

W Sexual and Reproductive Health 3

Family planning: the unfinished agenda

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Promotion of family planning in countries with high birth rates has the potential to reduce poverty and hunger and avert 32% of all maternal deaths and nearly 10% of childhood deaths. It would also contribute substantially to women's empowerment, achievement of universal primary schooling, and long-term environmental sustainability. In the past 40 years, family-planning programmes have played a major part in raising the prevalence of contraceptive practice from less than 10% to 60% and reducing fertility in developing countries from six to about three births per woman. However, in half the 75 larger low-income and lower-middle income countries (mainly in Africa), contraceptive practice remains low and fertility, population growth, and unmet need for family planning are high. The cross-cutting contribution to the achievement of the Millennium Development Goals makes greater investment in family planning in these countries compelling. Despite the size of this unfinished agenda, international funding and promotion of family planning has waned in the past decade. A revitalisation of the agenda is urgently needed. Historically, the USA has taken the lead but other governments or agencies are now needed as champions. Based on the sizeable experience of past decades, the key features of effective programmes are clearly established. Most governments of poor countries already have appropriate population and family-planning policies but are receiving too little international encouragement and funding to implement them with vigour. What is currently missing is political willingness to incorporate family planning into the development arena.

Programmes to promote family planning in developing countries began in the 1960s in response to large improvements in child survival, which in turn led to rapid population growth. In Asia, the main motive was to enhance prospects for socioeconomic development by reducing population growth,¹ and governments took the lead. In Latin America, initiatives were galvanised by evidence of increases in illegal unsafe abortions,² and

efforts to remedy the situation by providing access to modern contraceptives were spearheaded by non-governmental organisations. We present our key messages in panel 1.

The number of developing countries with official policies to support family planning rose from only two in 1960 to 74 by 1975 and 115 by 1996.³ International funding increased in parallel from US\$168 million in 1971 to \$512 million in

Panel 1: Key messages

- Family-planning promotion is unique among medical interventions in the breadth of its potential benefits: reduction of poverty, and maternal and child mortality; empowerment of women by lightening the burden of excessive childbearing; and enhancement of environmental sustainability by stabilising the population of the planet.
- National family-planning programmes have proved effective in reducing fertility and making progress towards population stabilisation in most of Asia and Latin America, although the needs of poor populations remain only partly addressed.
- Many of today's poorest countries, mainly in sub-Saharan Africa, still have high fertility and high unmet need for family planning, and their populations are projected to double in the next few decades.
- In most African countries, contrary to the impression presented by numerous pronouncements from eminent leaders and current funding patterns, high fertility and rapid population growth represent a bigger threat to achievement of the Millennium Development Goals than HIV/AIDS.
- In the past decade, family planning has dropped down the list of international development priorities, with the result that demographic issues in poor countries have been severely neglected.
- The family-planning agenda must be revitalised but, for once, leadership might need to come from Europe rather than the US administration.
- Most governments in poor countries have appropriate population and family-planning policies but are receiving little encouragement and insufficient funds from international and bilateral donors to implement them with conviction.
- The keys to effective and sustainable family-planning programmes are well established: high-level political commitment; a broad coalition of support from elite groups; adequate funding; legitimisation of the idea of smaller families and modern contraceptives through mass media etc; and making a range of methods available through medical facilities, social marketing, and outreach services.
- No contradiction needs to exist between respect for reproductive rights and strong advocacy for smaller families and for mass adoption of effective contraceptive methods.

1985.⁴ Success in boosting contraceptive use and reducing fertility was slow to come but, by 1990, reproductive change was established throughout most of Latin America and Asia, including some of the world's poorest countries such as Bangladesh and Nepal, and fertility decline had begun in sub-Saharan Africa. Between 1960 and 2000, the proportion of married women in developing regions using contraception rose from less than 10% to about 60%, and the average number of births per woman fell from six to about three.⁵ However, these figures mask huge regional variations in fertility and future population growth (panel 2).

Success came at a price. The strategies used by some Asian programmes to achieve an effect on fertility were criticised as coercive and the quality of family-planning services in many countries was deemed unsatisfactory.⁷ These concerns bore fruit at the fifth international population conference held in Cairo in 1994. The recommendations of the Cairo conference replaced the hitherto dominant demographic-economic rationale for family-planning programmes with a broader agenda of women's empowerment and reproductive health and rights.

Despite the enthusiasm generated by the conference, family-planning promotion has dropped steadily down the list of international development priorities since 1994. The unlinking of family planning from economic development was partly a cause of this fall, and continuing fertility decline in many countries encouraged a belief that the issue was largely solved. New priorities arose that included HIV/AIDS, population ageing, and international migration. Between 1995 and 2003, donor support for family-planning commodities and service delivery fell from US\$560 million to \$460 million.⁸ The people who drafted the Millennium Development Goals (MDGs) in 2000 ignored the difficulties posed by sustained rapid population growth in many of the world's poorest countries and spurned the central goal set at Cairo of achieving universal access to reproductive-health services (including family planning). Little progress towards reversal of this omission has been made over the past 5 years, and the topics of population growth and family planning have continued to be marginalised in key reports.^{9,10}

Panel 2: Past and future population growth

Between 1960 and 2005, the global population rose by 114%, from 3 billion to nearly 6.5 billion (table 1). Over the next 45 years, the percentage increase is expected to be much lower (40%) but will remain huge in absolute numbers (2.6 billion). These medium-variant UN population projections are highly sensitive to assumptions about future fertility. The UN assumes that fertility in Asia and Latin America will fall from 2.4 to slightly below 2.0 births per woman and that it will rise in Europe from its current level of 1.4 to 1.8. In sub-Saharan Africa, fertility is assumed to drop steadily from more than 5.0 to about 2.5 births by 2050. Under these assumptions, world population is expected to be a little over 9 billion in 2050. However, if fertility is half a birth higher or lower over the next 45 years, the global population will reach 10.6 and 7.7 billion, respectively, by 2050. Half the expected increase will come from Asia and 36% from sub-Saharan Africa. Differences in regional growth rates are having a profound effect on the distribution of the world's population. Even after allowing for in-migration, Europe's share of total population is expected to decline from 20% in 1960 to 7.2% in 2050, whereas sub-Saharan Africa's share will rise from 7.5% to 18.6% over the same period.

Three main factors account for future population growth. The first, population momentum, relates to the fact that the birth rate in many developing countries is sustained at the raised level because of the high proportion of the population in the reproductive age range (see pyramid B, figure 1). The effect of this factor will gradually diminish as populations age (see pyramid C, figure 1), but between now and 2050 it accounts for more than half the projected increase in population. The second factor is unwanted births (a result of unmet need for contraception). Elimination of such births would reduce population growth by about 20%. The third factor is high desired family size: many couples report that they want more children than the number that will eventually allow population size to stabilise. This factor also accounts for about 20% of population growth, but more in Africa where desired family sizes are especially high.⁶

	Population size (million)			Absolute change 2005-50 (million)	Percent change 2005-50
	1960	2005	2050		
Asia	1699	3905	5217	1312	34
Europe	604	728	653	-75	-10
Latin America and Caribbean	219	561	783	222	39
North Africa	67	191	312	121	63
North America	204	331	438	107	32
Oceania	16	33	48	15	44
Sub-Saharan Africa	226	751	1692	941	125
World	3024	6465	9076	2611	40

Table 1: Population growth from 1960 to 2050, by region

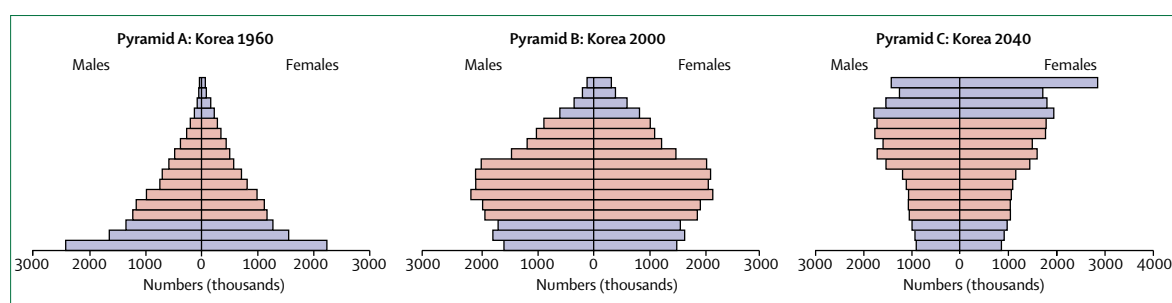


Figure 1: Age structure in Republic of Korea in 1960, 2000, and 2040 (projected)

Every horizontal bar represents a 5-year age-group. The red bars represent economically productive age-groups (age 15-64 years).

Panel 3: Can disaster be prevented in Niger?

Niger is one of the poorest and least literate countries in the world. It is also one of 12 nations whose population is expected to triple (or more) in size by 2050 (table 2). Since the 1960s, the population of Niger has already tripled, whereas its arable rain-fed land area has declined by half as a result of drought. The present situation is dire. In the 1990s, grain production was 15% lower than needed and in 2005 a famine was averted only by international food relief.¹¹ The consequences of continued rapid population growth are potentially catastrophic. Prospects for future food sufficiency are especially bleak.¹²

The fertility rate in Niger remains unchanged and is one of the highest in the world. Contraceptive use is very low and is predominantly for spacing children rather than limiting family size. Only 17% of women from Niger have an unmet need for family planning and, of these, 56% do not intend to use modern contraception in the future. Child mortality remains very high with more than a quarter of children dying by age 5 years. Nevertheless, women aged 30–39 years, on average, have more than four surviving children but over 90% with four children want more. Improvements in child survival should be a top priority but should not be used as a reason for failing to address population growth. Rapid and deep reductions in fertility must be a central part of the solution, which will require massive efforts to change the reproductive culture in addition to improving access to services. The example of Kenya (see panel 7) indicates that the task is not impossible but it will need strong political will. The creation of a new ministry to address population matters is an encouraging sign.

	Indicator	Year
Current population	14 million	2005
Projected population (assuming constant fertility)	82 million	2050
Projected population (assuming fertility declines to 3.6 by 2050)	50 million	2050
Total fertility rate (children per woman)	7.5	1998
Modern contraceptive use by married women (%)	4.6	1998
Mean desired number of children	8.2	1998
Life expectancy (years)	43	2005
Children stunted at younger than 5 years (%)	40	1996–2004

Table 2: Key indicators for Niger

In the next section of this report we show why family-planning promotion should be reinstated as a priority in most of the poorest countries of the world, where fertility and population growth remain high. We make the case that achievement of MDGs in these nations is dependent to a large extent on success in addressing population issues. No other individual medical intervention has such a broad span of potential benefits.

Why does family planning still matter?

Poverty reduction

Seemingly self-evident to many non-economists, is the idea that rapid growth in a population (usually defined as an annual increase of 2% or more, equivalent to a doubling of population size every 36 years) can only exacerbate the issue of poverty, especially in countries where underemployment is already high or where food security is a major concern (panel 3). Furthermore, in stagnant economies, the notion is undeniable that

population growth inevitably boosts the number of poor people—as has happened in sub-Saharan Africa where the estimated number of individuals living on less than a dollar a day rose from 164 million in 1981 to 316 million in 2001.¹³ Nevertheless, estimation of the effect of demographic factors on economic welfare has proved elusive, partly because poverty reduction is also affected by many other powerful forces. Paradoxically, during the heyday of international investment in family planning in the 1980s, the prevailing view on the demographic-economic relation among economists was cautious bordering on neutrality.¹⁴ Since that time, evidence has become more affirmative on the benefit of reductions in fertility and population growth.¹⁵ A study of 45 countries estimated that the proportion of people living in poverty would have fallen by a third if the crude birth rate had decreased by five per 1000 population in the 1980s.^{16,17} Fertility decline also brings a long-term benefit. Some 20 years after the onset of the drop in fertility, the proportion of the population aged 15–65 years starts to rise faster than that of individuals in less economically

Panel 4: Fertility decline, population age structure, and economic implications

The effect of fertility decline on population age structure is well illustrated by the case of the Republic of Korea (figure 1). Pyramid A shows the age structure in 1960, when the country had high fertility. At that time, 42% of the total population were younger than 15 years and 3% were aged 65 years and older: the number of working-age adults per 100 dependants was an unfavourable 120. From 1965, fertility fell sharply. By 2000 (pyramid B), this ratio had risen to 250, mainly because of relative falls in the number of children. By 2040, 30% of the total population is expected to be aged 65 years or older and the ratio will have fallen back to 137.

Economic research confirms the commonsense expectation that the era of a high ratio of adults to dependent young and old age-groups (pyramid B) provides countries with a unique but transient opportunity to make rapid gains in living standards, because income can be used for productive investment rather than expended on support of young and old people. About a third of the economic growth of east Asian economies in the 1980s and 1990s is attributable to this so-called gift of demographic modernisation.¹⁸ Realisation of this gift, however, is conditional on demand for labour, sound governance, and appropriate institutions for savings and investment. These conditions were not fulfilled in most of Latin America, for instance, which had a similar transformation of age structure to east Asia but recorded a meagre annual increase in gross domestic product per head of only 2% between 1980 and 1999 compared with more than 6% in most of east Asia.¹⁹ However, economic performance in Latin America might have been even more dismal but for the region's large fertility decline.

productive age ranges (0–14 and ≥ 65 years). This advantageous era lasts for a few decades only, to be followed by rapid growth in the elderly population (panel 4). This final phase, a cause of much current concern in advanced industrial countries, is an inevitable outcome of high life expectancy and low fertility, but remains a distant prospect in today's poorest countries.

Elucidation of the link between household poverty and childbearing has also proved contentious. Existence of a strong correlation is not in doubt. In 56 developing countries, on average, the poorest fifth of women had a fertility rate of six births, compared with 3·2 births in the wealthiest fifth.²⁰ However, interpretations of the association have varied. The assumption of many economists is that behaviour is rational, thus fuelling widespread beliefs that poor people need many children (eg, for help with household production and for security in old age) and that family-planning promotion cannot succeed in very poor countries. Both ideas are profoundly mistaken. Family-planning promotion has succeeded in very poor countries and much of the fertility difference between rich and poor populations stems not from the application of reproductive choice but from the absence of such an option for the poor. Unmet need for contraception and unwanted childbearing are invariably higher for poor couples than for wealthy individuals, as will be shown later.

Households with many children are more likely over time to become poor and less likely to recover from poverty than families with only a few children.²¹ Furthermore, children from large families are usually less well nourished and less well educated than those from smaller families.²² In Asia, the penalty of many siblings in a low-income household falls disproportionately on daughters.^{23,24} By reaching poor populations with information and services, effective family-planning programmes reduce the fertility gap between rich and poor people and make a powerful contribution to poverty reduction.²⁵

Health benefits

By contrast with the complicated links between fertility, population growth, and poverty, the benefits of family planning for the survival and health of mothers and children are fairly straightforward. In 2000, about 90% of global abortion-related and 20% of obstetric-related mortality and morbidity could have been averted by use of effective contraception by women wishing to postpone or cease further childbearing.²⁶ A total of 150 000 maternal deaths (representing 32% of all such deaths) could have been prevented with high cost-effectiveness, with much of this benefit reaped in Africa and Asia.

Family planning also brings large potential health and survival benefits for children, mainly as a result of wider intervals between births. Findings of studies in both rich and poor countries show that conceptions taking place within 18 months of a previous livebirth are at greater risk

of fetal death, low birthweight, prematurity, and being of small size for gestational age.^{27,28} The mechanisms underlying this association are thought to include postpartum nutritional depletion, especially folate deficiency.²⁹

Examination of the association between birth interval length and infant and child mortality in developing countries has been dominated by two major sources of evidence: cross-sectional surveys undertaken under the auspices of the demographic and health surveys (DHS); and prospective surveillance data from the Matlab district of Bangladesh.^{30,31} A conservative view of this evidence suggests that about 1 million of the 11 million deaths per year of children younger than 5 years could be averted by elimination of interbirth intervals of less than 2 years. Effective use of postpartum (and postabortion) family planning is the most obvious way in which progress towards this ideal could be achieved. Family planning is one of the most cost-effective ways of reducing infant and child mortality and this contribution has been overlooked too often on this topic.³²

Gender-equality, human rights, and education

Freeing women from involuntary reproduction was one of the main inspirations for family-planning pioneers 100 years ago and remains just as relevant today. The reproductive revolution—the shift from six births, of whom several might die, to around two births, nearly all of whom survive—represents the most important step towards achievement of gender equality by boosting women's opportunities for non-domestic activities. In most developing countries, for instance, women's participation in the labour force has increased as fertility has fallen.³³ Quite apart from these socioeconomic considerations, contraception allows the attainment of a fundamental human right to choose the number and timing of children. Indeed, “freedom from the tyranny of excessive fertility”³⁴ has been dubbed the fifth freedom, standing alongside freedom of speech and worship and freedom from want and fear.

The achievement of universal primary education for both sexes is an important MDG and many countries seek to increase secondary-level and tertiary-level enrolments. High fertility and rapid population growth has a direct and easily quantifiable effect on the feasibility of meeting such goals. Even to maintain existing standards, governments of rapidly growing populations have to double the number of teachers, equipment, and classrooms every 20–25 years, and a similar strain is placed on health services for infants and children. Some such governments have succeeded heroically in improving school enrolments but at the cost of diverting revenue from other forms of development.³⁵ More frequently, however, expenditure per pupil has fallen and quality of education has dropped.³⁶ If MDG on education were met only by declines in the quality of schooling then this victory would be hollow.

Panel 5: Causes and implications of unmet need

Evidence of causes of unmet need comes from both surveys and qualitative investigations. For a small proportion (10–25%) of women, low perceived risk of conceiving is the main reason for unmet need, but for most individuals, obstacles prevent the translation of genuine need into contraceptive adoption. The four key barriers are: insufficient knowledge about contraceptive methods and how to use them; fear of social disapproval; fear of side-effects and health concerns; and women's perceptions of husbands' opposition.^{43–46} These obstacles can combine to form a formidable barrier to reproductive change in the early phase of family-planning programmes, because the idea of deliberate control of conception by unfamiliar means sometimes evokes suspicion and fear. Health and family-planning staff might be respected for their technical competence but far more influential are the experiences of friends and family with contraceptive methods.^{47,48} Contraceptive practice often takes time to evolve from a strange and frightening behaviour into a humdrum element of everyday life.

The importance of men's opposition to the adoption of contraception by women has been widely discussed. Women's testimony suggests that it is a major barrier but surveys of men or of couples show that men are more likely to report contraceptive use than women, their attitudes to the subject are similar, and, except in polygynous societies, their reproductive aspirations are also similar.^{49,50} Contrary to conventional wisdom, where spouses' views differ, the husband's wish does not necessarily prevail.⁵¹ Misperceptions by women of husbands' attitudes, indicating absence of discussion, might be the real issue.

Estimates of the effect on fertility of satisfying unmet need are of considerable policy importance. Fulfilment of spacing needs will have a smaller effect than fulfilment of limitation needs. To be realistic, allowance must also be made for the fact that many women with unmet need state no intention to use family planning in the future because the severity of obstacles overrides the desire to space or limit childbearing. After adjustment for these two considerations, fulfilment of unmet need is estimated to reduce fertility by 35% in Latin America and the Caribbean, by about 20% in the Arab States and in eastern and southern Africa, and by about 15% in Asia and west Africa.⁴¹ Notably, fertility in west Africa would fall only modestly from 5.6 to 4.8 births per woman.

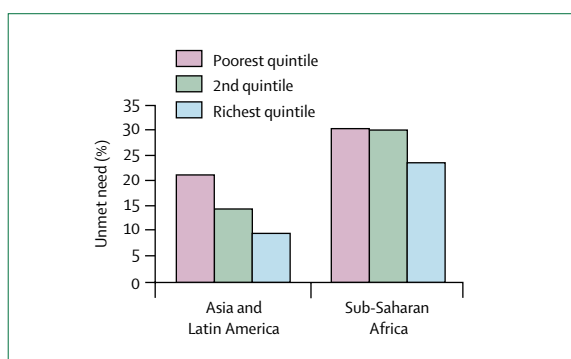


Figure 2: Unmet need in married women by DHS wealth quintiles
Unweighted averages from DHS data from nine Asian and Latin American and eight African surveys, where overall contraceptive prevalence is 20–60%. DHS=demographic and health surveys.

Environmental sustainability

Rich nations with low population growth are mainly accountable for unsustainable exploitation of the planet's resources and for threats to the global environment. Poor countries with high rates of population growth have contributed rather little to carbon dioxide and other forms of emission.³⁷ Nevertheless, population growth also threatens the environment. Past growth has had a

direct effect on increasing the fraction of land area devoted to food production, with inevitable loss of natural habitats and biodiversity. Little further scope exists for incorporation of fertile land into agricultural production. Thus, further population rises, particularly in poor agrarian countries, will put fragile marginal land under pressure from overcropping and overgrazing, with potentially severe outcomes in terms of loss of vegetation cover, soil fertility depletion, and soil erosion. These dangers are especially acute in Africa, where the ratio of arable land to population engaged in agriculture has already fallen steeply and where rural populations will continue to expand for decades.³⁸

Increasing demand for water is also directly related to population growth, mainly through the extra water needed to grow more food. About a third of the world's population live under conditions of moderate or high water stress, a categorisation implying that water availability is already, or is becoming, a limiting factor. This proportion is bound to rise and could reach two-thirds by 2025.³⁹

Poor countries will hopefully become richer countries, albeit enhancing their potential to degrade the global environment. Increases in CO₂ emissions have been far greater in the rapidly growing economies of China and India than in Europe or North America. In a world of 12 billion inhabitants, much more severe measures would be needed to stabilise the planet's environment than in a world of 8 billion people. Prevention of unwanted births today by family planning might be one of the most cost-effective ways to preserve the planet's environment for the future.⁴⁰

Overview

Reduced fertility and population growth, by themselves, will not automatically achieve aspirations for a better world, such as those enshrined in the MDGs, but they make achievement much more feasible. Their cross-cutting contributions to poverty reduction, better health, enhanced education, gender equality, and the environment make continued investment in family planning compelling.

Nature and extent of unfinished business

Promotion of family planning has been a huge success in many developing countries and to suggest that it should be reinstated as a top development priority in all developing countries would be both unhelpful and untrue. But how should countries be ranked in terms of need? The most generally used criterion, derived from surveys, is unmet need for family planning—ie, the proportion of fecund married women who wish to avoid further childbearing altogether or postpone their next child for at least 2 years but who are using no method of contraception. Progressive satisfaction of unmet need through, for instance, better access to services, remains the key historic mission of programmes, and clear

Population growth rate per year (2005–2010)	Unmet need		
	Low (<10%)	Medium (10–19%)	High (≥20%)
High (≥2%)		Nigeria (24) Niger (25) Paraguay (21) Nicaragua (26) Honduras Jordan (34)	Yemen (37) Rwanda (24) Ethiopia (20) Uganda (28) Pakistan (40) Togo (14) Senegal (18) Burkina Faso (13) Mali (22) Laos Malawi (17) Sierra Leone D R Congo Angola Benin (16) Iraq Burundi (22) Sudan (29) Kenya (23) Somalia Madagascar (24) Chad (26) Guatemala (32) Afghanistan Syria Guinea (17)
Medium (1–1.9%)	Egypt (24) Indonesia (13) Iran Brazil (30) Colombia (20) Vietnam (16)	Tunisia (37) Mozambique (16) Philippines (33) El Salvador India (28) Algeria Ecuador (16) Uzbekistan (30) Kyrgyz Republic (30) Bangladesh (16) Dominican Republic (28) Morocco (17) Peru (20)	Haiti (27) Ghana (14) Nepal (23) Cambodia (21) Côte D'Ivoire (16) Zambia (16) Papua New Guinea Bolivia (28) Tajikistan Tanzania (17) Cameroon (22)
Low (<1%)	Democratic Republic of Korea Kazakhstan (32) Thailand (24) Cuba Romania China	Ukraine Belarus Zimbabwe (11) Sri Lanka (29) Azerbaijan	Burma Serbia Bulgaria
	CP 60%, TFR 2.3	CP 47%, TFR 2.8	CP 27%, TFR 3.9

Figure 3: Classification of 75 low-income and lower-middle-income countries by population growth (2005–10) and unmet need for contraception

Countries are colour-coded on the basis of abortion policy (Center for Reproductive Rights, 2005). Red=abortion prohibited altogether or only to save the woman's life. Orange=abortion allowable under restricted circumstances (eg, to save the woman's life or if fetus has abnormality). Blue=abortion allowable on demand or for economic, social, or psychological reasons. Number in parentheses represents percentage of second and higher order births happening less than 24 months since previous birth, according to DHS data. CP=unweighted mean contraceptive prevalence in married women for every cell. TFR=unweighted mean total fertility rate for every cell. Within every cell, countries are listed in order of decreasing unmet need. Unmet need imputed for 12 countries without a direct estimate based on contraceptive use and level of unmet need in adjacent countries.

progress has been achieved, except in Africa.⁴¹ Addressing unmet need has been the main driving force behind increasing contraceptive prevalence over past decades.⁴² Thus, unmet need is a useful and robust measure of progress towards the ideal in which everyone at potential risk of an unintended pregnancy is using contraception (panel 5).

Estimates of unmet need are available for 57 developing countries that have undertaken a DHS inquiry since

1995.⁴¹ In 13 nations, of which nine are in sub-Saharan Africa, total unmet need exceeds 30% in all married women. In an additional 18 countries, 15 of which are in sub-Saharan Africa, the estimate lies between 20% and 30%. In most African countries, unlike in other regions, unmet need for birth spacing exceeds that for family-size limitation, sometimes by a wide margin. This contrast indicates the great importance attached in Africa to the spacing of children, combined with a

reluctance to commit to a final cessation of childbearing.⁵² Within countries, unmet need is associated with household wealth. In Asia and Latin

Panel 6: Family planning without government intervention in Brazil

In 1960, Brazil had a total fertility rate of 6.2 and a high rate of illegal abortion. From 1964 until 1985, the country was governed by military regimes that had no interest in attempting to curb population growth. Only in 1985 was family planning made available within the government health services, but supplies from this source remain erratic.⁵³ The vacuum was filled in three main ways. First, BEMFAM was created in 1964 as an affiliate of the International Planned Parenthood Federation by doctors concerned at the high rate of illegal abortions. By 1970, the organisation, with international funding, had agreements with many local municipalities to provide family-planning services. Second, the pharmaceutical industry, realising that the market for contraceptives was growing, started selling oral contraceptives through pharmacies. Third, public-health doctors circumvented a law prohibiting tubal ligation by offering the procedure together with elective caesarean section, with costs of ligation subsumed by the costs of caesarean section, supplemented by under-the-table payments.

By 1986, the fertility rate had fallen to 3.5 births per woman and by 1996 it had fallen further to 2.5. In 1996, contraceptive prevalence had reached 77% among married women, with sterilisation (40%) as the most frequent method followed by oral contraceptives (21%) and condoms (4%). Nearly three-quarters of sterilisations had been done in public hospitals and 59% during a caesarean section. Four-fifths of pill users obtained supplies from pharmacies. Between 1990 and 1998, the number of abortion complications recorded in public-health institutions fell from 340 000 to 240 000.⁵⁴

Brazil is a good example of a country where a strong demand for smaller families arose spontaneously from previous declines in child mortality and changes in aspirations and opportunities. Unwittingly, the spread of television and its immensely popular soap operas, featuring small families, might have been crucial in the spread of new ideas favouring family planning.⁵⁵ In the absence of prohibitions on import of contraceptives and on the sale of oral contraceptives without prescription, combined with the collusion of government in clandestine, theoretically illegal sterilisations, contraceptive services arose in response to the demand. But there was a cost to this *laissez-faire* situation. The incidence of caesarean sections rose to unnecessary heights.^{56,57} The affordability of sterilisation for the poorest populations became a barrier.⁵⁸ Large differences in fertility emerged between rich and poor individuals, urban and rural regions, and educated and uneducated people. For instance, in 1986, rural fertility was 66% higher than that in urban areas.

America, unmet need in the poorest fifth of the population is twice as high as in the wealthiest fifth (figure 2). In sub-Saharan Africa, the association is much weaker, because the need for birth spacing and family-size limitation in poorer strata is low and thus unmet need is suppressed.

One of the most welcome features of the Cairo conference was a recognition that the contraceptive needs of sexually active unmarried people needed high priority. Relevant data for these needs are available from DHS inquires in eight countries of Latin America and the Caribbean and 25 sub-Saharan African nations. Unmet need is high in unmarried women who reported sexual intercourse in the 3 months preceding the survey, with unweighted averages of 35% in Latin America and 41% in Africa. In Latin America, unmarried women account for 28% of all unmet need after weighting for population size. The corresponding proportion for African nations is estimated by us to be 17%.

Unmet need is not the only possible criterion for prioritising countries. From a poverty-reduction perspective, the rate of population growth is most relevant and, from a health perspective, the prevalence of short birth intervals is appropriate because of the effect on child survival. The legality and safety of abortion is yet another important consideration. Figure 3 presents a scheme for prioritising investments in family planning that combines all four criteria and applies them to all 75 countries with a population of 5 million or more, classified by the World Bank as low or lower-middle income.

Anyone supposing that family planning needs have been largely addressed by progress in the past 30 years should ponder figure 3 carefully. Of the 75 countries, 32 have populations that are growing at 2% or more per year, a rate sufficiently high to jeopardise achievement of poverty-reduction goals and other MDGs. And 26 of these 32 countries also record high unmet need of 20% or more. On average, only 17% of married women in these 26 countries use contraception, and fertility still exceeds five births per woman. Moreover, all have highly restrictive abortion laws, thus exposing women with unintended pregnancies to the hazards of unsafe terminations.

Information on birth-interval length is available for only a subset of countries: the prevalence of short periods (<24 months) ranges widely from less than 15% in five countries to 30% or more in eight. However, no associations are apparent between the prevalence of short intervals and unmet need, because many of the nations with high growth and unmet need are also characterised by traditions of long-term breastfeeding (and, in some cases, extended postpartum sexual abstinence) that reduce the risk of short intervals. To confirm the contribution of family planning to wider birth intervals, trends were examined for 23 countries where contraceptive use had risen by at least 10%. In 21 nations, the prevalence of short intervals declined

and a significant correlation of 0.23 was recorded between the percentage point increase in contraceptive practice and the percentage point decline in birth intervals of less than 24 months, thus confirming that greater use of family planning contributes to healthier spacing of children.

What works?

In Western Europe, fertility fell sharply between 1880 and 1930 with little or no support from governments and without the benefit of modern highly effective contraceptive methods. Clearly, when the motive is strong, couples will find ways to achieve small families, and state-sponsored family-planning programmes are not a necessary or sufficient precondition for fertility decline (panel 6). This truth has led to a long and divisive debate about the need for, and effectiveness of, family-planning promotion in developing countries. Sceptics have argued that enhanced living standards, life expectancy, education, and women's emancipation are the most effective ways to reduce fertility and curb population growth, though, of course, contraceptive methods should be made available (a condition too often unrecorded). Family-planning proponents have remonstrated that reproductive change can be hastened and people's family-planning needs met more quickly, effectively, and equitably by active state intervention, irrespective of prevailing levels of poverty, health, and literacy. Moreover, reductions in fertility in almost all poor countries have happened in the presence of comprehensive family-planning programmes.^{59,60}

Although the relative importance of socioeconomic development and investment in family planning will never be fully resolved, abundant evidence shows that family-planning programmes can accelerate the pace of change and, less frequently, initiate change⁶¹ (panel 7). Most importantly, programmes can succeed in poor countries. To reiterate a crucial point made earlier, to assume, as many have done, that poor illiterate couples have no interest in controlling their family size is both patronising and incorrect.

Nevertheless, important questions remain about the most effective ways of promoting family planning, especially in countries with high unmet need and rapid population growth (figure 3). The principles underlying effective programmes are straightforward and uncontroversial. A climate of opinion needs to be created that is supportive of modern contraceptive use and the idea of smaller family sizes; knowledge of methods should be disseminated; a range of family planning services and products made accessible and affordable; and health concerns related to family planning, based largely on misinformation, adequately addressed. However, these broad principles can be achieved in various ways. The aim of this section is to examine the massive experience of the past 40 years and identify approaches that are likely to be most cost effective.

At the outset, we should recognise that no one blueprint for success exists. Unlike, say, interventions for enhanced neonatal survival, the biomedical side of family planning is straightforward: the safety and effectiveness of methods themselves are well established. The key issues concern means of promotion and service delivery, but strategies that are cost effective in a country with a good

Panel 7: Kenyan success in jeopardy

In 1967, Kenya became the first country in sub-Saharan Africa to adopt a policy to reduce population growth, but for the next 15 years implementation was unenthusiastic. The results of a survey released in 1979 came as a jolt. The country had one of the highest fertility rates in the world (eight births per woman); average desired family size was 7.2 children; only 16% of married women wanted to stop childbearing; and only 7% were using contraception. If nothing changed, Kenya's population would double in 19 years. President Moi and Vice-President Kibaki realised that the time for action had come.⁶² Support of elite groups was secured, massive information campaigns mounted, and access to contraceptives increased through government health centres and by initiation of social marketing and community-based promotion. Within little more than a decade, desired family size had fallen to 4.8 children, the proportion wanting no more children had risen to 49%, and 27% were using contraception. The pronatalist culture of the 1970s had crumbled.

By 1998, the fertility rate had fallen to 4.8 births, but it then stabilised and the rate actually rose in the poorest segment of the population (figure 4). One reason for the fertility stall is that resources and attention were diverted from family planning to HIV/AIDS. For instance, USAID's annual allocation for AIDS in Kenya rose from US\$2 million per year in 1995 to \$108 million in 2006, whereas the allocation for family planning fell from \$12 million to \$8.9 million per year. As a result, the availability of contraceptives at health facilities and outreach services deteriorated.⁶³ The proportion of users relying on public-sector sources of supply fell from 68% in 1993 to 53% in 2003, and between 1998 and 2003, the proportion of births reported by mothers as unwanted rose from 11% to 21%.⁶⁴

In 2004, the UN raised its 2050 population projection from 44 to 83 million, mainly because of the unexpected fertility stall. The effects for Kenya's future welfare are likely to be profound. The example of Kenya underscores the need for continuing strong financial support for provision of family-planning services to achieve sustained fertility decline.

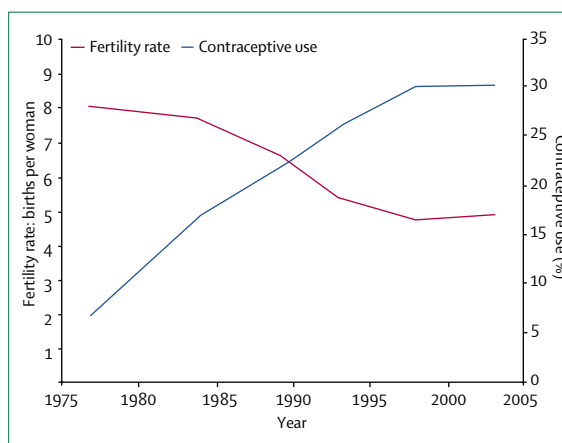


Figure 4: Trends in total fertility rate and contraceptive use in married Kenyan women

Panel 8: Bangladesh and Pakistan compared

When Bangladesh achieved independence from Pakistan in 1971 both countries had identical levels of fertility and desired family size. Both had experienced President Ayub Khan's family-planning programme that relied heavily on the promotion of one method—the intrauterine device—through targets and incentives but achieved no effect on fertility. From 1976, population stabilisation became a top priority in Bangladesh with support from all sectors of society. Staff were trained to do sterilisations at district hospitals and a cadre of literate, married female community-based workers was recruited and trained to provide pills and condoms in their communities and to refer women for clinical contraception. The community-based approach was highly effective because workers acted as plausible local leaders of reproductive change and overcame severe access barriers posed by the purdah system;⁶⁵ in 1989, 44% of pill users and 18% of injectable contraceptive users received services and supplies at their doorstep.

In Pakistan, population issues and family planning became enmeshed in political rivalries. Zulfikar Ali Bhutto, prime minister from 1971–77, was Ayub Khan's bitter political foe and, partly for that reason, was reluctant to provide strong support for family planning. He was succeeded by Zia-ul-Haq, who drew much of his political support from religious right-wing factions. Family-planning advertising was banned, funding was cut, and the programme withered.⁶⁶ In 1990, only 12% of Pakistani couples used contraception compared with more than 30% in Bangladesh. By the mid-1990s, unmet need for family planning was twice as high in Pakistan as in Bangladesh, but at that point Pakistan's programme started to improve. Following Iran's and Bangladesh's example, community-based health and family-planning schemes were introduced, and these have proved effective.⁶⁷ Fertility has fallen sharply since the mid-1990s, although illegal abortion, in addition to rising contraceptive use is thought to have made a major contribution.⁶⁸

The fertility rates of Pakistan and Bangladesh are expected to converge in the next few decades, but the demographic outcomes of Pakistan's failure to promote family planning in the 1970s and 1980s are inescapable. In 1970, Pakistan's population was 5 million smaller than Bangladesh's, but, by 2050, its population is projected to be 62 million larger (figure 5). Three key lessons can be drawn from this comparison: (1) when populations are growing rapidly, delay in the onset of fertility decline by a decade or so has major implications for future population size; (2) achieving a broad coalition of support for family planning is crucial; (3) finding culturally and socially appropriate ways to present services is a key ingredient of effectiveness.

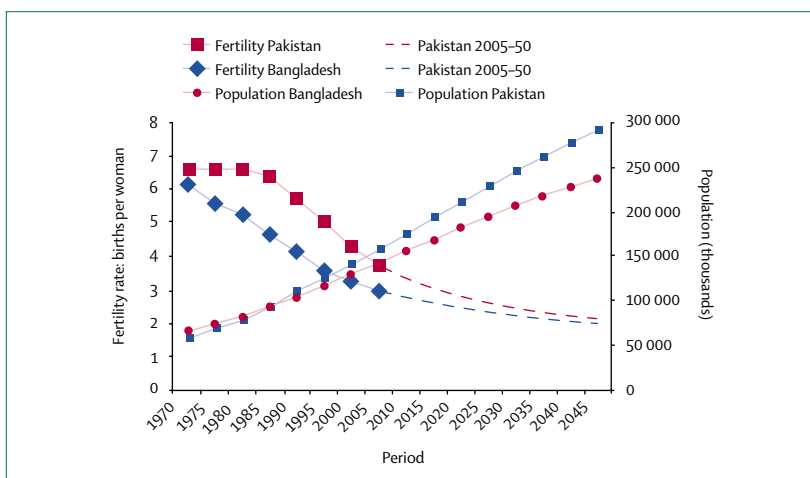


Figure 5: Past and projected trends in total fertility rates and population in Bangladesh and Pakistan

public-health infrastructure, high mass-media exposure, and strong demand for services will be inappropriate in a setting without these advantages. Context is the most important determinant of what combinations of interventions will work best, and priorities will evolve over time. In the early phase of programmes, creation of legitimacy and awareness is crucial. As programmes mature, improvements to service quality—for instance by phasing in new methods and making special efforts to reach underserved groups—together with cost-recovery measures are likely to become priorities. Moreover, the best family-planning programmes have drawn extensively on indigenous cultural knowledge and creativity to promote family planning, further undermining any remaining illusion that standard promotional strategies can be advocated.

Mobilising support and raising awareness

In 1877, on the eve of UK's fertility decline, Charles Bradlaugh and Annie Besant were brought to trial in London for distributing a pamphlet on birth control. In 1916, Margaret Sanger was arrested for opening a birth-control clinic in Brooklyn, New York. These incidents show that, in sexually conservative societies such as UK and USA at those times, birth control is not seamlessly incorporated into peoples' reproductive lives; rather, it can encounter stiff resistance on moral and social grounds (panel 8). This initial turbulence is not inevitable. In Taiwan in the 1950s and Thailand in the 1960s, women flocked from afar to have newly available intrauterine devices fitted, but in other developing countries, there is clear evidence of initial opposition,^{65,69} and a similar view can be expected in countries where contraceptive practice still remains low. In West Africa, for instance, DHS data show that less than half of couples approve of family planning, a superficial indicator of attitude, maybe, but nevertheless revealing.

Accordingly, an initial priority is to legitimise the idea of modern family planning and smaller families. The first step is to attempt to create a broad coalition of support among key sectors of society, including religious, secular, and traditional leaders and professional groups. This strategy has proved important for sustained and effective programmes in many countries.⁷⁰ Success depends more on political commitment and organisational ability than on availability of funds.⁷¹

The family-planning movement has generated more experience and expertise with use of the mass media than any other branch of public health.⁷² Evidence of effectiveness is markedly positive. Not only do targeted messages, in didactic or dramatised form, raise awareness and prompt discussion between spouses but also they have increased contraceptive use in both south Asia and Africa, with favourable cost-effectiveness.^{73–77} Over and above the outcome of family-planning messages, radio and television exposure also exerts a powerful effect on

	Most effective				Effective	Least effective		
	Sterilisation	IUD	Implant	Injectable	Pill	Condom	Withdrawal	Periodic abstinence
Efficacy								
Perfect use, 12-month failure rate	0.5%	0.6%	0.1%	0.3%	0.3%	2%	4%	1.9%
Effectiveness								
Typical use, 12-month failure rate	..	1.8%	1.5%	2.9%	6.9%	9.8%	15.1%	21.6%
Method-related 12-month discontinuation rate	..	12%	25%	46%	34%	47%	25%	18%
Regional prevalence of use								
Sub-Saharan Africa	1.9%	1.4%	<1.0%	3.7%	6.2%	1.5%	1.7%	2.3%
South, southeast, and east Asia	30.8%	17.7%	<1.0%	2.2%	4.3%	4.4%	1.5%	2.0%
Latin America and Caribbean	30.2%	7.7%	<1.0%	2.8%	13.9%	4.3%	3.4%	5.1%
North Africa and central and western Asia	4.4%	16.9%	<1.0%	1.2%	11.2%	3.0%	6.2%	3.0%
Less-developed regions	25.6%	15.2%	<1.0%	2.3%	5.9%	4.0%	2.1%	2.4%
IUD=intrauterine device.								

Table 3: Efficacy, effectiveness, and regional prevalence of use of main contraceptive methods, by effectiveness of method

reproductive behaviour, presumably because of the transmission of new ideas and aspirations. Subsidised marketing of televisions and radios might be a cost-effective, albeit indirect, means of promoting family planning. Although government spending on information and education has varied widely, evidence suggests that allocation of 10–20% of the total family-planning budget to this component makes good sense.

Mobilisation of support at the community level has been approached in various ways: mother's clubs in Korea;⁷⁸ women's credit groups in Bangladesh;⁷⁹ local mullahs in Iran;⁸⁰ traditional leaders in northern Ghana;⁸¹ and female clan representatives in The Gambia.⁸² Although their effect on receptivity to family planning and uptake of methods can be large, these efforts generally need considerable skill, sensitivity, and local cultural knowledge, qualities conspicuously absent in most government ministries. For these reasons, scalability and sustainability are serious constraints.

Family-planning methods

Family-planning methods vary greatly in terms of effectiveness and are usually divided into three categories: most effective, effective, and less effective (table 3).⁸³ Even the least effective method is considerably better than using nothing, since 85% of couples will become pregnant within 1 year without contraception. Contraceptive effectiveness depends on both the mechanism of action of a method and on the extent to which the method relies on adherence by the user. Combined oral contraceptive pills and the contraceptive implant both inhibit ovulation, and their failure rates—when used perfectly—are very low (table 3). However, with typical use the failure rate of the combined pill is around 7%, since such use is characterised by inconsistent pill taking (poor adherence). Conversely, once an implant

has been inserted correctly, contraception is assured until it is removed. Failure rates in table 3 are shown as theoretical rates during perfect use, drawing mainly on US data,⁸⁴ and during typical use compiled from findings of DHS surveys from 18 developing countries,⁸⁵ with data for implants from clinical trials.⁸⁶

The contribution of specific methods to overall contraceptive protection in different countries varies sharply and is one of the most intriguing aspects of the family-planning story. In Bangladesh, 43% of contraceptive users rely on the pill; in neighbouring India, the corresponding figure is only 4% and sterilisation accounts for 75% of all use. In Egypt, 61% of users of contraception have an intrauterine device fitted, whereas in Morocco, 8% do so. In 34 of 96 countries, one method of contraception accounted for more than half of all use and in many more nations, two methods accounted for most use.⁸⁷ This extreme skewness is just as apparent in industrialised states as in the developing world.

What is the explanation for this failure to exploit the full range of contraceptive methods? Contraceptive choice might be constrained by legislation against the use of specific methods, particularly sterilisation;⁸⁸ by government decisions to promote particular methods while ignoring or restricting access to others;⁸⁹ and by the biases of family-planning staff.⁹⁰ Positive feedback then reinforces these service-related decisions and biases. What is most familiar becomes most acceptable. Only the power of social influence can explain fully the very sharp variations in method-specific use between countries and, within countries, between communities.⁹¹

Many women and men use contraception with a degree of resignation, and the method they choose is usually regarded as the best of a bad lot. This attitude leads to high discontinuation rates with all reversible methods of contraception, especially with methods that need no provider intervention for stopping use (table 3).

Discontinuation and poor adherence are usually attributed to side-effects such as: breakthrough bleeding, which is inconvenient rather than life-threatening; fears of rare but serious risks, particularly breast cancer; and fear of weight gain.⁹²

When a couple discontinues contraception for method-related reasons a rapid switch to a new method is essential to prevent unintended pregnancy. Although about 60% of people do start another type of contraceptive within 3 months,⁸⁵ the choice of alternatives is sometimes limited, and restricted access or unfamiliarity with other choices (on the part of both the user and provider) can delay the uptake of a new method, thereby increasing the risk of unintended pregnancy. However, contraceptive avoidance, or non-use, remains the dominant cause of unintended births, accounting for 71% of such births in 14 developing countries.⁹³

Clearly, all contraceptive methods can reduce unintended pregnancy, but much potential is unrealised. Realisation of such possibilities can be achieved by: increasing the prevalence of use of any contraceptive method (even the least effective ones); encouraging switching from less effective to most effective ones; enhancing continuation of all reversible methods; boosting adherence to methods that depend on adherence for their effectiveness; or a combination of these. With the aim of raising the prevalence of use of any contraceptive method and the uptake of an alternative method after contraceptive discontinuation, a range of methods should be made available; the addition of a new family planning method into a programme usually attracts new users and raises overall frequency of use.⁹⁴ However, the ideal of availability of a full range of methods is inevitably tempered by costs, staff training, and logistical considerations. To attempt to promote all methods equally is unnecessary and possibly counterproductive.

In terms of cost-effectiveness of pregnancies prevented, sterilisation and intrauterine devices are the best value, and need to increase adherence then becomes irrelevant.⁹⁵ However, promotion of these approaches has, in the past, clearly led to coercive pressures in India, China, and Vietnam. Moreover, the pressing priority for boosting prevalence lies mostly in Africa, where sterilisation is not so appropriate since birth spacing is valued above family-size limitation. In some African countries, injectable contraception has widespread acceptability, and the pill is commonly used. Promotion of these methods, together with condoms for single people, via services with easy and reliable access, might offer the best chance of success.

Raising adherence and continuation rates is difficult and, in this respect, contraception is no different from other forms of prolonged medication.^{96,97} Individual interventions to enhance adherence and increase continuation sometimes show only a small measurable effect. Moreover, the very few studies lasting long enough to assess the effect on pregnancy rates have had no

positive result.^{98,99} Complicated multifactorial initiatives boost adherence to treatment but are labour-intensive, costly, and unsustainable.⁹⁵ Anticipation of the fact that many women will discontinue their type of contraception, and encouragement of prompt switching to an alternative method, might be more cost-effective than attempting to improve continuation.

Making methods accessible and acceptable

Family-planning programmes have made use of three main delivery systems: health facilities; commercial outlets; and community-based approaches. In many countries, access to family-planning methods was initially restricted to health facilities, under strict control of medical practitioners, following outdated eligibility criteria and other unnecessary constraints—eg, written consent of husband; proof of marital status, parity, or age; unwillingness to dispense more than one or two pill cycles; excessive revisit schedules; and insistence that only menstruating women be allowed to start contraception.¹⁰⁰ The limitations of this medicalised approach were soon realised, and the success of many programmes has been closely linked to dismantling of administrative and medical barriers that impede quick, convenient, and appropriate access to methods. International guidelines have proved invaluable.¹⁰¹ Research showed that paramedical staff could insert intrauterine devices and provide injectable contraceptives to high clinical standards and that lay staff, after a short training period, could dispense pills and refer women for clinical methods.^{102,103} Evidence also suggested that over-the-counter sales of pills without prescription was justifiable.¹⁰⁴

Nevertheless, facility-based services (predominantly in the public sector) remain the backbone of delivery systems in most countries, especially where surgical or clinical methods prevail. In most developing countries, more than 80% of contraceptive sterilisations, intrauterine device insertions, and administration of injectable contraceptives are done in hospitals and health centres. Several Asian family-planning agencies created their own dedicated network of facilities. After the Cairo conference, shifts have taken place towards greater integration of services and towards broadening the scope of family-planning clinics to address a wider range of sexual and reproductive health issues (eg, reproductive-tract and sexually transmitted infections; HIV counselling and testing). An equally important aspect of integration in countries with severe generalised HIV epidemics is the addition of family planning into vertical HIV/AIDS testing and treatment programmes. Prevention of unintended pregnancies in HIV-positive women is a more cost-effective way of reducing mother-to-child transmission than drug treatment.¹⁰⁵

Progress has not been straightforward, partly because the cost-effectiveness of specific packages depends on the epidemiological setting and because some major

donors fund vertical programmes in ways that impede integration.¹⁰⁶ The evidence-base for comparing the effectiveness of integrated and vertical services is also meagre.¹⁰⁷ The lesson is that countries have to establish forms of integration that make most sense for local situations. Useful frameworks for integration are emerging but they will need careful field evaluation.¹⁰⁸

Because static health facilities continue to be the dominant source of family planning, geographical access has attracted huge attention as a possible major constraint on uptake of services. Many experts have claimed inadequate physical access to be the central restriction. Evidence offers only mild support for this emphasis. Distance from services rarely emerges as a reason for non-use by people in need of family planning (panel 5). Use of family-planning methods falls only modestly with increasing distance or travel time to the nearest source of contraception.^{43,109} In most societies, women are prepared to travel long distances for advice and contraceptives, especially for methods such as intrauterine devices and sterilisation, which require infrequent or no further visits.

If lack of physical access is not such a severe barrier as is sometimes claimed, perhaps poor quality of services is the more important constraint. Criticisms of the quality of many family-planning programmes have led to sustained efforts to define, document, and enhance quality, both internationally and nationally.^{110,111} Some aspects of quality—continuity of supplies, presence and competence of staff, treating patients with dignity, and reasonable privacy—are so fundamental that no evidence is needed to endorse them. However, other issues—for instance, extended counselling about method choice or about probable side-effects and domiciliary follow-up visits for those starting a new method—do need research validation because their effectiveness cannot be assumed and they add to costs, mainly in the form of staff time. Regrettably, the writers of a major review concluded that little is known about the effect of many quality improvements on uptake or continuation of contraception, mainly because of the scarcity of rigorous experimental designs,¹¹² but extended counselling seems to have little effect on adherence or continuation.⁹⁹ Pending further evidence, the priority is to concentrate on the fundamental issues with particular attention to ensuring continuous availability of several alternative methods. Most women present at family-planning clinics having already decided which method they want; failure to obtain that method is probably the one biggest deterrent to adoption and sustained use.¹¹³

The involvement of private medical practitioners in family-planning services varies widely. It tends to be low in Asia, with the exception of Indonesia, where a deliberate shift to private sector provision has taken place as a cost-containment measure. In Latin America, private-sector involvement is higher; typically, about 30% of people using a medical facility for their current

contraceptive method cite a private-sector facility. The corresponding figures in sub-Saharan Africa are variable, being more than 50% in Uganda (an indication of poor government services), high also in Kenya (40%) because of deteriorating government services (panel 7), but low (<20%) in countries with stronger government programmes, such as Namibia and South Africa. Although the private sector caters mainly for the needs of urban affluent couples, to encourage their role makes good sense because choice is expanded and costs to the government are reduced.

Commercial outlets such as pharmacies, shops, and bazaars constitute the second most frequent way in which contraceptive methods are obtained. In many developing countries, advertising, logistics, and product prices are subsidised through social marketing schemes typically run by international organisations. Partly in response to the threat of AIDS, social marketing of condoms is now nearly universal in low-income and middle-income countries and is ideally suited for men and adolescents, for whom anonymous quick access is especially important. Prohibition from use of funds of the US President's Emergency Plan for AIDS Relief (PEPFAR) for active condom promotion in the general population is thus a major setback. In most countries, most condom users obtain supplies from commercial sources (figure 6). About 40 developing countries have social marketing schemes for pills and, in about half of 35 nations with relevant evidence, 40% or more of pill users obtain supplies from commercial outlets (figure 6). Social marketing of injectable contraceptives is also common (in about 30 countries).¹¹⁴

Social marketing is most effective when: pills, condoms, or both are fairly popular methods; demand for contraception is well established; a well-developed commercial infrastructure exists; coverage of radio and television is high and no restrictions on mass media promotion of family-planning methods exist; and public-sector services are weak. Although start-up costs are high, longer term cost-effectiveness compares favourably with facility-based provision.¹¹⁵ In a world that is increasingly urbanised and exposed to mass media, the potential contributions of social marketing will steadily rise and this mode of service delivery should be a routine component of overall family-planning provision.

The third main mode of service delivery—outreach and community-based provision—complements social marketing. It has proved most useful in rural communities where access to other services is limited, when demand is fragile, and when women's mobility is severely constrained (panel 8). One unifying feature of most community-based schemes is that workers operate in their own communities, sharing the language and customs of their clients, and thus have high credibility. In other respects, their characteristics vary widely, partly because many have been run by non-governmental

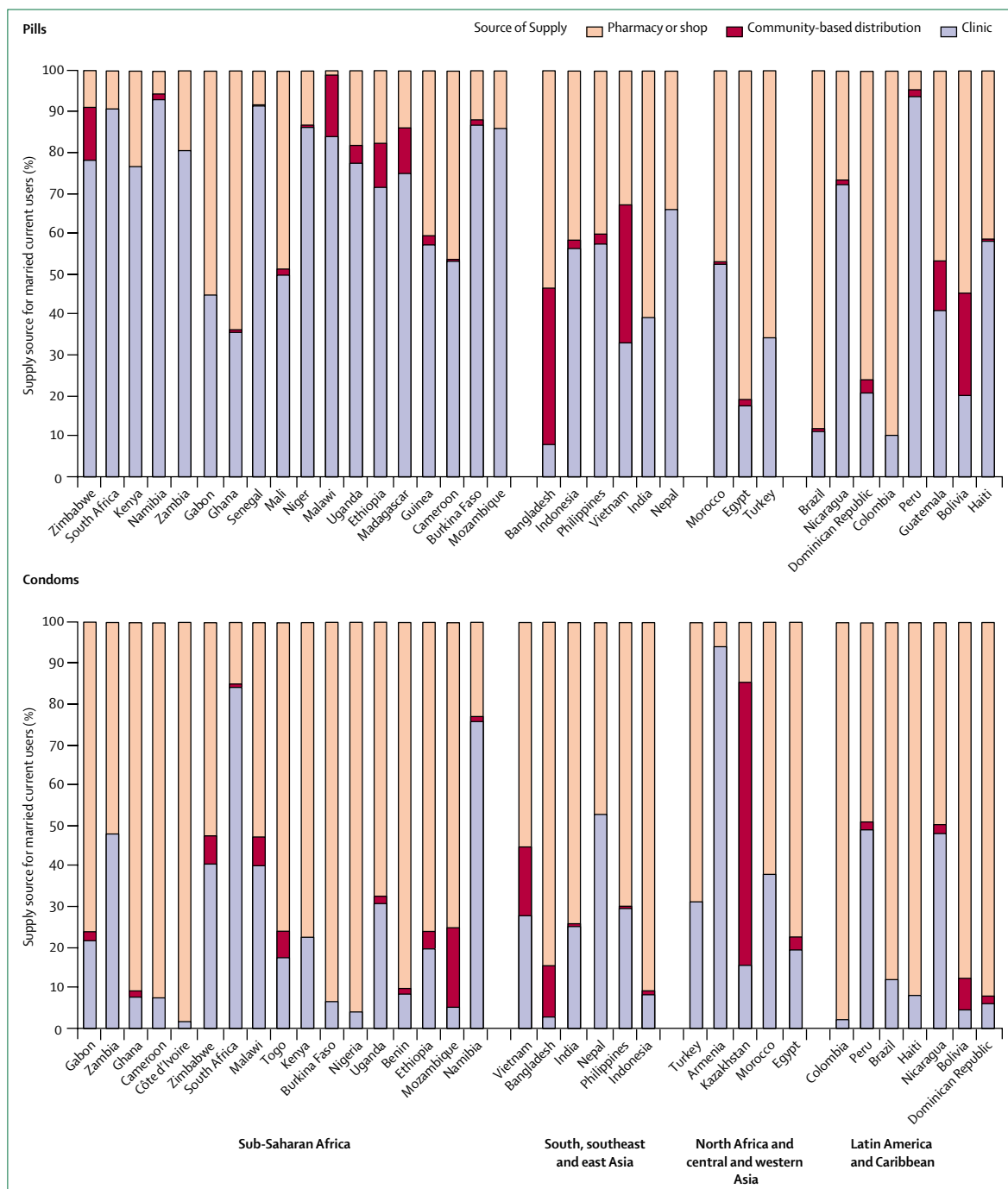


Figure 6: Source of pill and condom supply for current users based on DHS data
 Non-governmental organisation and other sources omitted. Countries are placed in descending order of pill (condom) prevalence within region. Surveys with fewer than 100 current users for pill (condom) excluded. DHS=demographic and health surveys.

organisations, and no one model has emerged as an exemplar of best practice. Some schemes focus exclusively on family planning, distributing pills and condoms and referring women for clinical methods; others deploy multipurpose health workers. The relative importance of routine household visiting, community

meetings, and passive forms of contraceptive stock-holding also vary. In large programmes, one worker typically serves 1000–3000 women. Only in countries with the social and political discipline to recruit and retain very many volunteers (eg, China, Indonesia, Iran) has it been possible to achieve more favourable ratios.

Community-based approaches have been widely used in all developing regions. In 1990, estimates showed that at least a quarter of the total rural population in 20 or more countries had access to such services.¹¹⁶ Key lessons from African experience include: multipurpose workers tend to be more effective and acceptable than those who provide only family planning; community involvement in the design of projects and selection criteria for workers is essential; and payment is necessary to sustain effectiveness.¹¹⁷

Community-based programmes have had high success in raising contraceptive use in many settings and have been central to achievements in some countries, such as Bangladesh (panel 8).¹¹⁸ In areas where social marketing is impractical and conventional health facilities are dysfunctional or inaccessible, they are the only option. Yet, difficulties of scaling-up to achieve wide geographical coverage are very severe because of the huge numbers of workers who have to be recruited and supervised, and logistical difficulties in ensuring contraceptive supplies. Costs are usually high, thus jeopardising sustainability. Partly because of these constraints, the proportion of current condom and pill users who obtain supplies directly from a community-based worker is very low in most countries (figure 6). Similarly, the proportion of non-users who report a visit from a family-planning fieldworker in the past 12 months is less than 5% in most countries and exceeds 10% in only ten of 43 countries with relevant DHS data. As general health outreach efforts are now being more widely advanced, adopted in donor strategies, and implemented, the best strategy is to ensure that family planning is firmly embedded in these core protocols.

Financing and cost challenges

Most government family-planning programmes have provided facility-based services that are free or at very low cost to users. This strategy is increasingly questioned because of the broader movement towards greater cost-recovery in health services and because retrenchment of donor support for family planning in Asia and Latin America has put financial pressure on governments. Definitive evidence on the price elasticity of contraceptive demand is scarce because of the impracticability of experimental research, but the consistent impression from published studies is that demand is surprisingly inelastic; a doubling in contraceptive prices results in declines in overall use of 0–15%.⁷⁵ The policy implication is that family planning need not be exempt from user charges when such payments are made for other types of health service.

Various ways have been proposed to shield poor people from financial barriers, using strategies other than free public provision for all. Suggestions include market segmentation, which subsidises services for poor populations while gathering fees from those able to pay.^{119,120} However, targeting poor people has proven

difficult to administer efficiently.^{121,122} The inclusion of contraceptives as a service option in social health-insurance schemes has also been proposed. The general principles are clear: cost should not be a deterrent to family-planning choices and financing should be sustainable. Appropriate strategies need to be tailored to, and accord with, overall national health-financing approaches.

The fact that need for increased contraceptive use is most pressing in the poorest countries underscores the necessity of reversing the fall in donor support, noted above. The example of Kenya (panel 7) should act as a warning, and family-planning services in other countries are starting to suffer from scarcity of international funding.¹²³ Analyses done for our report, with the methodology of the UN Millennium Project,^{9,71} suggest that family-planning programmes in countries on the African continent would cost more than \$270 million in 2006, increasing to nearly \$500 million by 2015 (amounting to \$3·8 billion in total over 10 years), just to reach the medium variant fertility projections of the UN Population Division (panel 2). Projections of donor family-planning funds for sub-Saharan Africa for 2006 come to only \$113 million.¹²⁴ The corresponding 2006 projection for domestic resources is only \$87 million. A large gap thus already exists between needs in poor countries and available resources. Reorienting programmes to meet current unmet need for family planning by 2015 would further increase resource requirements, but savings from obstetric and newborn interventions would exceed the investment in family planning by a factor of nearly three,⁷¹ and savings on primary schooling would further boost this cost-benefit ratio. Increased donor and domestic funding would save money and lives.

What needs to be done?

The priority—both political and financial—accorded to family planning in the 1970s and 1980s was driven largely by the belief that high fertility and rapid population growth represented a serious barrier to socioeconomic development. At the 1994 Cairo conference, this link was broken. As a result, the importance of family planning in international development has steadily eroded, and this decline is unlikely to be reversed until the association is reformed People coordinating international HIV/AIDS interventions learnt this lesson. For example, Peter Piot, the head of UNAIDS, is quoted as follows: “I asked myself what political leaders really care about. The truth is, it’s not health. It’s economics and security. Health is what they talk about if there’s money left at the end of the day. I realized I needed to lift our cause out of that arena.”¹²⁵ The results have been spectacular. Prominent world leaders such as Kofi Annan and Tony Blair regularly portray HIV/AIDS as an economic catastrophe and stupendous sums have been mobilised for the cause.

The irony of the current situation is that continued rapid population growth poses a bigger threat to poverty reduction in most poor countries than does HIV/AIDS. Consider sub-Saharan Africa, the region most affected by HIV. In southern Africa, with very high levels of infection, the disease is correctly regarded as an economic disaster. Most of these countries already have low fertility, and population growth is not an issue. The priority here is to achieve a more effective synergy between HIV prevention and family planning, building on the fact that condoms are now the most common contraceptive method for single people.¹²⁶ However, in most other African countries, HIV infections are at a much reduced level and the disease shows few signs of rapid spread, whereas fertility and rates of population growth remain high.¹²⁷ Many countries will double or even treble in size in the coming decades. A convincing case can be made that investment in family planning should have a higher priority than investment in HIV prevention and treatment. Yet, current priorities are the reverse. For instance, in Ghana, HIV/AIDS is sucking funds, staff, and political energy from family planning, and this is a country where women are more likely to die of unsafe abortion than of AIDS.¹²⁸ In west Africa generally, use of modern contraception has risen only slightly in the past decade, and there are valid concerns that illegal, typically unsafe abortion is largely the cause for the modest fertility decline in this subregion.¹²⁹ In Uganda, with a moderately severe longstanding HIV epidemic, population size is nevertheless projected to grow from 30 million today to 61 million by 2025, and further to 127 million by the middle of this century, posing huge difficulties for economic advance. Yet, President Museveni's lack of concern over the burgeoning population goes unchallenged.¹³⁰ Further signs abound of irresponsible neglect of family planning and grotesque distortion of priorities. In Niger, for instance, which faces possible catastrophe because of rapid population growth (panel 3), more meetings have been held on sterility (an issue affecting about 3% of the population) and on sexuality in elderly people than on population or family planning.¹¹

Several key steps towards the revitalisation of the family-planning agenda can be identified. Family-planning proponents must first reassert the economic rationale that was muted at Cairo. This step will require a break from the prevailing international discourse that cloaks family planning in the term reproductive and sexual health, a habit that obfuscates rather than clarifies priorities. The priority owed to family planning as a development intervention must be stated explicitly. Evidence fully justifies this stance, although this viewpoint will arouse suspicions of a revival of the high-pressure semicoercive past tactics of some Asian family-planning programmes. Such suspicions need to be addressed by emphasising that no contradiction exists between a respect for reproductive rights and a renewed sense of urgency in family-planning promotion.

A further essential step is to press for greater recognition that the demographic circumstances of low-income and middle-income countries are increasingly diverse and that priorities for government actions and international assistance must be tailored accordingly. To reiterate, this report is not arguing that family planning should be a top priority in all countries. Throughout much of Asia and Latin America, progress towards meeting people's family-planning needs and population stabilisation is well advanced, although huge scope for improving the quality of services and for meeting the needs of poor populations still exists. But, in most of sub-Saharan Africa and a few countries in other regions (figure 3), family planning should return as a top priority.

The omission of family planning at the goal or integrated target level in the MDGs remains one of the most visible weaknesses and constraints to the political commitment to achieving these goals.¹³¹ Although a higher profile for family planning in the MDG rubric would represent major progress, we also need to protest against MDG hegemony in setting the development agenda—in particular against the myopia implicit in the 2015 deadline for their achievement. A major effect of family-planning programmes in a mere 9 years is unlikely in those African countries where desired family sizes remain high. Even in Bangladesh, the best known example of success in a very poor country, a decade of concerted effort was needed to achieve an effect on fertility. Although short-term benefits of increased family-planning practice on maternal and child health would be realised, the big pay-off in terms of poverty reduction will take longer to unfold. But when populations are doubling in size every 25–30 years, as is the case in many of the poorest countries, a delay in the onset of fertility decline carries huge medium-term implications for future population size and economic prospects (panel 8). To sacrifice long-term welfare considerations in the rush to show short-term effect would be the utmost folly.

Family planning also needs champions outside of the United Nations family. Historically, leadership has come from the US government, and more than half of all international assistance for family planning still comes from that country. But leadership now cannot be expected from that quarter for reasons that are well recognised.¹³² Hopefully, others will be prepared to take the lead, perhaps European countries, the World Bank, or even the Gates Foundation with its massive funds and prestige. Most poor countries already have population policies in place but need encouragement from development agencies to implement them with conviction and commitment.

Conflict of interest statement

SB is employed by UNFPA. There is no personal or financial gain attached to this publication.

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References

- 1 Coale AJ, Hoover EM. Population growth and economic development in low-income countries. Princeton, NJ: Princeton University Press, 1958.
- 2 Armijo R, Monreal T. El problema del aborto provocado en Chile. *Boletín de la Oficina Sanitaria Pan-Americana* 1966; **60**: 39–45.
- 3 UN Department of Social Affairs, Population Division. World population policies 2003. New York: United Nations, 2004.
- 4 UN Population Fund. Global population assistance report 1982–1985. New York: United Nations Population Fund, 1988.
- 5 UN, Department of Social & Economic Affairs, Population Division. Levels and trends in contraceptive use: 2003 Revision. New York: United Nations, 2004.
- 6 Bongaarts J. Population policy options in the developing world. *Science* 1994; **263**: 771–76.
- 7 Sen G, Germain A, Chen LC. Population Policies Reconsidered: Health, Empowerment and Rights. Boston: Harvard University Press, 1994.
- 8 UN Economic and Social Council. The flow of financial resources for assisting in the implementation of the programme of action of the International Conference on Population and Development: a ten-year review. Report of the Secretary-General. New York: United Nations Commission on Population and Development, 37th session, March 22–26, 2004.
- 9 UN Millennium Project. Investing in development: a practical guide to achieve the Millennium Development Goals: overview. New York: United Nations, 2005.
- 10 Commission for Africa. Our common interest—Report of the Commission for Africa. London: Commission for Africa, 2005.
- 11 World Bank. Niger: Providing all Nigerians with food, education and health care: a demographic perspective. Washington: The World Bank, Report No. 34219-NE, 2005.
- 12 Alexandratos N. Countries with rapid population growth and resource constraints: issues of food, agriculture and development. *Popul Dev Rev* 2005; **31**: 237–58.
- 13 Chen S, Ravallion M. How have the world's poorest fared since the early 1980s? Washington: The World Bank, Policy Research Working Paper WPS3341, 2004.
- 14 US National Academy of Sciences. Population growth and economic development. Washington: National Academy of Sciences, 1986.
- 15 Birdsall N, Kelley AC, Sinding SW, eds. Population matters: demographic change, economic growth, and poverty in the developing world. Oxford: Oxford University Press, 2001.
- 16 Eastwood R, Lipton M. The impact of changes in human fertility on poverty. *J Dev Stud* 1999; **36**: 1–30.
- 17 Eastwood R, Lipton M. Demographic transition and poverty: effects via economic growth, distribution, and conversion. In: Birdsall N, Kelley AC, Sinding SW, eds. Population matters: demographic change, economic growth, and poverty in the developing world. Oxford: Oxford University Press, 2001: 213–59.
- 18 Bloom D, Williamson JG. Demographic transitions and economic miracles in emerging Asia. *World Bank Econ Rev* 1998; **12**: 419–55.
- 19 UN Development Programme and World Bank. Attacking Poverty. World Development Report 2000/01. Washington: The World Bank, 2001.
- 20 Gwatkin DR, Rutstein S, Johnson K, Suliman EA, Wagstaff A. Initial country level information about socio-economic differences in health, nutrition and population 2nd edn. Washington: The World Bank, 2004.
- 21 Aassve A, Engelhardt H, Francavilla F, et al. Fertility and poverty in less developed countries: a comparative analysis. Paper presented at International Population Conference. Tours, France: 2005.
- 22 Greene ME, Merrick T. Poverty reduction: does reproductive health matter? Health, Nutrition and Population Discussion Paper. Washington: The World Bank, 2005.
- 23 Lloyd CB. Investing in the next generation: the implications of high fertility at the level of the family. In: Cassen R, ed. Population and development: old debates, new conclusions. Washington: Overseas Development Council 1994: 181–202.
- 24 Schultz TP. Investments in the schooling and health of women and men: quantities and returns. *J Hum Resour* 1993; **28**: 694–734.
- 25 Lipton M. Population and poverty: how do they interact? In Livi-Bacci M, De Santis G eds. Population and poverty in developing countries. Oxford: Clarendon Press, 1998: 25–48.
- 26 Collumbien M, Gerressu M, Cleland J. Non-use and use of ineffective methods of contraception In Ezzati M, Lopez AD, Rodgers A, Murray CJL eds. Comparative quantification of health risks: global and regional burden of disease attributable to selected major risk factors. Geneva: World Health Organization, 2004: 1255–320.
- 27 Conde-Agudelo A, Rosas-Bermúdez A, Kafury-Goeta AC. Birth spacing and risk of adverse perinatal outcomes: a meta-analysis. *JAMA* 2006; **295**: 1809–23.
- 28 Zhu BP. Effect of interpregnancy interval on birth outcomes: findings from three recent US studies. *Int J Gynaecol Obstet* 2005; **89**: S25–S33.
- 29 Smits LJ, Essel GG. Short interpregnancy intervals and unfavourable pregnancy outcome: role of folate depletion. *Lancet* 2001; **358**: 2074–77.
- 30 Rutstein SO. Effects of preceding birth intervals on neonatal, infant and under-five years mortality and nutritional status in developing countries: evidence from the demographic and health surveys. *Int J Gynaecol Obstet* 2005; **89**: S7–S24.
- 31 DaVanzo J, Razzaque A, Rahman M, et al. The effects of birth spacing on infant and child mortality, pregnancy outcomes and maternal morbidity and mortality in Matlab, Bangladesh. Santa Monica, California: RAND Working Paper, 2005.
- 32 Black RE, Morris SS, Bryce J. Where and why are 10 million children dying each year? *Lancet* 2003; **361**: 2–10.
- 33 UN. The world's women 1995: trends and statistics. New York, United Nations. Social statistics and indicators Series K, No.12, 1995.
- 34 Baird D. A fifth freedom? *BMJ* 1965; **2**: 1141–48.
- 35 Mehotra SJ. Education for all: policy lessons from high-achieving countries. *Int Rev Educ* 1998; **44**: 461–84.
- 36 Fuller B, Heyneman SP. Third world school quality: current collapse, future potential. *Educational Researcher* 1989; **18**: 12–19.
- 37 Preston S. The effect of population growth on environment quality. *Pop Res Policy Rev* 1996; **15**: 95–108.
- 38 Sachs JD, McArthur JW, Schmidt-Traub G, et al. Ending Africa's Poverty Trap. In Brainard WC, Perry GL eds. Brookings Papers on Economic Activity. Washington: Brookings Institute, 2004: 117–240.
- 39 UN Department of Economic and Social Affairs, Population Division. World population monitoring 2001. New York: United Nations 2001.
- 40 Birdsall N. Another look at population and global warming. In proceedings of the UN expert group meeting on population, environment and development, United Nations Headquarters, 20–24 January 1992. sales No. E.94.XIII.7 New York: United Nations 1994: 39–54.
- 41 Westoff CF. New estimates of unmet need and demand for family planning. Calverton, Maryland: ORC Macro, Demographic and health surveys comparative studies, in press.
- 42 Feyisetan B, Casterline JB. Fertility preferences and contraceptive change in developing countries. *Int Fam Plann Perspec* 2000; **26**: 100–09.
- 43 Bongaarts J, Bruce J. The causes of unmet need for contraception and the social content of services. *Stud Fam Plann* 1995; **26**: 57–75.
- 44 Casterline JB, Perez AE, Biddlecom AE. Factors underlying unmet need for family planning in the Philippines. *Stud Fam Plann* 1997; **28**: 173–91.
- 45 Casterline JB, Sathar ZA, Haque MU. Obstacles to contraceptive use in Pakistan: A study in Punjab. *Stud Fam Plann* 2001; **32**: 95–110.
- 46 Stash S. Explanations of unmet need for contraception in Chitwan, Nepal. *Stud Fam Plann* 1999; **30**: 267–87.
- 47 Ruttenberg N, Watkins SC. The buzz outside the clinics: conversations and contraception in Kenya. *Stud Fam Plann* 1997; **28**: 290–307.
- 48 Kohler HP, Behrman JR, Watkins SC. The density of social networks and fertility decisions: evidence from South Nyanza District, Kenya. *Demography* 2001; **38**: 43–58.
- 49 Becker S, Costenbader E. Husbands' and wives' reports of contraceptive use. *Stud Fam Plann* 2001; **32**: 111–29.

- 50 Mason KO, Smith HL. Husbands' versus wives' fertility goals and contraceptive use: The influence of gender context in five Asian countries *Demography* 2000; **37**: 299–312.
- 51 Blanc AK. The effect of power in sexual relationships on sexual and reproductive health. *Stud Fam Plann* 2001; **32**: 189–213.
- 52 Page HJ, Lesthaeghe R, eds. Child spacing in Tropical Africa: traditions and change. London: Academic Press, 1981.
- 53 Osis MJD, Faúndes A, Makuch MY, Mello MB, Sousa MH, Araújo MJO. Atenção ao planejamento familiar no Brasil hoje: reflexões sobre os resultados de uma pesquisa. Cadernos de Saúde Pública. In press, 2006.
- 54 Ministério da Saúde do Brasil. 1999. Sistema de Informações Hospitalares do Sistema Único de Saúde. Datasus. Disponível em: <http://www.datasus.gov.br> (accessed Sept 25, 2006).
- 55 Faria VE, and Potter JE. Television, telenovelas and fertility change in North-East Brazil. In: Leete R. ed. Dynamic of values in fertility change. Oxford: Oxford University Press, 1999: 252–72.
- 56 Bettiol H, Rona RJ, Chinn S, Goldani M, Barbieri MA. Factors associated with preterm births in southeast Brazil: a comparison of two birth cohorts born 15 years apart. *Paediatr Perinat Epidemiol* 2000; **14**: 30–38.
- 57 Potter JE, Berquó E, Perpétuo IHO, et al. Unwanted Cesarean sections among public and private patients in Brazil: prospective study. *BMJ* 2001; **323**: 1155–58.
- 58 Janowitz B, Higgins J, Clopton D, Nakamura M, Brown M. Access to post partum sterilization in Southeast Brazil. *Med Care* 1982; **20**: 526–34.
- 59 Caldwell JC, Phillips JF, Barkat-e-Khuda. The future of family planning programs. *Stud Fam Plann* 2002; **33**: 1–10.
- 60 Potts M. Sex and the birth rate: Human biology, demographic change, and access to fertility regulation methods. *Popul Dev Rev* 1997; **23**: 1–39.
- 61 Phillips JF, Ross JA, eds. Family planning programmes and fertility. Oxford: Clarendon Press, 1992.
- 62 Ajayi A, Kekovole J. Kenya's population policy: from apathy to effectiveness. In Jain A, ed. Do population policies matter? New York: The Population Council 1998: 113–56.
- 63 National Coordinating Agency for Population and Development (Kenya), Ministry of Health, Central Bureau of Statistics, ORC Macro. Kenya service provision assessment survey 2004. NCAPD, MOH, CBS and ORC Macro 2005.
- 64 Westoff C, Cross A. The stall in the fertility transition in Kenya. Calverton, Maryland: ORC Macro. Demographic and health surveys analytical study 9, 2006.
- 65 Simmons R, Baqee L, Koenig MA, Phillips JF. Beyond supply: the importance of female family planning workers in rural Bangladesh. *Stud Fam Plann* 1988; **19**: 29–38.
- 66 Khan A. Policy making in Pakistan's population programme. *Health Policy Plan* 1996; **11**: 30–51.
- 67 Sultan M, Cleland JG, Ali MA. Assessment of a new approach to family planning services in rural Pakistan. *Am J Public Health* 2002; **92**: 1168–72.
- 68 Population Council. Unwanted pregnancy and post-abortion complications in Pakistan: findings from a national study. Islamabad: The Population Council, 2004.
- 69 Watkins SC. Local and foreign models of reproduction in Nyanza Province, Kenya. *Popul Dev Rev* 2000; **26**: 725–59.
- 70 Lee K, Lush L, Walt G, Cleland J. Family planning policies and programmes in eight low-income countries: a comparative policy analysis. *Soc Sci Med* 1998; **47**: 949–59.
- 71 Millennium Project. Public choices, private decisions: sexual and reproductive health and the Millennium Development Goals. New York: UNDP, 2006.
- 72 Piotrow PT, Kincaid DL, Rimon II JG, Rinehart W, eds. Health Communication: lessons from family planning and reproductive health. Westport: Praeger, 1997.
- 73 Westoff CF, Bankole A. Mass media and reproductive behaviour in Africa. Calverton, Maryland: ORC Macro. Demographic and health surveys analytical report 2, 1997.
- 74 Westoff CF, Bankole A. Mass media and reproductive behaviour in Pakistan, India and Bangladesh. Calverton, Maryland: ORC Macro demographic and health surveys analytical report 10; 1999.
- 75 Matheny G. Family planning programs: getting the most for the money. *Int Fam Plann Perspec* 2004; **30**: 134–38.
- 76 Sharan M, Valente TW. Spousal communication and family planning adoption: effects of a radio drama serial in Nepal. *Int Fam Plann Perspec* 2002; **28**: 16–25.
- 77 Rogers EM, Vaughan PW, Swalehe RMA, Rao N, Swenkerud P, Sood S. A radio soap opera's effects on family planning behavior in Tanzania. *Stud Fam Plann* 1999; **30**: 193–211.
- 78 Park HJ, Kincaid DL, Chung KK, Han DS, Lee SB. The Korean mothers' club program. *Stud Fam Plann* 1976; **7**: 275–83.
- 79 Amin R, Li Y, Ahmed AU. Women's credit programs and family planning in rural Bangladesh. *Int Fam Plann Perspec* 1996; **22**: 158–62.
- 80 Hoodfar H, Assadpour S. The politics of population policy in the Islamic Republic of Iran. *Stud Fam Plann* 2000; **31**: 19–34.
- 81 Nazzar A, Adongo PB, Binka FN, Phillips JF, Debpuur C. Developing culturally appropriate family planning program for the Navrongo experiment. *Stud Fam Plann* 1995; **26**: 307–24.
- 82 Luck M, Jarju E, Nell MD, George MO. Mobilizing demand for contraception in rural Gambia. *Stud Fam Plann* 2000; **31**: 325–35.
- 83 Steiner MJ, Dalebout S, Condon S, Dominik R, Trussell J. Understanding risk: a randomized controlled trial of communicating contraceptive effectiveness. *Obstet Gynecol* 2003; **102**: 709–17.
- 84 Trussell J. Contraceptive efficacy. In Hatcher R, Trussell J, Stewart F, et al, eds. Contraceptive Technology 17th edition. New York Ardent media 1998: 779–844.
- 85 UN Department of Economic and Social Affairs, Population Division, Levels and trends of contraceptive use as assessed in 2002. New York: United Nations 2004.
- 86 Meirik O, Farley TMM, Sivin I. Safety and Efficacy of levonorgestrel implant, intrauterine device and sterilization. *Obstet Gynecol* 2001; **97**: 539–47.
- 87 Sullivan TM, Bertrand JT, Rice J, Shelton JD. Skewed contraceptive method-mix: Why it happens, why it matters. *J Biosoc Sc* 2006; **38**: 501–21.
- 88 Ross JA, Hong S, Huber DH. Voluntary sterilization: an international fact book. New York: Association for Voluntary Sterilization (now Engenderhealth) 1985.
- 89 Goto A, Reich MR, Aitken. Oral contraceptives and women's health in Japan. *JAMA* 1999; **282**: 2173–77.
- 90 Bulatao RA, Palmore JA, Ward SE, eds. Choosing a contraceptive: method choice in Asia and the United States. Boulder: Westview Press, 1989.
- 91 Entwistle B, Rindfuss RR, Guilkey DK, Chamratrithong A, Guvran SR, Sawangdee Y. Community and contraceptive choice in rural Thailand: a case study of Nang Rong. *Demography* 1996; **33**: 1–11.
- 92 Chen J, Smith KB, Morrow S, Glasier A, Cheng L. The acceptability of combined oral hormonal contraceptives in Shanghai, Peoples' Republic of China. *Contraception* 2003; **67**: 281–85.
- 93 Ali MM, Cleland J, Shah IH. Condom use within marriage: a neglected HIV intervention. *Bull World Health Organ* 2004; **82**: 180–86.
- 94 Ross J, Hardee K, Mumford E, Eid S. Contraceptive method choice in developing countries. *Int Fam Plann Perspec* 2002; **28**: 32–40.
- 95 Chiou C-F, Trussell J, Reyes E, Knight K, et al Economic analysis of contraceptives for women. *Contraception* 2003; **68**: 3–10.
- 96 Miller NH. Compliance with treatment regimens in chronic asymptomatic diseases. *Am J Med* 1997; **102**: 43–49.
- 97 Osterberg L, Blaschke T. Adherence to medication. *N Engl J Med* 2005; **353**: 487–97.
- 98 Glasier A. Improving services; increasing uptake and encouraging use. In: Glasier A, Wellings K, Critchley HOD, eds. Contraception and contraceptive use. Report of a Study Group. London: RCOG Press, 2005.
- 99 Halpern V, Grimes DA, Lopez L, Gallo MF. Strategies to improve adherence and acceptability of hormonal methods of contraception. *Cochrane Database Syst Rev* 2006; **1**: CD004317.
- 100 Campbell MM, Sahin-Hodoglugil NN, Potts M. Barriers to fertility regulation: a review of the literature. *Stud Fam Plann* 2006; **37**: 87–98.
- 101 WHO, Department of Reproductive Health and Research. Medical eligibility criteria for contraceptive use. Third edition, Geneva: World Health Organization, 2004.

- 102 Bang SS, Song SW, Choi CH. et al. Improving access to the IUD: Experiments in Koyang, Korea. *Stud Fam Plann* 1968; 27: 4–11.
- 103 Rosenfield A, Limcharoen C. Auxiliary midwife prescription of oral contraceptives: an experimental project in Thailand. *Am J Obstet Gynecol* 1972; 113: 942–49.
- 104 Trussell J, Stewart F, Potts M, Guest F, Ellertson C. Should oral contraceptives be available without prescription? *Am J Public Health* 1993; 83: 1094–99.
- 105 Reynolds HW, Janowitz B, Homan R, Johnson L. The value of contraception to prevent perinatal HIV transmission. *Sex Transm Dis* 2006; 33: 350–56.
- 106 Mayhew SH, Walt G, Lush L, Cleland J. Donor agencies' involvement in reproductive health: saying one thing and doing another? *Int J Health Serv* 2005; 35: 24–29.
- 107 Briggs CJ, Garner P. Strategies for integrating primary health services in middle- and low-income countries at the point of delivery. *Cochrane Database System Rev* 2006; 2: CD003318.
- 108 WHO, UN Population Fund, UNAIDS, International Planned Parenthood Federation. Sexual and reproductive health and HIV/AIDS. A framework for priority linkages. Geneva: World Health Organization 2005.
- 109 Tsui A. Service proximity as a determinant of contraceptive behaviour: evidence from cross-national studies of survey data. In Phillips JF, Ross JA, eds. *Family planning programmes and fertility*. Oxford: Clarendon Press, 1992: 222–58.
- 110 Bruce J. Fundamental elements of the quality of care: a simple framework. *Stud Fam Plann* 1990; 21: 61–91.
- 111 Miller K, Miller R, Askew I, Horn MC, Ndhlovu L. Clinic based family planning and reproductive health services in Africa: findings from situation analysis studies. New York: The Population Council, 1998.
- 112 RamaRao S, Mohanam R. The quality of family planning programs: concepts, measurements, interventions, and effects. *Stud Fam Plann* 2003; 34: 227–48.
- 113 Pariani S, Heer DM, Van Arsdol MD Jr. Does Choice make a difference to contraceptive use? Evidence from east Java. *Stud Fam Plann* 1991; 22: 384–90.
- 114 DKT International. 2004 Contraceptive Social Marketing Statistics. Washington, DKT Int. 2006.
- 115 Janowitz BS, Bratt JH, Fried DB. Investing in the future: a report on the cost of family planning in the year 2000. North Carolina: Family Health International, 1990.
- 116 Ross JA, Mauldin WP, Green SR, Colee ER. Family planning and child survival programs as assessed in 1991. New York: The Population Council, 1992.
- 117 Phillips JF, Greene WL, Jackson EF. Lessons from community-based distribution of family planning in Africa. New York: The Population Council, Policy research working paper 121, 1999.
- 118 Prata N, Vahidnia F, Potts M, Dries-Daffner I. Revisiting community-based distribution programs: are they still needed? *Contraception* 2005; 72: 402–07.
- 119 Department for International Development (DFID). Making market systems work better for the poor (M4P): an introduction to the concept. London: DFID, 2005.
- 120 Falkingham J, Namazie C. Measuring health and poverty: a review of approaches to identifying the poor. London: DFID, Health Systems Resource Centre, 2002.
- 121 The HLSP Institute. Which health policies are pro-poor? London: HLSP, 2000.
- 122 Hanson K, Kumaranayake L, Thomas I. Ends versus means: the role of markets in expanding access to contraceptives. *Health Policy Plann* 2001; 16: 125–36.
- 123 Ross J, Stover J, Adelaja D. Family planning programs in 2004: efforts, justifications, influences and special populations of interest. North Carolina. MEASURE-Evaluation Project, 2006.
- 124 van Dalen HP, Reuser M. Projections of funds for population and AIDS activities, 2004–2006. UNFPA/UNAIDS/NIDI Resource Flows Project: The Hague 2005. www.resourceflows.org/index.php/articles/c87/ (accessed Aug 8, 2006).
- 125 Newsweek, June 5, 2006. 45.
- 126 Cleland J, Ali MM. Sexual abstinence, contraception and condoms: trends in young single African women, 1993–2000. *Lancet*, (in press).
- 127 UN Department of Economic and Social Affairs, Population Division. World Population Prospects: The 2000 Revision Vol III: analytical report. New York: United Nations, 2002.
- 128 SM Mayhew, S Adjei. Sexual and reproductive health: challenges for priority-setting in Ghana's health reforms. *Health Policy Plann* 2004; 19: i50–61.
- 129 Guengart J-P, May JF. Impact of the proximate determinants on future course of fertility in sub-Saharan Africa. New York, United Nations Population Division, 2001. <http://www.un.org/esa/population/publications/prospectsdecline/guengart.pdf> (accessed Sept 25, 2006).
- 130 Xan Rice. The Guardian (London), Aug 25, 2006. <http://www.guardian.co.uk/international/story/0,,1857730,00.html> (accessed Sept 25, 2006).
- 131 Campbell White A, Merrick RW, Yazbeck AS. Reproductive health: the missing millennium development goal. Washington, The World Bank, 2006.
- 132 Glasier A, Gülmezoglu M. Putting sexual and reproductive health on the agenda. *Lancet* 2006; published online Nov 1. DOI:10.1016/S0140-6736(06)69485-3.

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