective immunization programs have reduced the incidence of tetanus among mothers and babies,<sup>55</sup> and 70 percent of Eritrean women receive prenatal care.<sup>56</sup> Still, 72 percent of Eritrean women give birth at home with no skilled personnel to help them. Lack of adequate coverage for high-risk pregnancies, compounded by poor nutritional status, account for a high maternal mortality rate (1 in 24 Eritrean women dies in pregnancy or childbirth). Only 46 percent of Eritrean women are literate and only 5 percent use modern contraception. Eritrean women have five children on average.



INDONESIA

### A Success Story in the Making?

Provisional data from a new survey indicate that Malawi – one of the world's poorest countries – has recently achieved a significant decline in newborn mortality. Malawi's Demographic and Health Survey for 2004, scheduled to be published in the near future, estimates that the newborn mortality rate for 2000-2004 was 27 per 1,000 live births,<sup>57</sup> down from a 2000 estimate of 42 per 1,000, and a 1995-1999 estimate of 49 per 1,000.<sup>58</sup>

What could account for this progress?

Malawi – with a GDP per capita of only \$605 – has taken a number of steps in recent years to make the health of mothers and children a top priority. Government reforms have helped direct more resources toward basic health care and opened doors for international organizations to launch health programs. In 2004, a total of 9.8 percent of Malawi's GDP was allocated toward the health sector (this includes 4 percent public and 5.8 percent private investment).<sup>59</sup>

Malawi has also embarked on the ambitious goal of providing free primary school education for all children. Investments in education have been shown to reduce fertility rates among girls, which improves the survival prospects for mothers and babies.

- Other countries that are performing well in newborn survival relative to their GDP include **Nicaragua**, **Philippines** and **Tajikistan**. In these countries, approximately 70 to 90 percent of pregnant women receive prenatal care, and 60 to 70 percent of births are attended by skilled personnel.<sup>60</sup> In addition, 77 to 99 percent of adult women are literate, and use of modern contraception varies from a high of 66 percent in Nicaragua to a low of 27 percent in Tajikistan. Nicaragua and Tajikistan are doing especially well in combating tetanus, an easily preventable illness that kills hundreds of thousands of infants and mothers each year. And the Philippines recently enacted the Newborn Screening Act of 2004 which aims to ensure that every newborn has access to screening for serious health conditions.<sup>61</sup> In addition, the Philippines' Safe Motherhood Initiative has put forward policies and plans to improve maternal and newborn survival and organized a first National Safe Motherhood Congress to promote this agenda.<sup>62</sup>

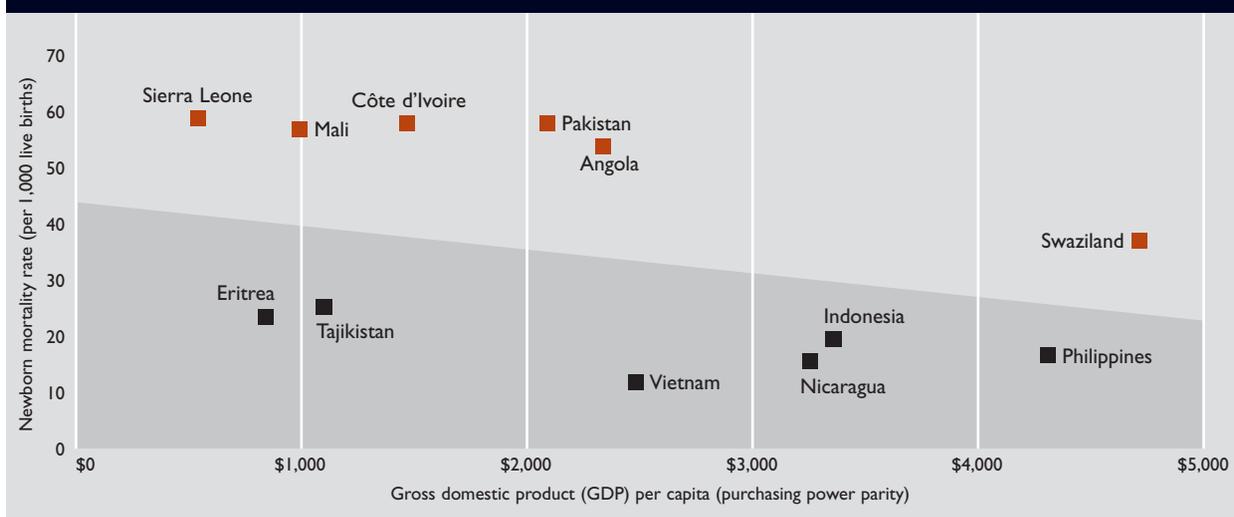
A number of countries are not doing as well as one might expect, when considering what other countries have done with limited resources:

- **Angola** has a GDP per capita (\$2,344) similar to Vietnam's. However, its newborn mortality rate is over four times higher (54 per 1,000) and its maternal mortality rate is nearly 39 times higher. One in 7 Angolan women dies in pregnancy or childbirth

compared to 1 in 270 Vietnamese women. To a large extent, Angola's grim statistics are a legacy of more than a quarter century of civil war. Some 60 to 70 percent of the population has no access to health care, and many who do have access must walk long distances to the nearest clinic or hospital.<sup>63</sup> Pregnant women often go without basic prenatal care and do demanding physical work right up until childbirth. More than half of all births (55 percent) take place with no medical staff present, so complications that need not prove fatal often result in death. Angolan women have seven children on average, and an estimated 70 percent give birth to their first child while they are still teenagers. Family planning information is scarce, and medical practitioners say women who are willing to try contraception and birth spacing are discouraged from doing so by family and societal pressure.<sup>64</sup> Only 5 percent of Angolan women use modern contraception. *(For more about Angola, see page 33.)*

- **Côte d'Ivoire's** high newborn mortality rate (58 per 1,000) can also be attributed in large part to political instability and lack of access to health care. Since 2002, Côte d'Ivoire has suffered armed conflict and population displacement. Many health centers have been forced to cut services as key staff have fled and medical supplies have become scarce.<sup>65</sup> As a result, a third of births in Côte d'Ivoire are not attended by skilled personnel, 1 in 25 women dies in pregnancy or childbirth and only 7 percent use modern contraception to space their births at healthy intervals.
- **Mali's** newborn mortality rate (57 per 1,000) is also alarmingly high when compared to other countries with equal or even less national wealth. For example, Eritrea's GDP (\$849) is lower than Mali's (\$994), yet the newborn survival rate in Eritrea is more than double that of Mali's. In Mali, more than half of all births (59 percent) take place with no medical staff present, 1 in 10 women dies in pregnancy or childbirth, and 58 percent of pregnant women have anemia. Only 6 percent of women use modern contraception – one of the lowest contraceptive prevalence rates in sub-Saharan Africa. The problem is especially dire in rural areas where the rate is as low as 3 percent.<sup>66</sup> Early motherhood is also a major risk factor for young women and their newborns in Mali. Each year, 1 in 5 young women between the ages

## Countries Falling Above and Below Expectations Based on GDP



Sources: Newborn mortality rate: WHO, Draft Neonatal and Perinatal Death Estimates as of January 2005 (unpublished data), additional data from ORC Macro DHS Surveys (2000-2005); GDP (ppp) per capita: UNDP, Human Development Report 2005. Trendline based on data for 59 countries.

of 15 and 19 gives birth. Boys in Mali are 1.5 times as likely to be enrolled in school as girls, and the male literacy rate is more than two times that of females – although literacy for men and women is very low, at 26.7 percent and 11.9 percent, respectively.<sup>67</sup> With little access to education or contraception to help delay and space births, fertility in Mali is high, with the average woman having nearly seven children.<sup>68</sup>

- Other countries that could be doing better on newborn survival if more of their GDP were directed to social services include **Pakistan** and **Sierra Leone**. In these countries, conditions for mothers and newborns are dire: The majority of childbirths are not attended by skilled personnel and the risks of death for mother and baby are high. Moreover, women tend to have five or more children on average and start having babies in their teens.<sup>69</sup> Most women in these countries are not literate, and their use of modern contraception ranges from 4 percent in Sierra Leone to 20 percent in Pakistan. In Pakistan and Sierra Leone, less than two-thirds of women are vaccinated for tetanus.<sup>70</sup>



MALI

*Saving the Lives of Mothers and Babies:*  
**LOW-COST SOLUTIONS THAT WORK**



VIETNAM

The survival and health of mothers and babies go hand-in-hand. Save the Children has developed recommendations to improve the survival rates, health and well-being of both based on practices that have succeeded in a wide range of countries. These interventions extend from pregnancy through childbirth, the neonatal period and beyond.

These solutions can work even in very poor countries. For example, Botswana, Honduras, Indonesia and Sri Lanka all reduced newborn mortality by around half during the 1990s, despite low per capita gross national products.<sup>71</sup> A key feature of their success was sustained political commitment at the highest levels of government, which resulted in good quality care for mothers and newborns.

Family- and community-based solutions, as well as improved referral care for complications, are critical to progress in poor countries where the majority of mothers deliver babies at home without the help of a



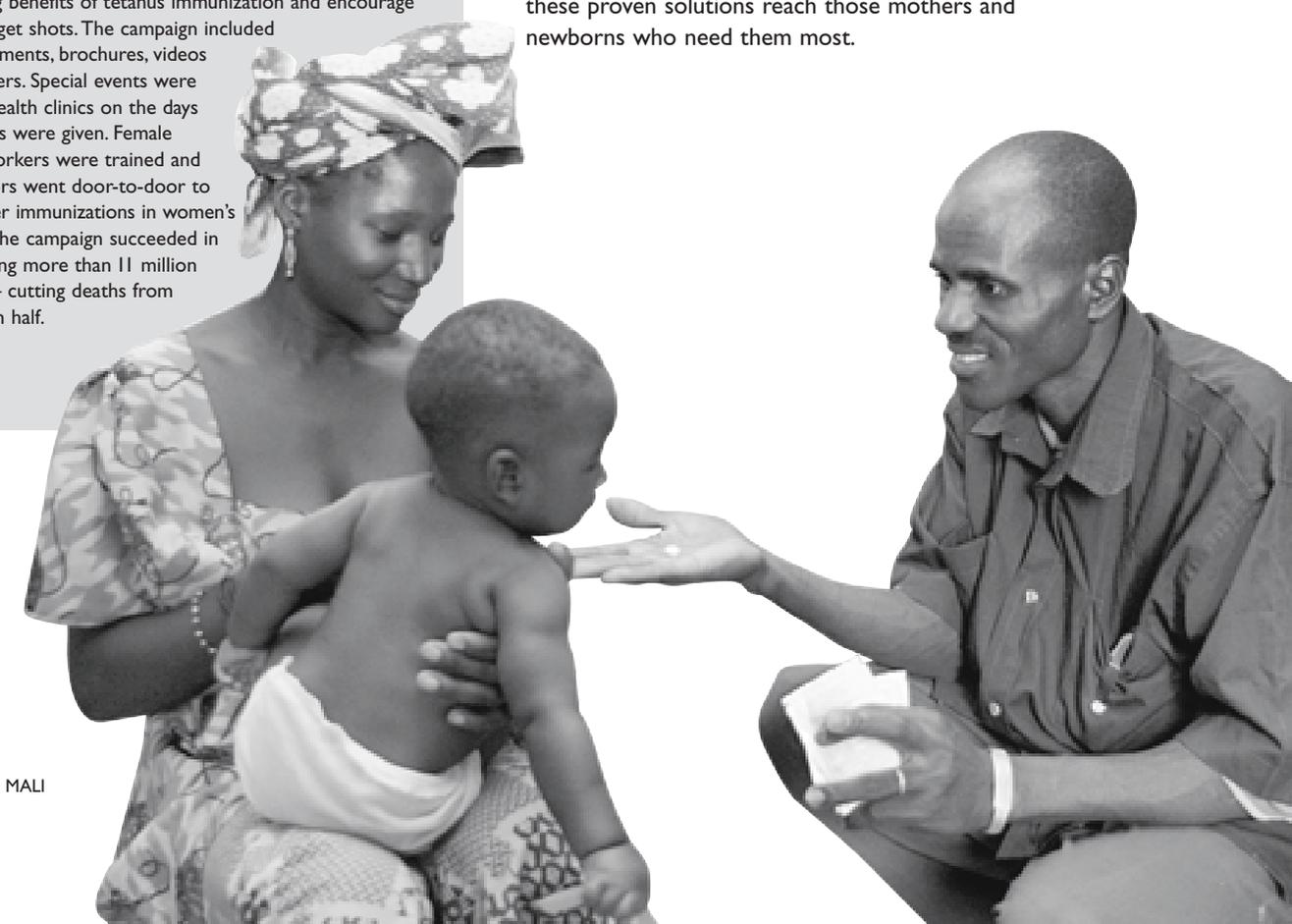
AFGHANISTAN

Pakistan

**A Shot in the Arm to Save Lives**

In Pakistan, before 2003, some 28,000 newborns died each year from tetanus, an infection caused by unsafe but common practices such as using a dirty blade to cut the umbilical cord. These deaths can be prevented by ensuring that every pregnant woman receives two shots of tetanus toxoid, or that all women of childbearing age receive three shots over a two-year period. In 2001, Save the Children launched a public awareness campaign in partnership with the government and others to educate women about the life-saving benefits of tetanus immunization and encourage them to get shots. The campaign included advertisements, brochures, videos and posters. Special events were held at health clinics on the days that shots were given. Female health workers were trained and vaccinators went door-to-door to administer immunizations in women's homes. The campaign succeeded in immunizing more than 11 million women – cutting deaths from tetanus in half.

skilled health professional. Peer counselors, women's groups and local organizations have been highly effective in promoting positive change that saves lives and prevents needless disabilities. What is required is increased commitment and resources – from global policy-makers and national decision-makers – to ensure these proven solutions reach those mothers and newborns who need them most.



MALI

# Continuum of Care for Mothers and Newborns

Research consistently shows that cost-effective services to improve women's overall health and nutrition, to make childbirth safer, and to help mothers care for themselves and their babies will save a significant number of newborn lives.

## Care of Future Mothers

The three interventions that are most effective in preventing high-risk pregnancies – thus saving the lives of mothers and babies – are female education, nutrition and family planning.

- **Female education** – One of the most effective ways to reduce risks to mothers and newborns is to ensure that more girls enroll and stay in school. The more time girls spend in school, the later they marry and begin childbearing. Educated girls also are more likely to grow up to be mothers who are healthy, well-nourished, economically empowered and resourceful when it comes to caring for themselves and their babies. Educated women tend to have fewer children, healthier pregnancies and safer deliveries. Their babies are more likely to survive childbirth, the vulnerable first hours and days of life, and the critical first five years.<sup>72</sup> Sadly, 58 million girls in the developing world are not attending school.<sup>73</sup>
- **Nutrition** – The role of good nutrition in improving survival rates for mothers and newborns extends beyond the time that a woman is pregnant. Small girls

grow into small women, who develop into underweight mothers who have undernourished babies. Promoting adequate nutrition and counseling women to gain enough weight during pregnancy are important. But equally important is promoting a healthy and varied diet through an adequate supply of food that improves the nutrition of girls and women throughout life. Some countries have addressed widespread micronutrient malnutrition by fortifying foods (such as putting iodine in salt); others are providing iron and folic acid supplements and, where appropriate, vitamin A and zinc. Still, an estimated 450 million adult women in developing countries are stunted as a result of malnutrition during childhood,<sup>74</sup> and 40 percent of women in the developing world suffer from iron deficiency anemia, a major cause of maternal mortality and low-birthweight infants.<sup>75</sup>

- **Family planning** – Effective use of family planning methods can help save the lives of mothers and babies by enabling women to avoid pregnancy when they are too young or too old, and to space their births at intervals that are healthy for them and their babies. Unfortunately, more than 100 million women in developing countries who do not want to become pregnant are not using contraception, and 1 in 5 pregnancies is unplanned.<sup>76</sup>



EL SALVADOR

## Nepal

### Education and Family Planning Change Lives in Nepal

Bhagirathi, a 20-year-old from Nepal, had to drop out of school because she was married at age 18. She had only a ninth-grade education, but she went to classes sponsored by Save the Children where she learned how to take care of her family's health. "I learned about the importance of cleanliness, nutrition and family planning," she said. "I have one son who is 10 months old. When I was pregnant, I went to the hospital for a check-up every month. Now I am using contraceptives because I need a two-year gap before my next baby. My husband and I want only one more child, either a son or a daughter." Bhagirathi says she is "very satisfied" with her present situation. "I feel proud of myself. Unlike some of my friends, I have discovered I am smart, capable and knowledgeable. My mother married at an early age and had nine children. Only six are still alive. If my mother had had an opportunity to study, she never would have had an early marriage and given birth to nine children. Her life would have been entirely different, like mine."



AFGHANISTAN

### Low-Cost Solutions During Pregnancy, Childbirth and the First Weeks of Life

Improving the health of mothers and newborns is largely a matter of applying sound health-care practices at the appropriate milestones in a newborn's development: that is, during pregnancy, at birth and after birth, through the first 28 days.

A major barrier to progress on newborn survival has been the erroneous perception that only expensive, high-level technology and specialized, hospital-based care can save newborn lives. The truth is that low-cost interventions could reduce newborn deaths by up to 70 percent if provided universally.<sup>77</sup>

### Bolivia

#### Traditional Beliefs and Clean Delivery

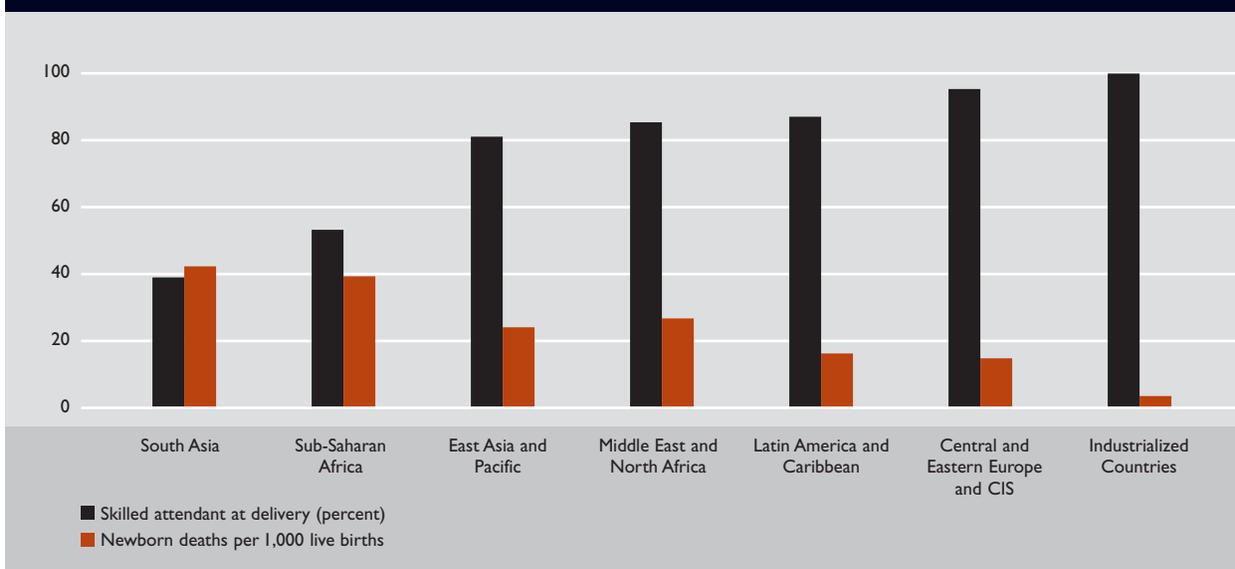
In parts of Bolivia, umbilical cords are cut with a sharp stone or piece of clay pot because people believe using a knife or blade will cause the baby to grow up to be a thief. Save the Children has worked to educate families to sterilize stones by boiling them, and to sterilize a special piece of ceremonial clay pot that is made during pregnancy and broken at the time of birth. Both approaches respect tradition and prevent infection.

### Prenatal Care

Caring for newborn babies starts with caring for pregnant mothers, ensuring that they are adequately nourished, free from infections and exposure to harmful substances, and monitored for complications during pregnancy. Immunization against tetanus should be part of all prenatal care packages. For babies born at home, good prenatal care also includes counseling to encourage a clean birth and a plan for going to a skilled attendant, teaching awareness of danger signs and the importance of immediate and exclusive breastfeeding.

- **Tetanus toxoid vaccination** – Immunizing women of reproductive age with the tetanus toxoid vaccine protects both mothers and newborns. Tetanus toxoid is

### Skilled Care at Delivery and Newborn Mortality by Region



Sources: Skilled attendant at delivery: UNICEF, *State of the World's Children 2006*. Data are from 1996-2004 most recent year available. Newborn mortality rate: WHO, *Draft Neonatal and Perinatal Death Estimates as of January 2005 (unpublished data)*, additional data from ORC Macro DHS Surveys (2000-2005), WHO *World Health Report 2005*, and Save the Children, *State of the World's Newborns 2001*. Geographic categories are based on UNICEF regions.

one of the safest, most effective and least expensive vaccines available. It can prevent tetanus infection in mothers during childbirth, and it passes immunity on to the fetus. Tetanus kills about 215,000 infants and 30,000 mothers each year.<sup>78</sup> These deaths can be prevented by ensuring that every pregnant woman receives two doses of tetanus toxoid during pregnancy, or that all women of childbearing age receive three shots over a two-year period. Two doses of tetanus toxoid cost only about 40 cents.

- **Treatment to fight infections** – Infections during pregnancy are a major cause of complications such as miscarriage, premature rupture of the amniotic sac, pre-term birth and congenital infection and anomalies. Prevention of infection should be part of prenatal care. Testing and treatment for sexually transmitted infections such as syphilis and gonorrhea are simple and inexpensive, with significant payoffs for newborns. The risk that an HIV-positive woman will transmit the virus to her baby can be reduced by about 50 percent through antiretroviral drugs. And in areas where malaria is endemic, treatment for the disease, administered during pregnancy, can reduce the incidence of prematurity and low birthweight by 40 percent.<sup>79</sup>

### Skilled Care During Childbirth

Skilled birth attendants are people with midwifery skills (for example, doctors, nurses and midwives) who have been trained to manage normal deliveries and to diagnose and manage or refer complicated cases. They provide for a clean delivery, ensure the newborn is dried and kept warm, recognize and immediately resuscitate asphyxiated babies, and identify other danger signs in both mother and baby to avoid delay in seeking additional care when needed. Skilled care providers may practice in a health facility or a household setting, but they need a functioning referral system for the management of complications. In settings where skilled providers are not yet available, births should be attended by alternative health workers who are trained to provide clean deliveries and refer complications.



ETHIOPIA

### Postnatal Care

Since so many deaths occur in the first hours and days after birth, early postnatal care is key to improving newborn health and survival. The early postnatal period is a highly vulnerable time for mothers as well – 61 percent of maternal deaths occur in the first six weeks after birth, and nearly half those deaths occur in the first day after delivery.<sup>80</sup> Postnatal care providers can offer counseling on newborn care practices, help ensure immediate and exclusive breastfeeding, and recognize health problems (such as infections) among mothers and newborns that require immediate attention. Postnatal

#### Vietnam

##### Promoting Breastfeeding in Vietnam

In Vietnam, most mothers breastfeed their infants, but the common practice of also feeding babies sugar water has contributed to high newborn mortality rates. In rural areas, women often return to strenuous work in the rice fields within days after giving birth, so it is especially difficult for mothers to follow recommendations regarding breastfeeding. Save the Children launched an effort in 2003 to persuade mothers to breastfeed their newborns exclusively for six months and to continue breastfeeding for two years. Ho Thi Nger, a 35-year-old farm laborer, is one mother who took the advice. She breastfed her newborn from day one, including the colostrum (first milk, rich in nutrients and the mother's antibodies). This is contrary to local custom, which disdains colostrum in favor of "nice milk," the later milk that is whiter in color. Ho Thi Nger says that three years ago, after her previous child's birth, she discarded her first milk, waited two days to breastfeed the baby, and gave him additional food after just two months. "Before, we didn't know how to care for our children," she said. "Now, with this information, they are very healthy."

### Kangaroo Care in South Asia

In India, some newborn babies are given to older female relatives and fed tea for the first three days of life. And in rural Nepal, premature babies often die because newborns are normally scrubbed with cold water and soap and left on a cold floor to dry. Save the Children teaches mothers to gently wipe babies clean, wait three days before the first bath, keep babies cuddled next to the skin and consistently breastfeed. These practices – called “skin to skin” or “kangaroo mother care” – have helped reduce death rates for premature infants by 50 percent in parts of India.

care costs about half the amount of skilled care during childbirth and has the potential to save 20 to 40 percent of newborn lives. But to date, postnatal care for mothers and newborns has received relatively little emphasis in public health programs, with only a tiny minority of mothers and babies in high-mortality settings receiving postnatal care in the first hours, days and weeks.

- **Breastfeeding** – Immediate breastfeeding is one of the most effective interventions for newborn survival. It provides nutrients, warmth and stronger immunity for the baby. It also promotes bonding and helps a mother’s uterus contract to reduce blood loss. One of the most important services that can be provided to a mother is preparation for and support during breastfeeding. The World Health Organization recommends that newborn babies should be put to the breast within one hour after birth, that they should not go without breastfeeding longer than three hours, and that exclusive breastfeeding should continue for six months.<sup>81</sup> With the right intervention, breastfeeding behaviors can be changed quickly and dramatically. One effort in Africa that enlisted families and communities to become

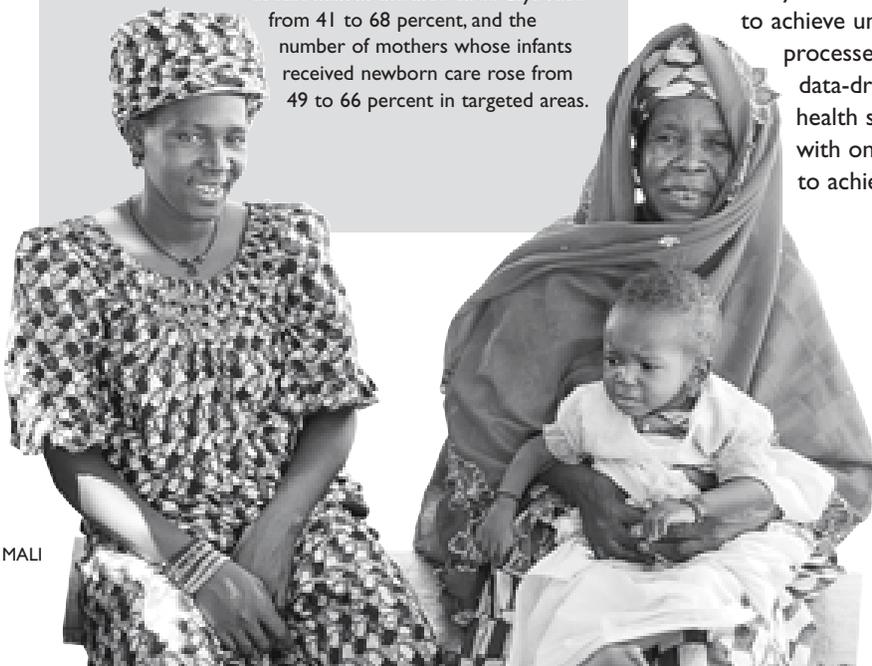
breastfeeding advocates documented impressive results: Within six to nine months, the program doubled early initiation of breastfeeding in Madagascar and Ghana. The program also increased rates in Bolivia and India.<sup>82</sup>

- **Kangaroo mother care** – “Kangaroo mother care” is a simple, effective way for mothers to help underweight babies survive the first critical days of life. Pre-term and low-birthweight babies need special care, particularly with regard to warmth and feeding. Through this approach, mothers are taught how to keep their newborns warm through continuous skin-to-skin contact. This encourages the mother and baby to bond emotionally and enables the baby to breastfeed at will, giving the baby the energy to produce its own body heat. In many cases, kangaroo care reduces the need for incubators, which are prohibitively expensive in developing countries. In a recent study in Ethiopia, the survival rate for the pre-term low-birthweight babies who received kangaroo care was significantly higher (78 percent) than for those who received conventional care (62 percent).<sup>83</sup>

There is no “one-size-fits-all” solution. Conditions vary significantly among and even within countries. The number and causes of newborn deaths, the capacity of the health system, and the obstacles faced all differ, as do the degree of support from policy-makers and the availability of resources. To scale up newborn care to achieve universal coverage, two interlinked processes are required: a systematic data-driven decision-making process on health services and clear national policies with ongoing commitment – including funding – to achieve established goals.

### Grandmothers as Agents of Change

In Mali, some families hide pregnancies for as long as possible to protect the baby from evil spirits. Mothers are taught to avoid eating eggs, red meat, milk and grains during pregnancy. And breastfeeding is often delayed for up to 24 hours after birth while the mother is cleaned and allowed to rest. Save the Children and Helen Keller International put together a program to successfully engage grandmothers – who are highly respected and influential in family matters in Mali – to encourage simple changes to protect the health of the mother and baby. These include better nutrition, preventing and treating infections, keeping newborns warm and dry and immediately breastfeeding. As a result, the number of mothers who gave nothing but breast milk in the first three days rose from 41 to 68 percent, and the number of mothers whose infants received newborn care rose from 49 to 66 percent in targeted areas.



# The Price Tag

Experts have calculated the cost of reaching all mothers and babies with a recommended package of low-cost, low-tech newborn and maternal health interventions in the 75 countries with the highest maternal and child mortality rates. They estimate it would cost \$4.1 billion per year, on top of current spending of \$2 billion.<sup>84</sup>



ARMENIA

Focusing specifically on the costs and benefits of different packages of life-saving interventions, a recent study concluded that:

- Providing a comprehensive package of proven interventions to nearly all women and babies in sub-Saharan Africa would cost \$1 billion per year and save up to 740,000 newborn lives. Providing the same interventions in South Asia would cost \$1.2 billion and save up to 1.13 million newborns.<sup>85</sup>
- Simple family and community care practices such as breastfeeding, hygiene and warmth for the baby could save up to 1 million newborn lives globally at an annual cost of only \$600 million.<sup>86</sup>

Investing in saving the lives of newborns with this same maternal and newborn care package also will help reduce the 529,000 maternal deaths and 3 million stillbirths estimated to occur each year, and provide a foundation for better infant and child health, leading to a more promising future for families, communities and society as a whole.

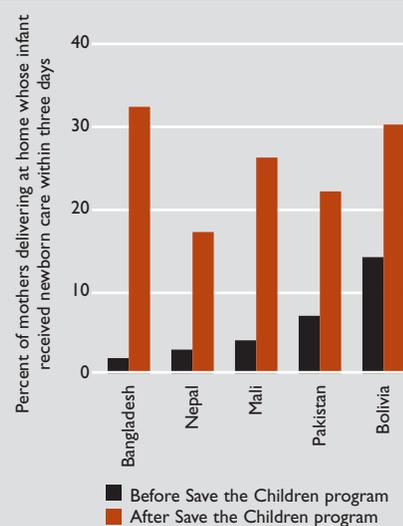
## Progress in Early Newborn Care

The vast majority of newborn and maternal deaths occur in the first hours and days after birth, yet only a tiny minority receive care during this highly vulnerable period.

Save the Children tackled this problem in several countries through its *Saving Newborn Lives* program. It launched public awareness campaigns to create demand for health services, trained trainers and birth attendants to improve care at delivery and educated pregnant women and families about essential newborn care and when to seek help if complications arise.

In a relatively short period of time – about 18 months – there was a significant impact on the number of babies born at home who received postnatal care in program areas in Bangladesh, Bolivia, Mali, Nepal and Pakistan.

## Increasing Postnatal Care



Source: Save the Children/Saving Newborn Lives, unpublished data.

*Newborn Scorecard:*

**MEASURING COUNTRIES' INVESTMENTS IN SAVING  
NEWBORN LIVES**



PAKISTAN

## Building Blocks of Newborn Survival

Save the Children introduces a first-ever *Newborn Scorecard* ranking 78 developing countries according to their newborn mortality rates and comparing the performance of countries on indicators that improve the survival prospects for mothers and newborns. None of these countries is wealthy, but the successful ones have invested limited resources in five critical “building blocks” that lay a foundation to save newborn lives:

- **Critical Newborn Services** – Prenatal care for pregnant women, immunization to prevent infection and essential newborn care at home starting with immediate and exclusive breastfeeding, plus timely care of newborn illnesses, especially infections.
- **Good Maternal Health** – Support throughout a woman’s life to ensure her well-being while pregnant and nursing, as well as her ability to deliver safely and care for a healthy newborn.
- **Culturally Appropriate Solutions** – Sensitive approaches and messages that respect traditions and norms while incorporating high standards of care.
- **Effective Use of Health Data** – Systems in place to collect quality data on newborn health and survival and use of these data to inform better policies and programs.
- **Political Will** – Evidence of a country’s sustained financial commitment to basic health services for mothers and babies as well as initiatives to raise public awareness about ways to safeguard newborn and maternal health.

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**Vietnam, Nicaragua, Colombia and Mexico** top the rankings on the *Newborn Scorecard*. These countries are performing far better than other developing countries in saving newborn lives. Nevertheless, each of these countries still has significant room for improvement on critical newborn issues, most notably, sustained public investment and political will. Without an ongoing commitment to newborn and maternal health, gains to date are likely to erode.

- **In Vietnam**, 86 percent of pregnant women receive prenatal care, 91 percent are vaccinated to prevent tetanus and 85 percent of births are attended by skilled personnel. Births among teenagers are relatively rare (19 births per 1,000 women aged 15 to 19). Still, 30,000 newborns die each year in Vietnam.<sup>87</sup> And while breastfeeding is a widely promoted and accepted practice in Vietnam (98 percent of babies are breastfed at some time) one of the most important aspects of breastfeeding – immediate breastfeeding within one hour after birth – is practiced by only 57 percent of mothers.<sup>88</sup>

MALAWI



## *Newborn Survival*

**4 MILLION DEATHS  
AVERTED**

### **Critical Newborn Services:**

Prenatal care for pregnant women, immunization to prevent infection and essential newborn care at home starting with immediate and exclusive breastfeeding.

### **Good Maternal Health:**

Support throughout a woman's life to ensure her well-being while pregnant and nursing, as well as her ability to deliver safely and care for a healthy newborn.

### **Culturally Appropriate Solutions:**

Sensitive approaches and messages that respect traditions and norms while incorporating high standards of care.

### **Effective Use of Health Data:**

Systems in place to collect quality data on newborn health and survival and the use of these data to inform better policies and planning.

### **Political Will:**

Evidence of a country's sustained financial commitment to basic health services for mothers and babies as well as initiatives to raise public awareness about ways to safeguard newborn and maternal health.

The government of Vietnam registers 72 percent of births and collects data on immunizations, low-birthweight infants and the number of births by Caesarean section. However, data are not collected in other key areas, figures are not always reliable and gains have not reached isolated parts of the country.<sup>89</sup> Vietnam has strong government-supported initiatives to raise public awareness about ways to safeguard newborn and maternal health, along with policies and laws to support these services. The Ministry of Health has implemented a National Strategy for Reproductive Health Care (2000), National Standards and Guidelines for Reproductive Health Services (2001), and a National Plan on Safe Motherhood (2003).<sup>90</sup> (For more about Vietnam, see pages 19 and 26.)

- In **Nicaragua**, 86 percent of pregnant women receive prenatal care, 100 percent are vaccinated to prevent tetanus and 67 percent of births are attended by skilled

personnel. The government registers 81 percent of births and collects data on low-birthweight infants and births by Caesarean section. Nicaraguan girls are only slightly less likely to be educated than boys – still, 15 percent of primary-school-aged girls are not attending school. Nicaragua has multiple strategies in place to promote healthy behaviors for mothers and newborns, such as tetanus toxoid immunization, clean delivery, early and exclusive breastfeeding, immediate drying and wrapping of babies after birth and early postnatal care for mothers and their newborns. These strategies are supported by government involvement, legislation and policy.

- In **Colombia**, 91 percent of pregnant women receive prenatal care, and 83 percent have four or more prenatal visits.<sup>91</sup> Skilled personnel attend 86 percent of births. In Colombia, nearly equal numbers of boys and girls are enrolled in school; still, 13 percent of primary-



INDONESIA

school-aged girls are not in school.<sup>92</sup> The government registers 91 percent of births and collects data on low-birthweight infants. In February 2003, Colombia's Department of Public Health of the Ministry of Social Protection adopted a National Policy on Sexual and Reproductive Health that identified safe motherhood, family planning, and adolescent sexual and reproductive health as priority areas.<sup>93</sup> Colombia is also the birthplace of "kangaroo mother care," a technique where low-birthweight babies, unable to regulate their body temperatures, are kept with their mothers as a source of warmth, stimulation and feeding.<sup>94</sup>

- In **Mexico**, 86 percent of pregnant women receive prenatal care, 67 percent are vaccinated to prevent tetanus and 95 percent of births are attended by skilled personnel. Births among teenagers are relatively rare (67 births per 1,000 women aged 15 to 19) and overall rates of education in Mexico are high, with 99 percent of girls and 100 percent of boys attending school. The government collects data on low-birthweight infants, newborns protected against tetanus and births by Caesarean section. Mexican law entitles mothers to six weeks of paid leave before birth and six weeks after. Mexico's National Safe Motherhood Committee – a 30-member alliance made up of eight governmental organizations, nine state committees, six nongovernmental organizations and eight international organizations – is committed to national policy reform to improve reproductive health, prenatal and postnatal

care. October has been declared National Reproductive Health Month in Mexico – activities have included a national stamp created to promote safe motherhood and a national contest to recognize exceptional efforts to prevent maternal deaths.<sup>95</sup>

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**Liberia, Afghanistan, Angola and Iraq** are at the bottom of the *Newborn Scorecard*. In all four countries, armed conflict and harmful cultural practices present barriers to newborn survival. Mothers in these countries have little or no access to basic prenatal and postnatal care. This is especially true for impoverished women and women living in rural or conflict-affected areas. Even when critical services are available, cultural factors often deter women from taking advantage of them.

- **Liberia**, which is emerging from a 14-year civil war, has the highest newborn mortality rate in the world (65.2 per 1,000 live births). Many Liberian girls are forced into marriage and give birth while they are still in their teens. Women in Liberia have an average of seven children, 1 in 16 women dies in pregnancy or childbirth and 78 percent of pregnant women have anemia. While 85 percent of pregnant Liberian women receive prenatal care, only 24 percent are vaccinated to prevent tetanus and about half of all births occur without a skilled birth attendant. Only 35 percent of Liberian mothers breastfeed exclusively during the first six months. About 70 percent of children are attending primary school, and there are 23 percent more boys than girls in school. Rape was used systematically as a weapon of war in Liberia. Although the conflict has ended, violence against women continues. Among the vestiges of war are eroding social values and norms, and a tendency to resort to violence. It is estimated that 2 out of 3 women in Liberia were the victims of sexual violence last year.<sup>96</sup>
- **Afghanistan** has suffered more than 20 years of civil war and foreign invasions. More than four years after the fall of the Taliban, there is still overwhelming poverty, lack of basic services, as well as insecurity, lawlessness and continued violence throughout much of the country. Afghanistan has the second highest newborn mortality

rate in the world (60 per 1,000 births). In that country, only 16 percent of pregnant women receive prenatal care, 40 percent are vaccinated to prevent tetanus and 14 percent of births are attended by skilled personnel. One in six Afghan women dies in pregnancy or childbirth. Prejudice and violence against women are firmly rooted in the culture, especially in rural areas, where it is common for families to force girls into marriage against their will, and many women live in fear of assault, rape or “honor killing” by male family members. There is little reliable data on education in Afghanistan, but prohibitions against girls’ education under the Taliban were well-known and widely reported. More girls are going to school today in Afghanistan, but the country still has a long way to go, especially in rural areas. While the situation for mothers and babies in Afghanistan is bleak, there are some movements in a positive direction: for example, there is a large-scale effort underway to train midwives.<sup>97</sup>

- In **Angola**, women have seven children on average and an estimated 70 percent give birth to their first child while they are still teenagers. It is common for Angolan women to work in the fields or ply their trades right up until delivery. There is also a strong belief in traditional medicine and having babies alone or with family members present, which discourages the use of skilled attendants and seeking professional care.<sup>98</sup> Fifty-five percent of births occur with no skilled birth attendant present and 1 of every 7 Angolan women dies in pregnancy or childbirth. Only 11 percent of Angolan mothers breastfeed exclusively during the first six months. Education levels are low overall in Angola (less than 62 percent of children attend school), and there are 14 percent more boys being educated than girls. The government registers only 29 percent of births. (For more about Angola, see page 20.)
- In **Iraq**, years of conflict and international sanctions have damaged the health system and taken a serious toll on the well-being of mothers and babies. Maternal mortality has more than doubled, rising from 117 deaths per 100,000 live births in the late 1980s to the current 250.

Infant and child mortality have also risen sharply. The current war has disrupted food distribution and damaged electrical, water and sewage systems, creating even more difficult conditions. In Iraq, 77 percent of pregnant women receive prenatal care and 72 percent of births are attended by skilled personnel. Only 12 percent of mothers breastfeed exclusively during the first six months. Nearly all boys (98 percent) attend primary school in Iraq, but only 83 percent of girls go to school.



LIBERIA

# Newborn Scorecard

The *Newborn Scorecard* groups countries into low-income and middle-income categories, as defined by the World Bank. It ranks 53 low-income countries and 25 middle-income countries. See tables for rankings and analysis of top five and bottom five countries in each category.



VIETNAM

## Top Five/Bottom Five Low-Income Countries (out of 53 countries, as classified by the World Bank)

Rank (by newborn mortality rate)	Scorecard rank	Country	Newborn mortality rate	Critical newborn services	Good maternal health	Culturally appropriate solutions	Effective use of health data	Political will
1	•	Vietnam	12	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
2	•	Nicaragua	16	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
3	•	Eritrea	24	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
4	•	Tajikistan	25	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
5	•	Kyrgyzstan	28	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
49	•	Côte d'Ivoire	58	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
49	•	Pakistan	58	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
51	•	Sierra Leone	59	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
52	•	Afghanistan	60	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
53	•	Liberia	65	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●

## Top Five/Bottom Five Middle-Income Countries (out of 25 countries, as classified by the World Bank)

Rank (by newborn mortality rate)	Scorecard rank	Country	Newborn mortality rate	Critical newborn services	Good maternal health	Culturally appropriate solutions	Effective use of health data	Political will
1	•	Colombia	12	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
2	•	Mexico	14	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
3	•	Brazil	16	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
3	•	Jordan	16	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
3	•	Kazakhstan	16	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
21	•	Swaziland	37	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
22	•	Djibouti	39	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
23	•	Equatorial Guinea	40	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
24	•	Angola	54	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
25	•	Iraq	59	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●

- Data not available or insufficient information. See *Newborn Scorecard Legend* on opposite page for descriptions of all indicators.

For each of the five building blocks, the *Newborn Scorecard* uses three indicators to analyze the countries' commitment and capacity to improve survival rates and health status of mothers and newborns. These 15 indicators measure the availability of health-care services, the influence of cultural factors, the strength of data collection systems and the financial investments made by each government in public health.<sup>99</sup>

Taken together, these indicators paint a vivid picture of the numerous factors that influence newborn and maternal health. Successful strategies to save newborn lives must work on many levels to prevent risks, promote health and target solutions to the mothers and babies who need help most.

### Newborn Scorecard Legend

	Critical newborn services*	Good maternal health*	Culturally appropriate solutions	Effective use of health data	Political will
<b>Indicator 1</b>	Prenatal care coverage (percent)	Skilled attendant at delivery (percent)	Delaying motherhood (as measured by births per 1,000 15 to 19 year olds, per year)	Percent of live births registered	Percent of public budget spent on primary health care
Key	<ul style="list-style-type: none"> <li>● 16-43 percent</li> <li>● 44-73 percent</li> <li>● 74-100 percent</li> </ul>	<ul style="list-style-type: none"> <li>● 6-36 percent</li> <li>● 37-68 percent</li> <li>● 69-100 percent</li> </ul>	<ul style="list-style-type: none"> <li>● 173-258 births</li> <li>● 87-172 births</li> <li>● 2-86 births</li> </ul>	<ul style="list-style-type: none"> <li>● 4-35 percent</li> <li>● 36-67 percent</li> <li>● 68-100 percent</li> </ul>	<ul style="list-style-type: none"> <li>● 0-8 percent</li> <li>● 9-17 percent</li> <li>● 18-26 percent</li> </ul>
<b>Indicator 2</b>	Pregnant women immunized with two or more doses of tetanus toxoid (percent)	Prevalence of anemia among pregnant women (percent)	Mitigation of harmful cultural practices (including: risky umbilical cord care, female genital mutilation/cutting, unsanitary customs and traditional beliefs that interfere with good newborn care)	Data collection around the following key neonatal issues: low birthweight, immunizations and births by Caesarean section	Change in public health investment over three years
Key	<ul style="list-style-type: none"> <li>● 17-44 percent</li> <li>● 45-72 percent</li> <li>● 73-100 percent</li> </ul>	<ul style="list-style-type: none"> <li>● 53-78 percent</li> <li>● 28-52 percent</li> <li>● 3-27 percent</li> </ul>	<ul style="list-style-type: none"> <li>● Prevalence of at least one harmful practice</li> <li>● Evidence of harmful practices, but practiced on a limited scale</li> <li>● Evidence clearly demonstrates no harmful practices or effective measures are in place to mitigate any that do exist</li> </ul>	<ul style="list-style-type: none"> <li>● No data available or available for only one indicator</li> <li>● Data available for 2 of the relevant indicators</li> <li>● Data available for the 3 indicators</li> </ul>	<ul style="list-style-type: none"> <li>● Decrease</li> <li>● No change or volatile</li> <li>● Increase</li> </ul>
<b>Indicator 3</b>	Percent of children who are exclusively breastfed (for six months)	Maternal mortality ratio (deaths per 100,000 births) adjusted	Women's status as measured by girls' (net) primary school enrollment as percentage of boys'	Use of information systems to plan strategies, programs and interventions	Behavior change communication and social marketing – communications campaigns to promote healthy behaviors such as tetanus toxoid immunization, clean delivery, early and exclusive breastfeeding, immediate drying and wrapping and early postnatal care
Key	<ul style="list-style-type: none"> <li>● 1-28 percent</li> <li>● 29-55 percent</li> <li>● 57-84 percent</li> </ul>	<ul style="list-style-type: none"> <li>● 1,334-2,000 deaths</li> <li>● 667-1,333 deaths</li> <li>● 0-666 deaths</li> </ul>	<ul style="list-style-type: none"> <li>● 68-82 percent</li> <li>● 83-96 percent</li> <li>● 97-111 percent</li> </ul>	<ul style="list-style-type: none"> <li>● No evidence of information systems in place</li> <li>● Systems in place but either too weak to provide planning support or no strong evidence of systems being used to their full potential</li> <li>● Strong systems in place that guide strategies, programs and interventions</li> </ul>	<ul style="list-style-type: none"> <li>● No evidence of government commitment</li> <li>● Evidence of government involvement in multiple strategies surrounding newborn and maternal health</li> <li>● Multiple strategies supported by government involvement, legislation and policy</li> </ul>
<p>* Postnatal care for newborns and mothers is an essential component of newborn health and survival that, unfortunately, cannot be included in the <i>Newborn Scorecard</i> due to the lack of comprehensive and comparable data. See pages 26-28 for more about postnatal care.</p>					

## Progress in Reducing Newborn Mortality

In order to meet the fourth Millennium Development Goal – to reduce mortality in children under age 5 by two-thirds between 1990 and 2015 – the international community must make better progress in reducing newborn mortality, which accounts for 40 percent of all deaths in children under age 5.

During the past decade, some regions of the world have made progress in reducing newborn mortality rates; however the inequity between rich and poor continues to increase, with lower newborn mortality rates and faster reductions in richer countries:

- There has been no measurable fall in the regional average newborn mortality rate for sub-Saharan Africa where the highest rates of newborn mortality occur.<sup>100</sup>
- The Americas achieved a 40 percent reduction in the newborn mortality rate largely because of progress in Latin America, where six countries have achieved reductions of 50 percent or more.<sup>101</sup>
- In the western Pacific region, the largest percentage reductions have been recorded in Japan, South Korea and Malaysia, all of which have low newborn mortality rates (less than 5 per 1,000 live births).<sup>102</sup>



MOZAMBIQUE

- In Southeast Asia, many countries have reduced newborn mortality. In some cases, such as Indonesia, reduction has been considerable (about 50 percent).<sup>103</sup>
- In the countries of south-central Asia, with the exceptions of Bangladesh and Sri Lanka (which achieved about 40 percent reductions), more limited advances have been recorded.<sup>104</sup> India, for example, where more than a quarter of the world's newborn deaths occur, has seen a reduction of just 11 percent.<sup>105</sup>

## Little Progress in Saving Lives During the First Week of Life

Child survival programs in the developing world have tended to focus on pneumonia, diarrhea, malaria and vaccine-preventable conditions, which are important causes of death after the first month of life. Between 1980 and 2000, child mortality after the first month of life – that is, from the second month to 5 years – fell by a third, whereas the newborn mortality rate was reduced by only a quarter. Hence, an increasing proportion of child deaths now occur during the newborn period.

The least amount of progress has been achieved in preventing deaths in the first week of life. In 1980, only 23 percent of deaths among children under age 5 occurred in the first week of life; by the year 2000 this figure had risen to 28 percent (representing 3 million deaths).<sup>106</sup>

Therefore, to meet Millennium Development Goal 4, reducing deaths in the first week of life will be essential to progress. To save more lives in the early days, when life is most fragile, more mothers and babies will need access to postnatal care. Unfortunately, postnatal care for mothers and newborns has received relatively little emphasis in public health programs, with only a tiny minority of mothers and babies in high-mortality settings receiving postnatal care in the early hours, days and weeks when they are most vulnerable. (See pages 26-28 for more on postnatal care.)

# Newborn Mortality in the Industrialized World

## United States has One of the Highest Rates

Although the newborn mortality rate in the United States has fallen in recent decades, it is still higher than most other industrialized nations – 2.5 times that of Finland, Iceland and Norway, and about three times higher than the newborn mortality rate of Japan.

The causes of newborn death in the industrialized world differ dramatically from those in developing countries. In the developing world, about half of newborn deaths are due to infection, tetanus and diarrhea. In the industrialized world, these problems are almost non-existent. Newborn deaths are most likely to result from babies being born too small or too early.

In the United States – as in other industrialized countries – disadvantaged populations have higher newborn mortality rates.

A recent study found U.S. newborn death rates are highest among minorities, even when mothers have early and equal access to prenatal care. Compared with the white population, all minority races (black, Hispanic, Asian and American Indian) have higher rates of newborn mortality. The odds of newborn infants dying, after all other risk factors were taken into account, were 3.4 times higher in blacks, 1.5 times higher in Hispanics, and 1.9 times higher for races other than whites.<sup>107</sup>

African-American babies are twice as likely as white infants to be born with low birthweight, to be born pre-term and to die at birth. Only 17 percent of all births in the United States are in African-American families, yet 33 percent of all low-birthweight babies

and 38 percent of all very low-birthweight babies are African-American. Little is known about why African-American newborns are at such high risk.<sup>108</sup>

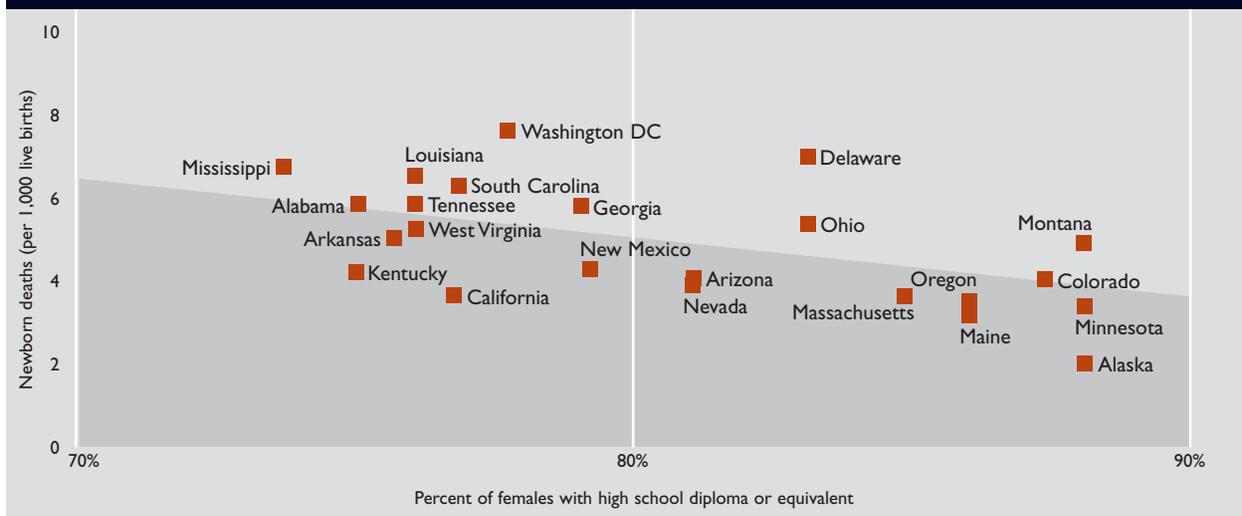
Mothers on lower socioeconomic levels, with less education, have been found to be at significantly higher risk of pre-term delivery, even when controlling for other known risk factors such as weight prior to pregnancy, weight gain, alcohol and tobacco consumption, race, parity and source of prenatal care.<sup>109</sup>

In general, lower educational attainment is associated with higher levels of newborn mortality (see chart below).

Here are some additional facts about newborn mortality in industrialized countries:

- Only about 1 percent of the 4 million newborn deaths every year occur in wealthy countries.<sup>110</sup>
- Japan has the world's lowest newborn mortality rate (1.8 per 1,000 live births).
- Latvia has the highest newborn mortality rate in the industrialized world (6 per 1,000 live births).
- The United States is tied for second-to-last place with Hungary, Malta, Poland and Slovakia (in all five countries, there are 5 newborn deaths per 1,000 live births).

## Newborn Deaths are Most Common in States Where Females are Less Educated



\*Trendline based on data for 49 states plus Washington DC. (Data not available for Vermont.)

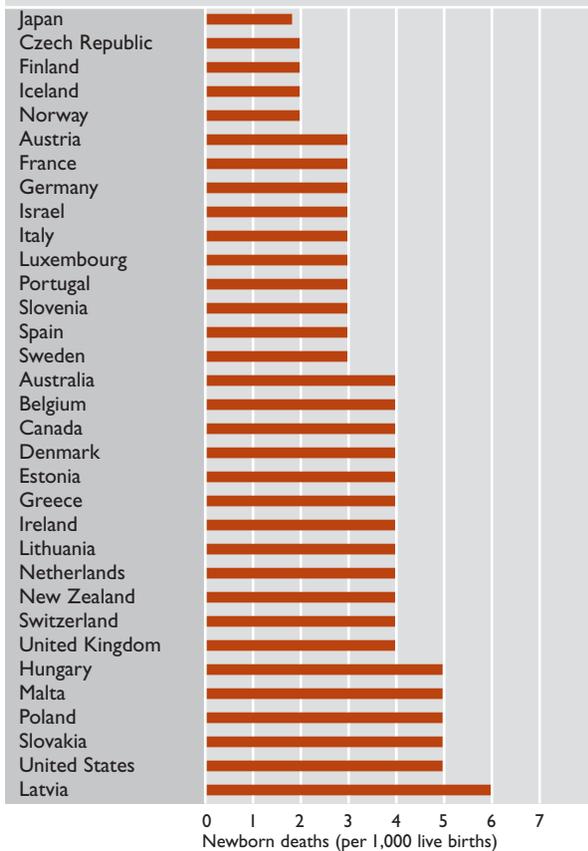
Sources: Newborn deaths: U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau, Child Health USA 2004. (Rockville, Maryland: 2004); Percent of females with high school diploma or equivalent: U.S. Census Bureau, Census 2000.



LOUISIANA, UNITED STATES

- The United States has more neonatologists and neonatal intensive care beds per person than Australia, Canada and the United Kingdom, but its newborn mortality rate is higher than that of any of those countries.<sup>111</sup>
- In the United States, the newborn mortality rate for all races combined is 4.7 deaths per 1,000 live births, but for non-Hispanic blacks, the rate is 9.3 deaths per 1,000 live births.<sup>112</sup>
- Research in northern Belgium (Flanders) found that mothers with low levels of education were much more likely to miscarry and suffer the death of a newborn.<sup>113</sup>
- A study from Australia found that Aboriginal babies were twice as likely to be of low birthweight or to die within their first year of life compared with the rest of the population.<sup>114</sup>
- A Swedish study found that the risk of newborn death was 33 percent greater in the least socially advantaged areas compared to the most advantaged areas.<sup>115</sup>

### Newborn Mortality in the Industrialized World



Source: World Health Organization, *The World Health Report* (WHO: Geneva: 2005).

### Breaking the Cycle of Poverty in Rural America

Save the Children works in isolated areas of persistent rural poverty, where families face widespread illiteracy, under-funded school systems, high unemployment, limited access to health care, high adolescent birth rates and high newborn mortality rates.

Based on many years of experience working in the United States and around the world, Save the Children has learned that education – including improving a child’s ability to read – is the single most important way to help children gain the skills and confidence they need to break the cycle of poverty and make a better life for themselves.

Unfortunately, rural children frequently underperform in school, specifically in subjects related to reading. Youth from poor rural families have a high-school dropout rate of 20 percent – higher than the 15 percent dropout rate of their urban peers. A lack of literacy skills needed to keep up with the demands of a broadening curriculum is one of the most commonly cited reasons for dropping out of high school.<sup>116</sup> In 2004, 70 percent of children served by Save the Children supplemental literacy programs were reading below grade level. In response, Save the Children partners with rural schools and focuses on early interventions for struggling readers to help children age 3 through grade 8 develop literacy skills that will serve as the foundation for future academic success.

The cause of high newborn mortality in some low socioeconomic income groups in the United States is unclear. However, the link between low educational attainment and the higher rates of newborn mortality is unequivocal.<sup>117</sup> By addressing the root causes that lead to academic frustration and failure, Save the Children’s literacy programs are helping children to improve their reading ability, succeed academically and stay in school.

# Take Action for Newborns! Make a World of Difference for Mothers and Babies

Every year, 60 million mothers in the developing world give birth with no professional help whatsoever, and 4 million babies die in the first month of life. In order to meet United Nations targets to reduce child deaths and improve mothers' health, life-saving services must be increased for the women and newborns who need help most.

Now is the time for governments, the private sector and humanitarian organizations to take joint responsibility to reduce the needless deaths of mothers and babies. Research has shown that low-cost, low-tech solutions combined with political will and financial commitment could save the vast majority of these lives. By ensuring that mothers and babies everywhere have access to good quality care, the world community can provide a more promising future for families, communities and society as a whole.

Help us save the lives of mothers and newborns around the world:

- Tell President Bush and your congressional representatives to support the *CHILD and Newborn Act* (HR 4222). This bill will authorize increased resources in fiscal years 2007 and 2008 to reduce maternal, infant and child mortality. It will call on the U.S. government to implement a strategy to promote the health and well-being of mothers and children around the globe to meet the Millennium Development Goal of reducing child mortality by two-thirds by 2015.
- Speak out to your local media. Spread the word in your community about the need to address the global problem of newborn deaths. Write a letter to your local newspaper about the importance of programs in developing countries that improve the survival rates, health and well-being of mothers and babies. Go to [www.savethechildren.org/action](http://www.savethechildren.org/action) to send your letter.
- Join the Save the Children Action Network to receive monthly e-mail updates on legislative issues regarding newborn survival as well as other critical policy issues affecting children. Learn about ways that you can get involved and make your voice heard. To sign up, visit [www.savethechildren.org/action](http://www.savethechildren.org/action)
- Support on-the-ground programs that work. Visit [www.savethechildren.org](http://www.savethechildren.org) to learn more and do more!



MALAWI

## Global Partnership for Maternal, Newborn and Child Health

Save the Children is a member of the Global Partnership for Maternal, Newborn and Child Health, an unprecedented collaboration among the world's leading maternal, newborn and child health professionals. The Partnership unites developing and donor countries, UN agencies, professional associations, academic and research institutions, foundations and nongovernmental organizations to accelerate national, regional and global progress toward UN Millennium Development Goals 4 and 5. These goals call for reducing the rate of child deaths by two-thirds and the ratio of maternal deaths by three-quarters by 2015 (starting from 1990 baselines). For more information, visit [www.pmnch.org](http://www.pmnch.org)

[www.savethechildren.org](http://www.savethechildren.org)

*Appendix*

**THE MOTHERS' INDEX & COUNTRY RANKINGS**



HONDURAS

The seventh annual *Mothers' Index* helps document conditions for mothers and children in 125 countries – 26 developed nations and 99 in the developing world – and shows where mothers fare best and where they face the greatest hardships. All countries for which sufficient data were available are included in the *Index*.

Why should Save the Children be so concerned with mothers? Because close to 75 years of field experience has taught us that the quality of children's lives depends on the health, security and well-being of their mothers. In short, providing mothers with access to education, economic opportunities and maternal and child health care, including family planning, gives mothers *and* their children the best chance to survive and thrive.

The *Index* relies on information published by governments, research institutions and international agencies. The *Complete Mothers' Index*, based on a composite of separate indices for women's and children's well-being, appears in the fold-out table in this Appendix. A full description of the research methodology and individual indicators (briefly described below) appears after the fold-out.

The six indicators of women's well-being are:

- Lifetime risk of maternal mortality
- Percent of women using modern contraception
- Percent of births attended by skilled personnel
- Percent of pregnant women with anemia
- Adult female literacy rate
- Participation of women in national government

The four indicators of children's well-being are:

- Infant mortality rate
- Gross primary enrollment ratio



AFGHANISTAN

- Percent of population with access to safe water
- Percent of children under age 5 suffering from moderate or severe nutritional wasting

Scandinavian countries “sweep” the top positions while countries in sub-Saharan Africa dominate the lowest tier. While industrialized countries cluster tightly at the top of the *Index* – with the majority of these countries performing well on all indicators – the highest-ranking countries attain very high scores for mother's and children's health and educational status. The United States places 10th this year – tied with the United Kingdom.

2006 Mothers' Index			
Top Ten		Bottom Ten	
Rank	Country	Rank	Country
1	Sweden	115	Congo, Democratic Republic of the
2	Denmark	115	Liberia
2	Finland	117	Central African Republic
4	Austria	118	Yemen
4	Germany	119	Ethiopia
4	Norway	120	Sierra Leone
7	Australia	121	Guinea-Bissau
7	Netherlands	122	Chad
9	Canada	123	Mali
10	United Kingdom*	124	Burkina Faso
10	United States*	125	Niger

\*11 countries shown due to ties



ETHIOPIA

The 10 bottom-ranked countries in this year's *Mothers' Index* are a reverse image of the top 10, performing poorly on all indicators. Conditions for mothers and their children in these countries are devastating.

- On average, 1 in 12 mothers will die in her lifetime from pregnancy-related causes.
- 1 in 8 children dies before his or her first birthday.
- 1 in 9 children suffers from malnutrition.
- More than 1 in 3 children is not attending primary school.
- Only 1 in 4 adult women is literate.

The contrast between the top-ranked country, Sweden, and the lowest-ranked country, Niger, is striking. A skilled attendant is present at virtually every birth in Sweden,

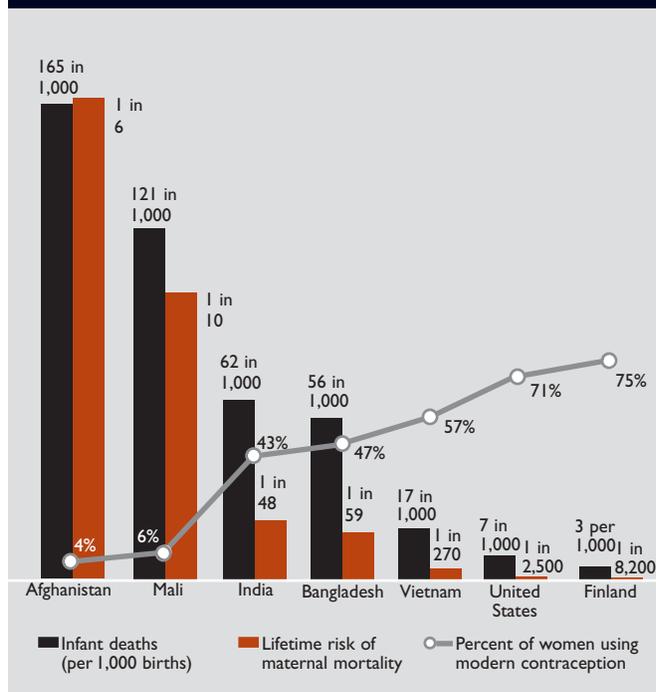
while only 16 percent of births are attended in Niger. Nearly all Swedish women are literate, 72 percent are using some modern method of contraception, and only one in 333 will see her child die before his or her first birthday. At the opposite end of the spectrum, in Niger, only 1 in 10 women is literate, 4 percent are using modern contraception, and 1 child in 7 dies before age 1.

The data collected for the *Mothers' Index* document the tremendous gaps between rich and poor countries and the urgent need to accelerate progress in the health and well-being of mothers and their children. The data also highlight the regional dimension of this tragedy. Ten of the bottom 11 countries are in sub-Saharan Africa. That region also accounts for 14 of the 20 lowest-ranking countries.

Individual country comparisons are especially startling when one considers the human suffering behind the statistics:

- 15 percent of births or fewer are attended by skilled health personnel in Afghanistan, Bangladesh, Ethiopia and Nepal.
- 1 woman in 7 dies in pregnancy or childbirth in Angola, Malawi and Niger; the risk is 1 in 6 in Sierra Leone.

### Family Planning Saves Lives: As Contraceptive Use Rises, Maternal and Infant Deaths Decline



The data in the *Mothers' Index* indicate that increased access to and use of modern contraception can lead to dramatic improvements in infant and maternal survival rates. For example, in Finland, where 75 percent of women use birth control, only 1 in 8,200 mothers dies in childbirth and 1 in 333 infants do not make it through their first month of life. Compare this to Afghanistan, where 4 percent of women use birth control, 1 in 6 mothers dies in childbirth, and 1 in 6 babies dies in the first year of life.

Every year, millions of women and children in the developing world die as a result of births that are too close together, too early, or too late in a woman's life. In developing countries, maternal mortality is the leading cause of death for women of reproductive age, killing 529,000 women a year. Every minute of every day, at least one woman dies from complications of pregnancy and childbirth.

Family planning also makes important contributions to child survival. More than 10 million children under 5 die every year in the developing world. Family planning could prevent 25 percent of these deaths by spacing births at least two years apart, by helping women to bear children during their healthiest reproductive years, and by enabling parents to have their desired number of children.

Sources: Infant mortality rate: UNICEF, *State of the World's Children 2006*; Lifetime risk of maternal mortality: *Maternal Mortality in 2000: Estimates Developed by WHO, UNICEF and UNFPA*; Percent of women using modern contraception: UNFPA, *State of World Population 2005*.

- Nearly 3 in 4 pregnant women in the Democratic Republic of the Congo, Gambia, Guinea-Bissau, Liberia, Madagascar, Turkey and Somalia are anemic.
- Fewer than 5 percent of women use modern contraception in Afghanistan, Chad, Guinea, Guinea-Bissau, Democratic Republic of the Congo, Niger, Rwanda and Sierra Leone.
- In Burkina Faso and Niger, less than 10 percent of women can read and write and fewer than half the children are enrolled in primary school.
- 1 child in 8 does not reach his or her first birthday in Afghanistan, Angola, Democratic Republic of the Congo, Guinea-Bissau, Liberia, Mali, Niger, Sierra Leone and Somalia.
- 1 in 6 children under age 5 is suffering from moderate or severe malnutrition in Burkina Faso, Cambodia, India, Laos, Somalia and United Arab Emirates.
- More than 75 percent of the population of Afghanistan and Ethiopia lack access to safe drinking water.

The human despair and lost opportunities behind these numbers call for ensuring that mothers everywhere have the basic tools they need to break the cycle of poverty and improve the quality of their own lives as well as that of their children and generations to come.

#### What the Numbers Don't Tell You

The national-level data presented in the *Mothers' Index* provide an overview of many countries. However, it is important to remember that the condition of geographic or ethnic sub-groups in a country may vary greatly from the national average. Remote rural areas tend to have fewer services and more dire statistics. War, violence and lawlessness also do great harm to the well-being of mothers and children, and often affect certain segments of the population disproportionately. These details are hidden when only broad national-level data are available.

### Frequently Asked Questions About the *Mothers' Index*

#### **Why doesn't the United States do better in the rankings?**

The United States ranked 10th this year based on several factors:

- One of the four key indicators used to calculate well-being for mothers is lifetime risk of maternal mortality. The United States rate for maternal mortality is 1 in 2,500. Canada, Australia and all the Western and Northern European countries in the study performed better than the U.S. on this indicator.
- Similarly, the United States did not do as well as the top nine countries with regard to infant mortality rates. The U.S. infant mortality rate is 7 per 1,000 births. All other top 10 countries performed better than the U.S. on this indicator.
- The United States is also lagging behind with regard to the political status of women. Only 15 percent of seats in the national government in the U.S. are held by women, compared to 45 percent in Sweden and 37 percent in Denmark and Finland.

#### **Why is Sweden number one?**

Sweden performed as well as or better than other countries in the ranking on all the indicators. It has the lowest infant mortality rate in the world and the highest percentage of women with seats in the national government.

#### **Why are some countries not included in the *Mothers' Index*?**

Rankings were based on a country's performance with respect to a defined set of indicators related primarily to education, health and nutrition. There were 125 countries for which published information regarding performance on these indicators existed. All 125 were included in the study. The only basis for excluding countries was insufficient or unavailable data.

#### **What should be done to bridge the divide between countries that meet the needs of their mothers and those that do not?**

- Governments and international agencies need to increase funding to improve education levels for women and girls, provide access to maternal and child health care, including voluntary family planning services, and advance women's economic opportunities.
- The international community also needs to improve current research and conduct new studies that focus specifically on mother's and children's well-being.
- In the United States and other industrialized nations, governments and communities need to work together to improve education and health care for disadvantaged mothers and children.

# 2006 Mothers' Index Rankings

Country	Mothers' Index Rank*	Women's Index Rank**	Children's Index Rank**
Sweden	1	1	16
Denmark	2	2	1
Finland	2	2	1
Austria	4	4	5
Germany	4	7	5
Norway	4	4	1
Australia	7	8	5
Netherlands	7	4	13
Canada	9	9	5
United Kingdom	10	10	5
United States	10	13	5
Czech Republic	12	14	13
Hungary	12	17	13
Japan	12	18	1
Slovakia	12	14	5
Belarus	16	14	16
Costa Rica	17	12	22
Israel	17	19	19
Chile	19	24	5
Argentina	20	10	46
Ukraine	21	27	19
Uruguay	21	24	19
Bulgaria	23	24	16
Colombia	24	34	26
Mexico	24	22	33
Moldova, Republic of	24	21	46
Cuba	27	39	22
Panama	27	34	29
Russian Federation	27	29	45
Trinidad and Tobago	27	27	33
Uzbekistan	27	19	64
Jamaica	32	45	22
Kazakhstan	32	29	50
Venezuela	32	38	38
Dominican Republic	35	29	50
Serbia and Montenegro	35	50	29
Armenia	37	55	29
South Africa	37	29	50
Bahrain	39	56	38
China	39	29	68
Honduras	39	50	26
Romania	39	39	61
Thailand	39	45	46
Bosnia and Herzegovina	44	56	33
Ecuador	44	39	57
Paraguay	44	56	38
Turkmenistan	44	22	87
Vietnam	44	34	61
El Salvador	49	60	42
Mauritius	49	50	64
Mongolia	49	45	72
Albania	52	63	54
Azerbaijan	52	50	71
Brazil	52	39	75
Jordan	52	67	26
Kyrgyzstan	52	63	61
Malaysia	52	67	33
Nicaragua	52	56	42
Maldives	59	39	83
Namibia	59	39	72
Peru	59	60	46
Zimbabwe	62	50	75
Botswana	63	65	64
Guyana	63	34	87
Lebanon	63	75	25

Country	Mothers' Index Rank*	Women's Index Rank**	Children's Index Rank**
Lesotho	63	45	80
Philippines	63	65	57
Tunisia	63	70	42
Indonesia	69	67	64
Iran, Islamic Republic of	69	72	50
Sri Lanka	69	60	78
Tajikistan	69	45	87
Kuwait	73	70	72
Turkey	74	79	38
Bolivia	75	75	54
Syrian Arab Republic	75	77	54
United Arab Emirates	75	72	77
Belize	78	78	68
Libyan Arab Jamahiriya	78	79	57
Swaziland	80	72	83
Algeria	81	83	68
Guatemala	82	89	29
Egypt	83	96	33
Saudi Arabia	83	79	100
Kenya	85	86	87
Oman	85	86	83
Tanzania, United Republic of	85	83	79
Cameroon	88	92	80
Rwanda	88	79	98
Uganda	88	85	103
Morocco	91	101	57
Zambia	92	91	101
India	93	99	94
Lao People's Democratic Republic	94	88	110
Malawi	94	92	107
Sudan	94	89	109
Burundi	97	92	102
Ghana	98	106	87
Haiti	98	109	80
Madagascar	98	96	110
Mozambique	101	100	96
Nigeria	101	101	103
Senegal	101	103	97
Angola	104	92	117
Côte d'Ivoire	104	106	98
Bangladesh	106	112	87
Cambodia	107	96	118
Nepal	107	114	83
Pakistan	107	103	106
Benin	110	118	87
Eritrea	110	103	113
Papua New Guinea	110	109	114
Togo	110	111	108
Gambia	114	116	95
Congo, Democratic Republic of the	115	106	122
Liberia	115	114	115
Central African Republic	117	118	110
Yemen	118	122	103
Ethiopia	119	113	123
Sierra Leone	120	116	120
Guinea-Bissau	121	120	116
Chad	122	125	118
Mali	123	123	121
Burkina Faso	124	121	124
Niger	125	124	125

\* Due to different indicator weights and rounding, it is possible for a country to rank high in the women's and children's indices but not score among the very highest countries in the overall *Mothers' Index*. For a complete explanation of the indicator weighting, please see the Methodology and Research Notes.

\*\* Rank out of the 125 countries included in the *Mothers' Index*.

# The Complete Mothers' Index 2006

Country/Territory	Women's Index						Children's Index				Rankings		
	Health Status				Education Status	Political Status	Children's Status				Mothers' Index Rank (out of 125 countries)*	Women's Index Rank (out of 131 countries)*	Children's Index Rank (out of 167 countries)*
	Lifetime risk of maternal mortality (1 in number stated)	Percent of women using modern contraception	Percent of births attended by skilled personnel	Percent of pregnant women with anemia	Adult female literacy rate (percent)	Participation of women in national government (% of seats held by women)	Infant mortality rate (per 1,000 live births) 2004	Gross primary enrollment ratio (expressed as a percent)	Percent of population with access to safe water, 2002	Percent of children under age 5 suffering from moderate or severe nutritional wasting			
Albania	610	8	98		98.3	7.1	17	104	97	11	52	69	74
Algeria	190	50	96	42	60.1	5.3	35	109	87	8	81	89	91
Angola	7	5	45	29	53.8	15.0	154		50	6	104	98	156
Argentina	410		99	26	97.2	34	16	119		3	20	10	65
Armenia	1,200	22	97		99.2 x	5.3	29	99	92	2	37	61	38
Australia	5,800	72	100		99.9 z	28.3	5	104	100		7	8	5
Austria	16,000	47	100 x		99.9 z	32.2	5	103	100		4	4	5
Azerbaijan	520	12	84	26	98.2 x	12.3	75	92	77	2	52	56	94
Bahrain	1,200		98 x	20	83	7.5	9	97		5x	39	62	54
Bangladesh	59	47	13	51	31.4 x	14.8	56	96	75	13	106	118	120
Belarus	1,800	42	100		99.4 x	29.8	9	102	100		16	14	20
Belize	190		83	65	77.1	11.9	32	122	91		78	84	91
Benin	17	7	66	41	22.6	7.2	90	109	68	8	110	124	120
Bolivia	47	27	67	54	80.4	14.6	54	115	85	1	75	81	74
Bosnia and Herzegovina	1,900	16	100		91.1	12.3	13		98	6	44	62	45
Botswana	200	39	94		81.5 x	11.1	84	103x	95	5	63	71	86
Brazil	140	70	96	33	88.6	9.1	32	147	89	2	52	45	101
Bulgaria	2,400	26	99		97.7	22.1	12	100	100		23	28	20
Burkina Faso	12	9	38	24	8.1 x	11.7	97	46	51	19	124	127	165
Burundi	12	10	25	68	51.9	31.7	114	77	79	8	97	98	137
Cambodia	36	19	32	66	64.1	11.0	97	124	34	15	107	102	157
Cameroon	23	7	62	44	59.8	8.9	87	108	63	5	88	98	112
Canada	8,700	73	98	3	99.9 z	24.3	5	101 z	100		9	9	5
Central African Republic	15	7	44	67	33.5	10.5	115	66	75	9	117	124	147
Chad	11	2	16	37	12.7	6.5	117	76	34	11	122	131	157
Chile	1,100		100	13	95.6	11.9	8	100	95	0	19	28	5
China	830	83	96	52	86.5	20.3	26	115	77		39	34	91
Colombia	240	64	86	24	94.6	10.9	18	110	92	1	24	39	35
Congo, Democratic Republic of the	13	4	61	76	51.9	10.2	129		46	13	115	112	163
Costa Rica	690		98	27	95.9 x	35.1	11	108	97	2	17	12	30
Côte d'Ivoire	25	7	68	34	38.2	8.5	117	78x	84	7	104	112	132
Cuba	1,600	72	100	47	96.8 x	3.6	6	98	91	2	27	45	30
Czech Republic	7,700	63	100	23	99.9 z	15.7	4	102		2x	12	14	14
Denmark	9,800	72	100 x		99.9 z	36.9	4	104	100		2	2	1
Dominican Republic	200	66	99		87.3	15.4	27	124	93	2	35	34	69
Ecuador	210	50	69	17	89.7	16.0	23	117	86		44	45	78
Egypt	310	57	69	45	43.6 x	3.8	26	97x	98	4	83	102	45
El Salvador	180		92	14	77.1 x	10.7	24	113	82	1	49	66	60
Eritrea	24	5	28		45.6	22.0	52	63	57	13	110	109	151
Ethiopia	14	6	6	42	33.8 x	21.0	110	66	22	11	119	119	164
Finland	8,200	75	100		99.9 z	37.5	3	102	100		2	2	1
Gambia	31	9	55	73	30.9	13.2	89	85	82	9	114	122	129
Germany	8,000	72	100 x		99.9 z	30.5	4	99	100		4	7	5
Ghana	35	19	47	64	45.7	10.9	68	79	79	7	98	112	120
Guatemala	74	34	41	45	63.3	8.2	33	106	95	2	82	95	38

Country/Territory	Women's Index						Children's Index				Rankings		
	Health Status				Education Status	Political Status	Children's Status				Mothers' Index Rank (out of 125 countries)*	Women's Index Rank (out of 131 countries)*	Children's Index Rank (out of 167 countries)*
	Lifetime risk of maternal mortality (1 in number stated)	Percent of women using modern contraception	Percent of births attended by skilled personnel	Percent of pregnant women with anemia	Adult female literacy rate (percent)	Participation of women in national government (% of seats held by women)	Infant mortality rate (per 1,000 live births) 2004	Gross primary enrollment ratio (expressed as a percent)	Percent of population with access to safe water, 2002	Percent of children under age 5 suffering from moderate or severe nutritional wasting			
Guinea-Bissau	13	4	35	74	24.7	14.0	126		59	10	121	126	154
Guyana	200		86	71	98.2	30.8	48	124	83	11	63	39	120
Haiti	29	21	24	64	50 x	9.1	74		71	5	98	115	112
Honduras	190	51	56	14	80.2	23.4	31		90	1	39	56	35
Hungary	4,000	68	100		99.3 x	9.1	7	100	99	2x	12	17	14
India	48	43	43	50	47.8	9.3	62	108	86	16	93	105	128
Indonesia	150	57	72	51	83.4 x	11.3	30	112	78		69	73	86
Iran, Islamic Republic of	370	56	90	17	70.4	4.1	32	92	93	5	69	78	69
Israel	1,800	52	99 x		95.6	15.0	5	112	100		17	20	26
Jamaica	380	63	97	53	91.4 x	13.6	17	100	93	2	32	51	30
Japan	6,000	51	100		99.9 z	10.7	3	100	100		12	18	1
Jordan	450	41	100	50	84.7	7.3	23	99	91	2	52	73	35
Kazakhstan	190	53	99	27	99.3 x	8.6	63	102	86	2	32	34	69
Kenya	19	32	42	35	70.2	7.1	79	92	62	6	85	92	120
Kuwait	6,000	41	98	40	81 x	1.5	10	94		11	73	76	96
Kyrgyzstan	290	49	98	55	98.1 x	0.0	58	101	76	3	52	69	82
Lao People's Democratic Republic	25	29	19	62	60.9	22.9	65	116	43	15	94	94	147
Lebanon	240	37	89	49	81.0	4.7	27	103	100	3	63	81	34
Lesotho	32	30	60	7	90.3	17.0	61	126	76	5	63	51	112
Liberia	16	6	51	78	39	13.8	157		62	6	115	120	153
Libyan Arab Jamahiriya	240	26	94 x		70.7 x	4.7	18	114x	72	3x	78	85	78
Madagascar	26	17	51	74	65.2	8.4	76	120	45	13	98	102	147
Malawi	7	26	61	55	54 x	13.6	110	140	67	5	94	98	143
Malaysia	660	30	97	56	85.4	13.1	10	93	95		52	73	45
Maldives	140		70	20	97.2 x	12.0	35	118	84	13	59	45	115
Mali	10	6	41	58	11.9 x	10.2	121	58	48	11	123	129	162
Mauritius	1,700	49	98	29	80.5	17.1	14	104	100	14x	49	56	86
Mexico	370	60	95	27	88.7	23.7	23	110	91	2	24	26	45
Moldova, Republic of	1,500	43	99	20	95	21.8	23	86	92	3	24	23	65
Mongolia	300	54	97	45	97.5	6.7	41	101	62	6	49	51	96
Morocco	120	42	63	45	38.3 x	6.4	38	110	80	4	91	107	78
Mozambique	14	5	48	55	31.4 x	34.8	104	103	42	4	101	106	130
Namibia	54	26	76	16	83.5	26.9	47	105	80	9	59	45	96
Nepal	24	35	15	68	34.9	14.3	59	119	84	10	107	120	115
Netherlands	3,500	76	100		99.9 z	34.2	5	108	100		7	4	14
Nicaragua	88	66	67	36	76.6	20.7	31	108	81	2	52	62	60
Niger	7	4	16	41	9.4	12.4	152	44	46	14	125	130	166
Nigeria	18	8	35	55	59.4 x	5.8	101	119	60	9	101	107	138
Norway	2,900	69	100 x		99.9 z	37.9	4	101	100		4	4	1
Oman	170	18	95	54	65.4 x	7.8	10	81	79	13x	85	92	115
Pakistan	31	20	23	37	35.2	20.6	80	68	90	13	107	109	141
Panama	210	54	93		91.2	16.7	19	112	91	1	27	39	38
Papua New Guinea	62	20	41		50.9	0.9	68	75	39		110	115	152
Paraguay	120	61	77	44	90.2	9.6	21	110	83	1	44	62	54
Peru	73	50	59	29	82.1	18.3	24	118	81	1	59	66	65

# The Complete Mothers' Index 2006

Country/Territory	Women's Index						Children's Index				Rankings		
	Health Status				Education Status	Political Status	Children's Status						
	Lifetime risk of maternal mortality (1 in number stated)	Percent of women using modern contraception	Percent of births attended by skilled personnel	Percent of pregnant women with anemia	Adult female literacy rate (percent)	Participation of women in national government (% of seats held by women)	Infant mortality rate (per 1,000 live births) 2004	Gross primary enrollment ratio (expressed as a percent)	Percent of population with access to safe water, 2002	Percent of children under age 5 suffering from moderate or severe nutritional wasting	Mothers' Index Rank (out of 125 countries)*	Women's Index Rank (out of 131 countries)*	Children's Index Rank (out of 167 countries)*
Philippines	120	33	60	50	92.7	15.0	26	112	85	6	63	71	78
Romania	1,300	30	99	31	96.3	10.7	17	99	57	3x	39	45	82
Russian Federation	1,000	53	99	30	99.2 x	8.0	17	118	96	4x	27	34	64
Rwanda	10	4	31		58.8	45.3	118	122	73	6	88	85	132
Saudi Arabia	610	29	91	16	69.3	0.0	21	67		11	83	85	134
Senegal	22	8	58	26	29.2	19.2	78	80	72	8	101	109	131
Serbia and Montenegro	4,500	33	93		94 z	7.9	13		93	4	35	56	38
Sierra Leone	6	4	42	31	20.5	14.5	165		57	10	120	122	161
Slovakia	19,800	41	99		99.5 x	16.7	6	101	100		12	14	5
South Africa	120	55	84	37	80.9 x	32.8	54	106	87	3	37	34	69
Sri Lanka	430	50	96	39	88.6 x	4.9	12	112	78	14	69	66	107
Sudan	30	7	87	36	49.9 x	13.6	63	60	69		94	95	145
Swaziland	49	26	74		78.1	16.8	108	98	52	1	80	78	115
Sweden	29,800	72	100 x		99.9 z	45.3	3	111	100		1	1	20
Syrian Arab Republic	130	28	77 x	41	74.2	12.0	15	115	79	4	75	83	74
Tajikistan	250	27	71	50	99.3 x	19.6	91	111	58	5	69	51	120
Tanzania, United Republic of	10	17	46	59	62.2	30.4	78	84	73	3	85	89	109
Thailand	900	70	99	57	90.5	10.7	18	97x	85	6x	39	51	65
Togo	26	9	61	48	38.3	7.4	78	121	51	12	110	117	144
Trinidad and Tobago	330	33	96	53	97.9 x	25.4	18	100	91	4x	27	31	45
Tunisia	320	53	90	38	65.3	19.3	21	111	82	2	63	76	60
Turkey	480	38	83	74	81.1	4.4	28	91x	93	1	74	85	54
Turkmenistan	790	53	97		98.3 x	16.0	80		71	6	44	26	120
Uganda	13	18	39	30	59.2	23.9	80	141	56	4	88	91	138
Ukraine	2,000	38	100		99.2 x	5.3	14	93	98	0	21	31	26
United Arab Emirates	500	24	99 x	14	80.7 x	0.0	7	97		15x	75	78	105
United Kingdom	3,800	81	99		99.9 z	18.5	5	100	100 z		10	10	5
United States	2,500	71	99		99.9 z	15.0	7	98	100	1x	10	13	5
Uruguay	1,300		100	20	98.1 x	10.8	15	109	98	1x	21	28	26
Uzbekistan	1,300	63	96	27	98.9 x	16.4	57	103	89	7	27	20	86
Venezuela	300	38	94	29	92.7	17.4	16	104	83	3	32	44	54
Vietnam	270	57	85	52	86.9 x	27.3	17	101	73	7	44	39	82
Yemen	19	10	27		28.5 x	0.7	82	83	69	12	118	128	138
Zambia	19	23	43	47	59.7 x	12.7	102	82	55	5	92	97	136
Zimbabwe	16	50	73		86.3 x	20.8	79	94	83	6	62	56	101
<b>WOMEN'S INDEX ONLY</b>													
Estonia	1,100	56	100		99.8 x	18.8	6	101				18	
Latvia	1,800	39	100		99.7 x	21.0	10	94				23	
Lithuania	4,900	31	100		99.6 x	22.0	8	98				20	
Poland	4,600	19	100		99.7 x	19.1	7	99				31	
Singapore	1,700	53	100		88.6	16.0	3			4x		39	
Slovenia	4,100	59	100		99.6 x	10.8	4	108				23	
<b>CHILDREN'S INDEX ONLY</b>													
Afghanistan	6	4	14			25.9	165	92	13	7			159
Andorra						28.6	6	101	100				14
Antigua and Barbuda			100			13.9	11		91	10x			86

Country/Territory	Women's Index						Children's Index				Rankings		
	Health Status				Education Status	Political Status	Children's Status						
	Lifetime risk of maternal mortality (1 in number stated)	Percent of women using modern contraception	Percent of births attended by skilled personnel	Percent of pregnant women with anemia	Adult female literacy rate (percent)	Participation of women in national government (% of seats held by women)	Infant mortality rate (per 1,000 live births) 2004	Gross primary enrollment ratio (expressed as a percent)	Percent of population with access to safe water, 2002	Percent of children under age 5 suffering from moderate or severe nutritional wasting	Mothers' Index Rank (out of 125 countries)*	Women's Index Rank (out of 131 countries)*	Children's Index Rank (out of 167 countries)*
Bahamas	580		99		96.3	26.8	10	92x	97				38
Barbados	590		98		99.7 x	17.6	10	109	100	5x			38
Bhutan	37	19	37			9.3	67		62	3			109
Cape Verde	160		89		68 x	15.3	27	121	80	6x			96
Comoros	33		62		49.1 x	3.0	52	90	94	12			107
Congo	26				77.1 x	10.1	81	80	46	4			134
Croatia	6,100		100		97.1	21.7	6	97		1			20
Cyprus	890		100 x		95.1	16.1	5	98	100				20
Djibouti	19		61	40		10.8	101	40x	80	13			160
Dominica			100			12.9	13	88	97	2x			45
Equatorial Guinea	16		65		76.4	18.0	122		44	7			154
Gabon	37	12	86			11.9	60	132	87	3			101
Georgia	1,700	20	96	30		9.4	41	90	76	2			82
Grenada			100			32.1	18	120	95				69
Guinea	18	4	56	11		19.3	101	81	51	11			150
Iceland	0				99.9 x	33.3	2	100	100				5
Iraq	65	10	72	18		25.5	102	110	81	6			109
Kiribati			85			4.8	49	111	64	11x			120
Korea, Democratic People's Republic of	590	53	97	71		20.1	42		100	7			74
Korea, Republic of	2,800	67	100		x	13.4	5	104	92				30
Luxembourg	1,700		100		99.9 x	23.3	5	99	100				14
Macedonia, the former Yugoslav Republic of	2,100		99		94.1	19.2	13	97		4			45
Malta	2,100		98 x		89.2 x	9.2	5	104	100				14
Mauritania	14	5	57	24	43.4		78	88	56	13			142
Myanmar	75	33	57	58	86.2		76	92	80	9			115
Occupied Palestinian Territories	140		97		87.4		22	99	94	3			38
Qatar	3,400		99				18	106	100	2x			26
Saint Kitts and Nevis			99			0.0	18	112	99				45
Saint Lucia			100		90.6	20.7	13	112	98	6x			60
Samoa			100		98.4 x	6.1	25	105x	88				54
Sao Tome and Principe			76			9.1	75		79	4			101
Seychelles					92.3	29.4	12	114	87	2x			54
Solomon Islands	120		85			0.0	34	107	70	7x			94
Somalia	10		25	78		8.0	133		29	17			167
Suriname	340		85		84.1	25.5	30	126x	92	7			96
Switzerland	7,900	78			99.9 x	24.8	5	108	100				20
Timor-Leste	30		18			25.3	64		52	12			145
Tonga			95		99 x	3.4	20	112	100				45
Vanuatu			88			3.8	32	113	60				105

x = Data may refer to a different year than noted or may vary from the standard. z = Data are from different year or different source.

\*The *Mothers' Index* ranks are out of 125 countries for which sufficient data were available. The *Women's Index* ranks and *Children's Index* ranks are out of 131 and 167 countries respectively – these include additional countries for which adequate data existed to present findings on women's indicators or children's indicators, but not both.

1. In the first year of the *Mothers' Index* (2000), a review of literature and consultation with members of the Save the Children staff identified health status, educational status, political status and children's well-being as key factors related to the well-being of mothers. Indicators were selected to represent these factors, and published data sources for each indicator were identified. In some cases, the factors were difficult to capture because few countries reported related statistics. To adjust for these variations in data availability when calculating the final index, the indicators for maternal health and children's well-being were grouped into sub-indices (see step 5). This procedure allowed researchers to draw on the wealth of useful information on those topics without giving too little weight to the factors for which less abundant data were available.

2. Data were gathered for six indicators of women's status and four indicators of children's status.

## The indicators that represent women's health status are:

### Lifetime risk of maternal mortality

A woman's risk of death in childbirth over the course of her life is a function of many factors, including the number of children she has and the spacing of the births as well as the conditions under which she gives birth and her own health and nutritional status. Calculations are based on maternal mortality and fertility rate in a country. Some country estimates are derived using a WHO/UNICEF methodology.

Source: *Maternal Mortality in 2000: Estimates Developed by WHO, UNICEF and UNFPA*. Available online at: [http://www.who.int/reproductive-health/publications/maternal\\_mortality\\_2000/mme.pdf](http://www.who.int/reproductive-health/publications/maternal_mortality_2000/mme.pdf)

### Percent of women using modern contraception

Access to family planning resources, including modern contraception, allows women to plan their pregnancies. This helps ensure that the mother is physically and psychologically prepared to give birth and care for her child. Data are derived from sample survey reports and estimate the proportion of married women (including women in consensual unions) currently using modern methods of contraception (including male and female sterilization, IUD, the pill, injectables, hormonal implants, condoms and female barrier methods). All of the data



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were collected in 1995 or later. The most recent survey data available are cited. The database was updated in 2004.

Source: *United Nations Population Fund (UNFPA) 2005. The State of World Population 2005*. Available online at: [http://www.unfpa.org/swp/2005/pdf/en\\_sw05.pdf](http://www.unfpa.org/swp/2005/pdf/en_sw05.pdf)

### Skilled attendant at delivery

The presence of a skilled attendant at birth reduces the likelihood of both maternal and infant mortality. The attendant can help create a hygienic environment and recognize complications that require urgent medical care. Skilled attendant at delivery is defined as those births attended by physicians, nurses or midwives. Data are from 1996-2004.

Source: *UNICEF 2005. State of the World's Children 2006 (Table 8)*. Available online at: [http://www.unicef.org/sowc06/tables/sowc06\\_table8.xls](http://www.unicef.org/sowc06/tables/sowc06_table8.xls)

### Percent of pregnant women with anemia

Poor nutritional status puts pregnant women and their children at risk for complications at birth, and makes them more susceptible to other types of illness. Anemia reflects nutritional deficiencies and possible malaria. The World Health Organization defines anemia in pregnant women as likely to be present when the hemoglobin level is less than 110 grams/liter. It also defines nutritional anemia as a condition in which the hemoglobin content of the blood is lower than normal as a result of a deficiency of one or more essential nutrients, regardless of the cause of such deficiency. Data are from 1989-2000.

Source: *The Manoff Group and the Micronutrient Initiative: Iron Improves Life (wall map)*. Available online at: <http://www.manoffgroup.com/images/anemiamap.pdf>



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### The indicator that represents women's educational status is:

#### Adult female literacy rate

Educated women are more likely to be able to earn a livelihood and support their families. They are also more likely than uneducated women to ensure that their children attend school. Female literacy rate is the percentage of women aged 15 and over who can read and write. Data are from 2003.

Source: Table 25, p. 299-302, from *Human Development Report 2005: International cooperation at a crossroads: Air, trade and security in an unequal world*, copyright 2005, the United Nations Development Programme. Used by permission of Oxford University Press, Inc. Available online at: [http://hdr.undp.org/reports/global/2005/pdf/HDR05\\_complete.pdf](http://hdr.undp.org/reports/global/2005/pdf/HDR05_complete.pdf)

### The indicator that represents women's political status is:

#### Participation of women in national government

When women have a voice in public institutions, they can participate directly in governance processes and advocate for issues of particular importance to women and children. This indicator represents the percentage of seats in national legislatures or parliaments occupied by women. In bicameral legislatures and parliaments, a weighted average of the upper and lower house seats occupied by women is used.

Source: *Women in National Parliaments*. Inter-Parliamentary Union. Situation as of 28 February 2006. Available online at: <http://www.ipu.org/wmn-e/classif.htm>

### The indicators that represent children's well-being are:

#### Infant mortality rate

The infant mortality rate is likely to increase dramatically when mothers receive little or no prenatal care and give birth under difficult circumstances. Infant mortality rate is the probability of dying between birth and exactly one year of age, expressed per 1,000 live births. Data are from 2004.

Source: UNICEF 2005. *The State of the World's Children 2006* (Table I). Available online at: [http://www.unicef.org/sowc06/pdfs/sowc06\\_table1.pdf](http://www.unicef.org/sowc06/pdfs/sowc06_table1.pdf)

#### Gross primary enrollment ratio

The gross primary enrollment ratio is the total number of children enrolled in primary school, regardless of age, expressed as a percentage of the total number of children of primary school age. Data are from the 2002/2003 school year.

Source: UNESCO Institute for Statistics, 2004. *Gross and net enrolment ratios for the 2002/2003 school year*. Available online at: [http://www.uis.unesco.org/TEMPLATE/html/Exceltables/education/gerner\\_primary.xls](http://www.uis.unesco.org/TEMPLATE/html/Exceltables/education/gerner_primary.xls)

#### Percent of population with access to safe water

Safe water is essential to good health. Families need an adequate supply for drinking, as well as cooking and washing. This indicator reports the percentage of the population with access to an adequate amount of water from an improved source within a convenient distance from a user's dwelling, as defined by country-level standards. "Improved" water sources include household connections, public standpipes, boreholes, protected dug wells, protected springs, and rainwater collection. In general, "reasonable access" is defined as at least 20 liters (5.3 gallons) per person per day, from a source within one kilometer (.62 miles) of the user's dwelling. Data are from 2002.

Source: UNICEF 2005. *The State of the World's Children 2006* (Table 3). Available online at: [http://www.unicef.org/sowc06/pdfs/sowc06\\_table3.pdf](http://www.unicef.org/sowc06/pdfs/sowc06_table3.pdf)

#### Percent of children under age 5 suffering from moderate or severe nutritional wasting

Poor nutrition affects children in many ways, including making them more susceptible to a variety of illnesses

and impairing their cognitive development. Moderate or severe wasting is defined as more than two standard deviations below median weight for height of the reference population. Data are from 1996-2004.

Source: UNICEF 2005. *State of the World's Children 2006* (Table 2). Available online at: [http://www.unicef.org/sowc06/pdfs/sowc06\\_table2.pdf](http://www.unicef.org/sowc06/pdfs/sowc06_table2.pdf)

3. Standard scores, or Z-scores, were created for each of the indicators using the following formula:

$$Z = \frac{X - \bar{X}}{S}$$

where Z = The standard, or Z-score  
 X = The score to be converted  
 $\bar{X}$  = The mean of the distribution  
 S = The standard deviation of the distribution

4. The standard scores of indicators of ill-being were then multiplied by (-1) so that a higher score indicated increased well-being on all indicators.

#### Notes on specific indicators

- To avoid rewarding school systems where pupils do not start on time or progress through the system, gross enrollment ratios between 100 and 105 percent were discounted to 100 percent. Gross enrollment ratios over 105 percent were discounted to 100 and any amount over 105 percent was subtracted from 100 (for example, a country with a gross enrollment rate of 107 percent would be discounted to 100-(107-105), or 98).

- Developed countries that lacked data for percent of pregnant women with anemia or percent of children under age 5 suffering from moderate or severe nutritional wasting were given a dummy score based on the developed country average to avoid penalizing industrialized countries for missing data in comparison with high-performing developing countries.

5. Z-scores were divided by the range of Z-scores for each variable in order to control for differences in the range of possible scores. These

percentage scores (that is, actual score as percent of range of scores) were then averaged to create the index scores.

6. The percentage scores of the four indicators related to women's health were averaged to create an index of women's health. An index of child well-being was created the same way. At this stage, cases (countries) missing more than one indicator for either sub-index were eliminated from the sample. Cases missing any one of the other indicators (that is, educational status or political status) were also eliminated.

7. The *Mothers' Index* was calculated as a weighted average of women's health status (30 percent), maternal educational status (30 percent), children's well-being (30 percent) and maternal political status (10 percent). The scores on the *Mothers' Index* were ranked.

NOTE: Data exclusive to mothers are not available for many important indicators (for example, literacy rate, government positions held). In these instances, data on women's status have been used to approximate maternal status, since all mothers are women. In areas such as health, where a broader array of indicators is available, the index emphasizes indicators that address uniquely *maternal* issues.

8. Data analysis was conducted using Microsoft Excel software.



# Endnotes

- <sup>1</sup> All 191 United Nations member states committed to the eight Millennium Development Goals for attaining peace and security, human rights and sustainable development. Goal 4 calls for reducing child mortality. The target is to reduce by two-thirds between 1990 and 2015 the world's under-5 mortality rate.
- <sup>2</sup> Lawn, Joy, Simon Cousens, and Jelka Zupan. "4 Million Neonatal Deaths: When? Where? Why?" *The Lancet*. Volume 365, Issue 9462. (Lynhurst Press, Ltd.: London: March 3, 2005) pp.891-900
- <sup>3</sup> UNICEF. *State of the World's Children 2006*. (New York: 2005) pp.98-101
- <sup>4</sup> Joy Lawn, et al. "4 Million Neonatal Deaths: When? Where? Why?" *The Lancet*
- <sup>5</sup> Ibid.
- <sup>6</sup> Ibid.
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Page 47 – Michael Bisceglie

Vietnam. *A midwife trained by Save the Children visits a mother and her newborn baby.*

Back cover – Save the Children staff

Bangladesh. *A 15-year-old mother holds her 9-day-old baby named Sharna.*

## Save the Children

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To learn more about our programs to help children in need around the world, go to: [www.savethechildren.org](http://www.savethechildren.org)



BANGLADESH

Every year, 4 million babies die in the first month of life – equivalent to the number of babies born in the United States each year. Most of these newborn deaths (99 percent) occur in developing countries, where mothers lack access to basic health services and face great risk of death in pregnancy and childbirth.

*State of the World's Mothers 2006* reveals which countries are making the most progress in saving the lives of newborns, and which are lagging behind. It identifies 78 countries where newborn lives are especially at risk and shows how most of these deaths could be prevented with simple, low-cost tools and services for mothers and their infants.

*State of the World's Mothers 2006* concludes that no matter what the economic or cultural challenges, newborn lives can be saved. By ensuring that mothers and babies everywhere have access to good quality care, the world community can provide a more promising future for families, communities and society as a whole.

As in previous years, *State of the World's Mothers 2006* presents a *Mothers' Index*. Using the latest data on health, nutrition, education and political participation, the *Index* ranks 125 countries – both in the industrialized and developing world – to show where mothers and children fare best and where they face the greatest hardship.



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