Issues in Brief
2002 Series, No. 2

Family Planning Can Reduce High Infant Mortality Levels

Each year, about 7.5 million babies born in Sub-Saharan Africa, Asia, Latin America, and the Middle East and North Africa die before their first birthday.[1] In most Sub-Saharan African countries, infant death is so common that more than half of women aged 30–49 have experienced such a loss.[2]

On average, 61 babies die for every 1,000 live births in developing countries, compared with eight deaths per 1,000 in developed countries; in some developing countries, the rates are much higher than the average. For example, in Sub-Saharan Africa—the world's poorest region—more than one in 10 infants die before age one in Benin, Burkina Faso, Central African Republic, Chad, Ethiopia, Guinea, Malawi, Mali, Mozambique, Niger, Tanzania and Zambia (Table 1, column 1).

Per capita income is below $2,000 in all of these countries; in many, it is $500–900 (Table 1, column 2). In countries where per capital income is higher, infant mortality rates are substantially lower. High infant mortality is, therefore, clearly a function of poverty, which creates conditions—for example, the lack of clean water, poor sanitation, malnutrition, endemic infections, poor or nonexistent primary health care services and low levels of spending on health care—in which babies who are not robust at birth do not receive the health care they need to overcome their vulnerability.

Reducing poverty and making needed structural changes to improve living conditions clearly are high priorities for developing countries. However, two other factors that also affect the likelihood of babies' dying during their first year are more immediately amenable to change: the age at which women have their children and the length of the interval between births. These factors, in turn, are strongly affected by women's use of modern contraceptive methods to control the timing of their births.

This *Issues in Brief* presents the most recent survey data on the relationships between high-risk births and infant mortality, and examines whether earlier conclusions about the potentially beneficial links between family planning and the survival of infants are still valid.

Risk Factors for Infants

Babies who have an increased risk of dying before their first birthday fall into three broad categories: those born to very young mothers, those born to women past their prime childbearing years and those born too soon after a previous birth.

Births to adolescents. Many adolescent women, especially in poor countries, are physically immature, which increases their risk of suffering from obstetric complications. For example, malnourished young women may not have developed sufficiently for the baby's head to be able to pass safely through the birth canal. Teenage mothers also have an increased risk of giving birth to an infant who is premature or low-birth-weight—conditions that reduce the resilience and stamina babies need to overcome infection or trauma early in life. Additionally, pregnant adolescents are less likely than older women to receive good prenatal care and skilled medical care at delivery, and to be able to provide adequate care for an infant.

For these reasons, babies born to teenage women are more likely to die than those born to women in their 20s and 30s. The infant mortality rate averages 100 deaths per 1,000 births among mothers younger than 20, compared with 72–74 deaths per 1,000 births among mothers 20–29 and 30–39. Moreover, among the developing countries studied here, the higher risk of babies born to young mothers is found at every income level (Table 2).

Births to older women. At the other end of the reproductive spectrum, many poor women in their 40s suffer from anemia, malnutrition, damage to their reproductive systems from earlier births and the sheer physical depletion associated with frequent childbearing—all conditions known to increase the likelihood of having a baby at increased risk of dying. The average infant mortality rate among women giving birth in their 40s—94 per 1,000 live births—is much higher than the rate among women in their 20s and 30s and almost as high as the rate among teenage mothers. As with adolescent mothers, high infant mortality rates among babies born to women in their 40s occur in countries at every income level.

Closely spaced births. Babies born less than two years after a prior birth are much more likely that those born after a longer

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table 1

Influencing Infant Survival

Country and year	Infant mortality rate	Per capita income (US $)	% of births to women under 20	% of births to women 40 and older	% of births less than 2 years apart	% of married women using a modern method	% of married women with unmet need for family planning
Sub-Saharan Africa							
Benin Rep., 1996	104	933	16	5	17	3	26
Burkina Faso, 1998–1999	109	965	17	5	17	5	26
Cameroon, 1998	80	1,573	21	4	25	7	20
Central African Rep., 1994–1995	102	1,166	22	5	26	3	16
Chad Rep., 1996–1997	110	850	21	3	24	1	u
Côte d'Ivoire, 1994	91	1,654	21	6	16	4	28
Eritrea, 1995	76	880	15	7	26	4	28
Ethiopia, 2000	113	628	14	6	20	6	23
Gabon, 2000	61	6,024	22	4	22	12	28
Ghana, 1998	61	1,881	15	5	13	13	23
Guinea, 1999	107	1,934	22	5	17	4	24
Kenya, 1998	71	1,022	18	3	23	32	24
Madagascar, 1997	99	799	21	5	31	10	26
Malawi, 2000	113	586	21	6	17	26	30
Mali, 1996	134	753	21	4	26	5	26
Mozambique, 1997	147	861	24	6	19	5	7
Namibia, 1992	62	5,468	15	7	22	26	22
Niger, 1998	136	753	23	5	25	5	17
Nigeria, 1999	71	853	17	5	27	9	18
Rwanda, 1992	90	885	9	7	21	13	36
Senegal, 1997	69	1,419	14	7	18	8	35
Tanzania, 1999	108	501	19	5	17	17	22
Togo, 1998	80	1,410	13	6	14	7	32
Uganda, 1995	86	650	23	4	28	8	35
Zambia, 1996	108	756	30	4	19	14	27
Zimbabwe, 1999	60	2,876	32	4	12	50	13
Latin America & Caribbean							
Bolivia, 1998	73	2,355	13	5	28	25	26
Brazil, 1996	48	7,037	19	3	29	70	7
Colombia, 2000	24	5,749	18	2	27	64	6
Dominican Rep., 1996	49	5,507	22	2	35	59	12
Guatemala, 1995	57	3,674	17	3	32	27	23
Haiti, 2000	89	1,464	15	6	27	22	40
Nicaragua, 1998	45	2,279	25	3	32	57	15
Peru, 2000	43	4,622	14	4	20	50	10
Asia							
Bangladesh, 2000	80	1,483	27	2	16	43	15
India, 1998–1999	73	2,248	22	1	28	43	16
Indonesia, 1997	52	2,857	13	4	15	55	9
Kazakhstan, 1999	55	4,951	11	2	32	53	9
Kyrgyz Rep., 1997	66	2,573	14	2	30	49	12
Nepal, 1996	93	1,237	18	3	24	26	31
Pakistan, 1990–1991	94	1,834	11	6	33	9	32
Philippines, 1998	36	3,805	8	4	36	28	19
Uzbekistan, 1996	44	2,251	12	1	30	51	14
Vietnam, 1997	29	1,860	8	2	19	56	7
Middle East & North Africa							
Egypt, 2000	55	3,420	10	3	24	54	11
Jordan, 1997	29	3,955	7	3	44	38	14
Morocco, 1995	66	3,419	10	10	26	42	16
Turkey, 1998	43	6,380	13	2	26	38	10
Yemen, 1997	90	806	12	7	37	10	39

Notes: u=unavailable. Data for infant mortality rate and births within two years refer to all births in the five years before the survey. The infant mortality rate is the number of deaths of infants under 12 months per 1,000 births. Modern contraceptive methods include the birth control pill, the IUD, the injectable, the implant, the condom and sterilization. Unmet need refers to the proportion of women aged 15–49 who do not want a child soon or do not want any more children, but are not using a contraceptive method.
Source: All data are from the Demographic and Health Surveys except for per capita income, which is from United Nations Development Programme, *2001 Human Development Indicators Report*, New York: Oxford University Press, 2001, pp. 141-145.

interval to be premature or low-birth-weight. As a consequence, the infant mortality rate is 117 per 1,000 live births when the interval is less than two years, compared with 64 per 1,000 when births are spaced 2–3 years apart and 47 per 1,000 when births are four or more years apart. This effect is found in every developing region. (Table 3).

High-Risk Births Common

High-risk births account for large proportions of births in developing regions. For example, births to adolescents account for at least 15% of births in 22 of the 26 Sub-Saharan African countries listed in Table 1 (column 3), six of the eight Latin American countries and three of the 10 Asian countries. In five other Asian countries and in four countries in the Middle East and North Africa, 10–14% of births are to adolescents. In 31 of the 49 countries listed, 4–7% of births occur among women in their 40s; in Morocco, the proportion reaches 10% (Table 1, column 4).

When births to the youngest and oldest mothers are combined, they account for 25–36% of all births in Bangladesh, Cameroon, the Central African Republic, Côte d'Ivoire, Gabon, Guinea, Madagascar, Malawi, Mali, Mozambique, Nicaragua, Niger, Uganda, Zambia and Zimbabwe.

Closely spaced births are also common: At least one in five births in 14 Sub-Saharan African countries, seven Asian countries and all of the listed countries of Latin America and the Middle East and North Africa occur less than two years after a previous birth (Table 1, column 5).

table 2
Mother's Age and Infant Mortality

Age of mother	Infant deaths per 1,000 live births			
	All countries	Low-income countries	Medium-income countries	High-income countries
<20	100	135	96	62
20–29	72	99	68	45
30–39	74	97	72	48
40–49	94	111	90	68

Note: Low-income countries have a mean per capita income of less than $1,000; medium-income countries have a mean per capita income between $1,000–$3,000; and high-income countries have a mean per capita income greater than $3,000.
Source: United Nations Development Programme, *2001 Human Development Indicators Report*, New York: Oxford University Press, 2001, Table 1, pp. 141–145; averages are based on 49 Demographic and Health Surveys.

Reducing the Risks

Women who practice family planning can avoid high-risk births and therefore reduce their chances of having a baby who will die in infancy. In fact, there is a strong negative correlation between levels of contraceptive use and levels of infant mortality. In countries where fewer than 10% of women use a modern contraceptive method (the pill, the injectable, the implant, the IUD, the condom or sterilization), the average infant mortality rate is 100 deaths per 1,000 live births, compared with 79 per 1,000 in countries where 10–29% of women use a method and 52 per 1,000 in countries where 30% or more do so (Chart A). As would be expected, given the high levels of infant mortality in Sub-Saharan Africa, contraceptive use is much lower there than in other regions; prevalence is below 10% is 16 countries and 5% or less in 10 (Table 1, column 6).

Most women throughout the world understand that it is healthier to have children at widely spaced intervals. In all regions, most women who say they want another child want to delay their next pregnancy for 3–5 years. Furthermore, many women have more children than they wanted. Yet, in 26 of the 49 countries, at least one in five married women who do not want a child soon or do not want any more children are not using a method of family planning (Table 1, column 7). In Haiti, Malawi, Nepal, Pakistan, Rwanda, Senegal, Togo, Uganda and Yemen, 30–40% of such women are not using a method.

In some parts of the developing world, effective spacing of births has traditionally been achieved through lengthy breastfeeding and postpartum abstinence from sexual intercourse. However, the number of months that women breastfeed in these societies has been declining, for several reasons. In countries with high levels of AIDS and HIV infection, some women who are HIV-positive do not breastfeed to reduce the chances of transmitting the virus to their infants. In addition, with growing urbanization, women increasingly work away from home, which makes the practice of breastfeeding difficult to maintain. Women in urban areas have also discovered that commercial infant formulas are easily available and offer greater convenience.

The practice of sexual abstinence for many months after the birth of a child has been weakened by declining levels of polygyny in Sub-Saharan Africa, by greater exposure through the mass media to modern concepts of what constitutes a healthy married life and by women's desire to stop their husbands from going to commercial sex workers.

Other Benefits

Efforts to reduce overall infant mortality rates by enabling women to control the timing of their births through the use of modern contraceptive methods have benefits beyond saving infant lives. Societies with high infant mortality rates also have high fertility rates, in part because couples try to compensate for the infant deaths they have witnessed or experienced. Large families, in turn, reduce the ability of poor parents to invest adequately in the health and education of each child. Thus, a reduction in infant mortality can create an environment in which couples feel less compelled to maintain high fertility levels to ensure the survival of at least some children. As a result, families will eventually grow smaller, and even at existing low income levels, parents will be able to invest more in each child.

Moreover, women who can delay childbearing until their 20s enhance their chances of staying in school. The positive effects of increased education on women's status, their ability to find paying jobs, and the welfare of their children and families have been well documented. Higher educational levels, especially for women, are also closely associated with lower infant mortality rates. Better-educated women are more likely than less-educated women to understand the importance of prenatal care, hygienic child care practices and good nutrition for themselves and their babies. They are also more likely to know where to go for health care and to be able to afford such care.

Finally, enabling women in their 40s to avoid becoming pregnant would reduce the number of unwanted births occurring in developing countries, given that most women this age have already attained their desired family size.

Challenges Ahead

In the world's poorest countries, government spending on health is estimated to be as low as $6 per person, and individual spending averages $11, for a total of no more than $17 per person annually. Even in developing countries with per capita incomes of almost $5,000, the sum of public and private spending

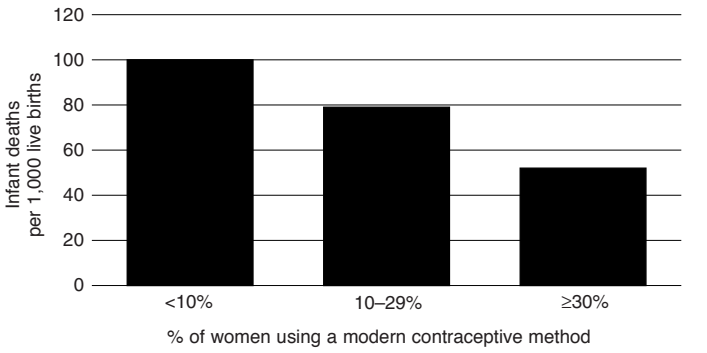
table 3
Birth Interval and Infant Mortality

Years between births	Infant deaths per 1,000 live births				
	All developing regions	Sub-Saharan Africa	Asia	Latin America & Carribbean	Middle East & North Africa
<2	117	139	97	83	92
2–3	64	78	54	48	41
≥4	47	56	40	35	32

Source: All data are from Demographic and Health Surveys; averages are based on 49 countries.

chart a
Contraception's Role

As contraceptive use increases, infant mortality declines.



Source: All data are from Demographic and Health Surveys; averages based on 49 countries.

on health is estimated to be no more than $360 per person a year. In developed countries, by contrast, per capita spending by governments and individuals is estimated to be $3,263 a year.[4]

In the early 1990s, the estimated cost of family planning programs in developing countries was relatively modest—between $1.00 and $1.25 per capita, or about $10–20 per contraceptive user per year.[5] Yet, given the current low levels of spending on health care in the world's poorest countries, even these small sums may be beyond the reach of many families and health care systems burdened by demands for expenditures in other important areas.

In addition, strong family and community values and norms in some countries perpetuate the idea that girls should marry very young and begin childbearing soon thereafter. As a result, many women in the developing world marry and give birth while they are still teenagers. It will take time to increase awareness of the potentially negative impact of these long-established norms and to effect changes.

At the same time, as women's educational levels increase, so does their desire to postpone marriage and childbearing. But the longer women delay marriage, the more likely they are to become sexually active before marriage. If women are to obtain the full benefits of increased education, they must have access to contraceptive services to avoid unintended and probably high-risk premarital pregnancies. In many developing countries, however, it is not considered appropriate for contraceptive services to be made available to single women, or for them to be sexually active.

Keys to Progress

Improved access to and use of family planning methods would enable women to reduce closely spaced births, limit childbearing to their 20s and 30s, and thereby reduce their chances of having a baby who dies in infancy. Where contraceptive prevalence is moderate to high (30% or more), the infant mortality rate is 48% lower than the rate in countries where fewer than 10% of married women practice contraception.

The positive impact of contraceptive use is particularly strong when it helps women avoid closely spaced births. When births are separated by less than two years, the infant mortality rate is 45% higher than it is when births are 2–3 years and 60% higher than it is when births are four or more years apart.

Over the last 30 years, contraceptive use has increased and infant survival has improved in many developing countries; foreign assistance has played a critical role in these achievements. Given the scant resources available in many developing countries to meet the need for care, funding from international donors for family planning services and contraceptive supplies continues to be needed.

At the same time, governments, nongovernmental organizations and donors that are concerned about the level of infant and child mortality also need to pay attention to broader factors—including poverty alleviation and improvements in health infrastructure and in women's education and status. These improvements are also essential to increase survival rates among babies born to poor women worldwide. The chances of significant gains in infant survival are greatly enhanced when broad-based strategies are combined with expanded access to family planning services.

References

1. Calculated from Population Reference Bureau (PRB), *2002 Data Sheet,* Washington, DC: PRB, 2002.

2. Alan Guttmacher Institute (AGI), 1995, *Hopes and Realities: Closing the Gap Between Women's Aspirations and Their Reproductive Experiences,* New York: AGI, 1995, Appendix Table 2, p. 45.

3. Bankole A and Westoff C, Childbearing Attitudes and Intention, *Demographic and Health Surveys Comparative Studies,* No. 17, Calverton, MD: Macro International, 1995, Table 5.2, p. 17.

4. *Macroeconomics and Health: Investing in Health for Economic Development,* Report of the Commission on Macroeconomics and Health, Geneva: World Health Organization, 2001, Table 8, p. 56.

5. World Bank, *Effective Family Planning Programs,* Washington, DC: World Bank, 1993.

Sources of Data

Demographic and Health Surveys (DHS) for 49 developing countries are the main source of data for this report. These are nationally representative surveys with sample sizes typically ranging between 5,000 and 15,000 women of reproductive age; they are carried out with technical assistance from Macro International.

Akinrinola Bankole and Susheela Singh oversaw the data compilation and analyses, and Rubina Hussain and April Fehling provided research assistance for this publication, which was written by Patricia Donovan and Deirdre Wulf. This *Issues in Brief* was made possible by support from The Bill & Melinda Gates Foundation.

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