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# Family planning: a health and development issue, a key intervention for the survival of women and children

## Introduction

In recent years, the global development agenda has become overwhelmingly dominated by the Millennium Development Goals (MDGs). Four of the eight MDGs fall under the broad umbrella of reproductive health: promoting gender equality and empowering women, reducing child mortality rates, improving maternal health, and combating HIV/AIDS, malaria, and other diseases. Family planning, an essential component of reproductive health, as defined by the 1994 International Conference on Population and Development, can accelerate the achievement of not only the four MDGs that are directly related to reproductive health, but can also help meet targets related to elimination of poverty and hunger and achieving environmental sustainability.

Available research shows that contraception has a striking impact on the lives of women in terms of both improved survival and empowerment. Without access to family planning, women are trapped in a vicious cycle that inhibits their full participation in socioeconomic development. This policy brief summarizes evidence on multiple benefits of family planning: both in health and survival and socioeconomic development of populations, supporting the conviction that family planning should have a much higher profile in international health priorities than it presently occupies.

## Benefits for survival and health

### *Benefits related to maternal mortality and health*

The main benefits of contraception for the health and survival of women and children derive from reductions in the number, and changes in the timing of pregnancies. On average a 10 percentage point increase in contraceptive use reduces total fertility per woman by 0.7 births, the proportion of order four or higher births by 5 percentage points, the proportion of births at maternal ages of 35 years or more by 1.5 points and the proportion of short intervals of less than 24 months between births by 3.5 points. These effects have profound implications for survival and health of women and children.

By lowering the pregnancy rate, contraceptive use has a very large effect on the number of maternal deaths. While delayed marriage and breastfeeding are also important in this regard, but fertility regulation is the dominant contributor, accounting for about 75% of the fertility declines over the past 50 years. One study has estimated that the decline in fertility between 1990 and 2005 in developing countries was responsible for preventing 1.2 million deaths over this period and increased contraceptive use can be accredited with three-quarters of those averted deaths (1). Furthermore, it has been calculated that, in developing countries between 1990 and 2008, fertility decline prevented 1.7 million deaths, equivalent to a 54% reduction in the maternal mortality rate (2). Other researchers have calculated that, in 2008, use of modern contraception prevented 230 000 maternal deaths in developing countries (3).

One way of gauging the future potential of increased contraception to further reduce maternal mortality is to estimate the effects of fulfilling unmet need for contraception. Three independent analyses give remarkably similar results: maternal deaths could be cut by about 30% if all women wishing to avoid future pregnancies were to use effective contraception (3, 4, 5). This figure overestimates the short-term impact because unmet need cannot be instantaneously eliminated, but underestimates the longer-term impact because need for contraception is expected to increase, particularly in countries where it is currently low.

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Contraceptive use also affects the maternal mortality ratio, through two possible pathways. First, it may avert pregnancies that represent a higher than average risk to the mother: those occurring at ages under 18 or over 34 and at parities four or higher, plus pregnancies that would have ended in unsafe abortion. The second pathway stems from the fact that, as the total number of pregnancies falls due to increased contraception, obstetric health-seeking improves. The probability of an unsupervised delivery, for instance, rises steeply by birth order. The odds of an unsupervised delivery for third and fourth births, compared with first or second births, ranged from 1.33 to 1.78 in five developing countries, after adjustment for education, wealth and place of residence, and were higher still for fifth and higher order births (6). Thus, a largely unacknowledged synergy exists between family planning programmes that seek to reduce unintended pregnancies and safe motherhood initiatives with their emphasis on coverage and quality of obstetric services.

One study (7) used the decomposition approach to estimate the contributions of fertility decline and improved obstetric care to the fall in the maternal mortality ratio in Bangladesh, India and Pakistan between 1990 and 2008. It found that about two-thirds of the declines were attributable to improved care (reflecting safe motherhood initiatives) and about one-third to fertility decline (reflecting family planning initiatives). Applying panel regression techniques to data from 40 developing countries, Cleland et al. (8) conclude that increased contraceptive use over an average period of 12 years was responsible for a 26% decline in the maternal mortality ratio.

### ***Benefits related to newborn health and survival***

The best evidence related to perinatal outcomes comes from a systematic review (9) of 67 studies, which analysed outcomes of prematurity, small-for-gestational-age, low birth weight and fetal death and early neonatal death. The meta-analysis showed significant adverse effects on these outcomes of short intervals from the end of the preceding pregnancy/birth to the conception of the index pregnancy. For prematurity, for instance, the adjusted odds ratios for intervals of less than 6 months, 6–11 months and 12–17 months were 1.40, 1.14 and 1.07, respectively, relative to intervals of 18–23 months. Results for small-for-gestational-age and low birth weight were similar and effects were larger in developing than developed countries. The public health implications of these findings are underscored by two considerations: (i) prematurity is now the second most common cause of under-five mortality in developing countries; and (ii) fetal growth is an important risk factor for coronary heart disease and stroke in adult life.

Evidence concerning the association between birth spacing and infant and child survival comes almost entirely from developing countries and is dominated by cross-sectional demographic surveys. The most recent and comprehensive analysis from these sources examined the effect of preceding interval length on survival of the index birth on a pooled sample of over one million births from 52 surveys and controlled for a large number

of potential confounders (10). Expressed in terms of inter-birth intervals, the pooled analysis showed that, relative to preceding intervals of 3–5 years, intervals of less than two years were associated with a 60% increase in the risk of infant death and intervals of two to three years with a 10% increase.

The risks of dying in early childhood, between ages one and five years, is also affected by spacing, not only by the preceding interval length, but also by the early conception of a younger sibling, which may curtail breastfeeding of the index child, and who represents additional competition for scarce family resources. The birth of a younger sibling within two years is associated with a doubling of mortality in the second year of life and smaller adverse effects at ages two to five years (11). In many Asian and Latin American countries, these results are of little public health importance for two reasons: early child mortality is low and fertility is also low, implying that only a minority of children face the double jeopardy of closely spaced older and younger siblings. However, they have major relevance in sub-Saharan Africa, where, because of continuing high fertility, about 60% of children have younger and older siblings and where early childhood mortality accounts for between 30% and 60% of all under-five deaths (12). Drawing on the Hobcraft et al. (11) results, it was concluded that elimination of all birth intervals of under two years would reduce infant mortality by 10% and early childhood mortality by 21% and benefits of this order of magnitude apply to most high fertility countries (13).

Short intervals between births are common. In 72 countries, an average of 25% of second or higher order children were born within two years of an elder sibling and 57% within three years (14). In 46 countries for which trends could be assessed, an average reduction of 3.8 percentage points per decade in intervals of less than 24 months was observed, with larger decreases for better educated women and those from wealthier households. A greater emphasis on postpartum contraception would accelerate this sluggish rate of improvement.

### **Social benefits**

Two key social benefits of contraception are women's empowerment and education, both of which are MDGs. The relationship between contraception/lower fertility and empowerment is reciprocal: greater empowerment is likely to raise contraceptive practice and vice versa. The relationship is complicated by the fact that empowerment is multifaceted and progress on one dimension does not guarantee progress on others. Nevertheless, it is undeniable that the transition from a high fertility regime to a low fertility one represents a profound shift in the lives of women and that reproductive control is a central pillar of women's autonomy. In a high-fertility setting it has been estimated that women spend 70% of their lives in child rearing and caring whereas in a low fertility one this proportion drops to 14% (15). Clearly, this change represents an opportunity for enhanced participation in public life, including paid employment in non-family organizations and, as expected, women's employment does typically rise as fertility falls (16).

The MDG on education aims to achieve universal primary schooling. Family planning makes this goal more feasible. The advent of smaller families allows parents to invest more in each child. Countless studies have shown that children with few siblings tend to receive a longer schooling than those with many siblings.

## **Economic benefits**

Costing of family planning services is usually expressed in terms of cost per couple year of protection or cost per unintended pregnancy/birth that is averted. These costs vary according to the type of delivery system and the method-mix as well as according to the provision made in estimates for capital and training elements. Because of these complexities, costs per cost per couple year of protection or per averted birth vary. For instance, Levine et al. (17) estimate the cost per averted birth to be typically around US \$ 100 (in 2001 US dollars terms). Similarly, a cost to be US \$ 67 (in 2008 US dollars terms) may be inferred from another study (3).

## **Economic value of health impacts**

The health benefits of interventions are usually calibrated in terms of disability adjusted life years (DALYs) saved. Singh et al. (3) have provided estimates of maternal and newborn deaths and DALYs saved in developing countries by current contraceptive use in 2008 as well as estimates of deaths and DALYs that could be saved by fulfilment of unmet need, together with cost estimates. Using the widely accepted value of US\$ 1000 for one saved DALY and the Singh et al. figures, Kohler (18) derived a benefit–cost ratio of 30:1 for fulfilment of unmet need. This extremely favourable ratio stems in large measure from the contentious inclusion of DALYs stemming from newborn deaths averted, which were derived by applying neonatal mortality rates to the number of averted births. However, even if the benefit–cost ratio estimates are confined to DALYs arising from maternal deaths saved, the ratio remains an impressive 10:1.

## **Economic value of savings on services**

In both high- and low-fertility countries, the prevention of unintended pregnancies and births by contraception implies savings on obstetric, child health and other related services, together with lagged savings on education. One study (19) estimated the costs of meeting unmet need for contraception, the effect on number of pregnancies and births, and the savings that would be made in fulfilling selected MDG targets. For each country two population scenarios were generated, one in which the level of contraceptive use remained unchanged and the second in which unmet need was steadily eliminated by increased use between 2005 and 2020. The annual increase in use implied by the second scenario typically lay between one and two percentage points and thus was not unrealistically high. Benefits, in terms of savings in meeting selected MDGs, and costs were also estimated for the decade 2005–2015. The largest savings were in primary schooling and in obstetric care, with smaller savings in immunization, provision of

bed nets for malaria prevention and improvements in water and sanitation. Benefit–cost ratios ranged from 2.03 in Ethiopia to 6.22 in Senegal with an average across all 16 countries of 3.7.

## **Longer-term macroeconomic benefits**

The World Bank has estimated the savings required to maintain wealth, or capital, per head in a large number of developing countries. A report from the Bank (20) states that, “Countries with rapid population growth rates are effectively on a treadmill and need to create new wealth just to maintain existing levels of wealth per capita” (pXV1). The same report concludes that existing levels are not being maintained and that large savings deficits exist in most African countries where populations are still growing at a rapid pace. Similarly, another author has (21) examined trends in wealth (broadly defined to include improvements in knowledge and institutions as well as natural and manufactured capital) and GDP per head between 1970 and 2000 for sub-Saharan Africa as a whole and for five Asian countries. In all the Asian countries GDP per head increased but wealth per head declined (except in China) because population increased faster than wealth. In Africa, GDP per head remained broadly unchanged but wealth per head declined at an annual rate of 2.8%. These results are worrying because they imply that today’s living standards are being achieved at the expense of the standards of future generations. Lower fertility and population growth do not constitute a panacea but they do make solutions more feasible.

One study has (22) estimated that about 30% of the rapid economic growth in East Asia was attributable to fertility declines and subsequent changes in age structure. Another study (23) concludes that, worldwide, about 20% of the growth in per capita output is attributable to demographic change with larger gains in Asia and Europe than elsewhere.

## **Environmental benefits**

Evidence is accumulating that humanity is approaching planetary boundaries within which it has to keep to avoid potentially catastrophic consequences (24). These include climate change, freshwater use, ocean acidification, biological diversity and land use change. Of course, increase in consumption rather than in population is primarily responsible for most of these global threats. CO<sub>2</sub> emissions per head in the USA are more than 20 times higher than in the least developed countries. However, the increase of three billion in global population projected for the next four decades is directly implicated in further loss of biodiversity and further land use change and associated pressure on freshwater (due to increased demand for food). Moreover, it is hoped that poor nations—whose contribution to past environmental damage is minor—will become richer and thus their potential for damage will increase. Per capita CO<sub>2</sub> emissions in less developed countries have risen sharply in the past decade due to rapid economic growth in Asia and Latin America (25). It has been argued that prevention of unwanted childbearing is one of the most cost–effective ways of controlling carbon emissions in developing countries (26, 27).



## Policy implications

Contraception has a wide range of positive impacts on both the health of women and children, and socioeconomic development. The impact on the lives of women is particularly striking, in terms of both improved survival and empowerment. The impact on perinatal, infant and child health is also considerable and could be increased by a sharper focus on contraception to space births. Family planning should have a much higher profile in international health priorities than it presently occupies, especially in countries where fertility and unmet need are high. The rationale for a revitalization of the family planning agenda extends far beyond health. Reduction in unintended pregnancies will contribute to the achievement of nearly all MDGs, including reduction of poverty and hunger. Some of the short-term impacts can be quantified with reasonable precision. The longer-term economic and environmental benefits are more difficult to measure than short-term gains, but are likely to be of crucial importance.

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