

Benefits of Family Planning

The little boy was small and feeble. He still did not crawl very well. He did not smile much. The traditional birth attendant slowly shook her head and then turned to check the mother's growing belly. The mother herself was weak and she had swollen up too much with this pregnancy. She would need to be delivered in the hospital again because of the toxemia. Another baby coming to the family—coming only a little more than a year after the birth of the young boy sitting unsteadily by his mother's side. The husband was deeply concerned about the health of his wife and child and the baby to come. Maybe this time the mother and father would reconsider and use a contraceptive.

The decision of when or even whether to have children is a basic human right. The International Conference on Population and Development, held in Cairo, Egypt, in September 1994, clearly endorsed this right:²⁵

Everyone has the right to the enjoyment of the highest attainable standard of physical and mental health. States should take all appropriate measures to ensure, on a basis of equality of men and women, universal access to health care services, including those related to reproductive health, which includes family planning and sexual health. Reproductive health care programmes should provide the widest range of services without any form of coercion. All couples and individuals have the basic right to decide

freely and responsibly the number and spacing of their children and to have the information, education and means to do so.

With this right come both benefits and risks. Family planning programs provide services that help people achieve the number of children they desire, reduce the number of unwanted pregnancies, reduce the risk of sexually transmitted infection (STI), and improve the health of women and children. Family planning can help couples reduce the factors that place the health of women and children at most risk:

- Age at pregnancy (too young or too old)
- Too many pregnancies
- Pregnancies spaced too closely together

Family planning also helps improve the future by allowing parents to better plan their lives. Poverty and lack of education limit the opportunities for individuals and families. Through family planning, however, individuals can obtain greater prosperity and security for the family because they can have a better chance at receiving an education and devoting more time to earning an income. Women can better fulfill the many roles for which they are ultimately capable: mother, wife, wage earner, community member. In turn, a man can better expand his roles as father, husband, family caregiver, and advocate of his family members' potentials.

FERTILITY AND MORTALITY RATES

In general, the countries with the highest rates of fertility also have the highest rates of maternal, infant, and child mortality. African people have long valued fertility, and as a result, many couples have large families. The average number of live births per African woman is 5.6. (See Table 1:1.) The *actual* number of pregnancies required to produce the 5.6 average number of live births would be higher because not all pregnancies come to term and a number of infants do not survive. Compared to women elsewhere in the world, women in most sub-Saharan countries bear children at younger ages, have larger families, and make much less use of family planning.²³

Table 1:1 Total fertility rate (TFR)

Country	TFR
Botswana	4.6
Burundi	6.8
Cameroon	5.9
Ghana	5.5
Kenya	5.4
Liberia	6.4
Mali	6.7
Mauritius	2.1
Niger	7.4
Nigeria	6.2
Senegal	6.0
Sudan	5.0
Swaziland	4.9
Tanzania	6.3
Togo	6.9
Uganda	6.9
Zambia	6.1
Zimbabwe	4.4

Source: Population Reference Bureau (1997)

MATERNAL MORTALITY

Each time a woman in one of the world's poorest countries becomes pregnant, her risk of dying from that pregnancy is as much as 200 times greater than the risk for a woman in the United States or Europe.³⁰ Because of the high fertility rate, poor health conditions in general, and inadequate availability of medical care, the risks of pregnancy are higher in Africa than anywhere else on earth. An African woman's chance of dying from pregnancy-related causes—obstructed labor, postpartum hemorrhage, pregnancy-induced hypertension, postpartum infections, and unsafe abortion—averages 870 per 100,000 live births.³⁰ In contrast, the risk of maternal death in industrialized nations averages 27 per 100,000 live births. (See Table 1:2.)

Table 1:2 Estimates of maternal mortality

Region	Maternal deaths/100,000 live births	Lifetime risk of maternal death – 1 in every:
World	430	60
Developed countries	27	1,800
Developing countries	480	48
Africa	870	16
Northern	340	55
Western	1,020	12
Eastern	1,060	12
Middle	950	14
Southern	260	75

Source: WHO and UNICEF (1996)

A rate of 700 maternal deaths per 100,000 live births means that a woman's risk of dying from a single pregnancy is about 1 in every 140 live births. Over a lifetime, the average African woman, who has six or seven children, has an estimated maternal mortality risk of 1 in 16.³⁰ However, many African woman have as many as eight children with even more pregnancies. For these women, the risk of maternal mortality may be even greater.

MATERNAL MORBIDITY

A mother's death represents one end of the spectrum of pregnancy complications. Experts believe that pregnancy-related morbidity far exceeds pregnancy-related mortality. However, illnesses that do not result in death but leave women weakened or in poor health are not measured in most developing nations. Family planning would reduce the risk of pregnancy-related morbidity.

Family planning services also reduce the risk of STIs, which are a major public health problem in Africa. As of 1996, more than 13 million adults and 650,000 children in Africa were infected with the

human immunodeficiency virus (HIV).²⁹ Rates of other STIs remain unmeasured, but the resulting diseases are costly to society.²⁶ The vast majority of infertile African men and women have diagnoses associated with previous STIs.

CONTRACEPTIVE-RELATED MORTALITY

In contrast to the significant risk of death from pregnancy-related complications, the risk of death from using contraceptives is exceedingly low. Table 1:3 shows the risk of death associated with contraceptive use in the United States. Some contraceptives may *increase* health risks by introducing hormones that affect the cardiovascular system or the development of some cancers; others may involve the risks of surgical or invasive procedures. On the other hand, some contraceptives *decrease* health risks by providing protection against certain reproductive cancers or STIs such as HIV, which causes acquired immunodeficiency syndrome (AIDS). All contraceptives decrease the risk of maternal mortality from pregnancy-related causes.

INFANT AND CHILD MORTALITY

The highest risk of death worldwide for children under 5 years of age is borne by children in sub-Saharan Africa (200 deaths per 1,000 births); children in northern Africa (140 deaths per 1,000 births) have the next highest rate. (See Table 1:4.) Infectious disease and malnutrition rates remain high among children in sub-Saharan Africa.²⁰ However, child survival has improved in some African nations over the years, perhaps removing one of the pressures for women to bear many children.

Table 1:3 Safety of contraceptive methods

Method	Chance of death in 1 year of use
None, with pregnancy resulting in an African woman	1 in 120
Oral contraceptive	
Nonsmoker	1 in 66,700
Heavy smoker	1 in 1,700
Intrauterine device	1 in 10,000,000
Diaphragm, condom, spermicide	None
Fertility awareness (Natural family planning)	None
Sterilization	
Laparoscopic tubal ligation	1 in 38,000
Hysterectomy	1 in 1,600
Vasectomy	1 in 1,000,000

Estimated pregnancy risks are based on the average mortality rate in Africa.

Estimated risks of contraceptive methods are derived from U.S.-based studies.

Source: Hatcher et al. (1998)

FAMILY PLANNING BENEFITS TO WOMEN'S HEALTH

Simply providing contraception to women who desire it could reduce maternal deaths by as much as one-third.²¹ Family planning also protects women by preventing the risk factors that contribute to maternal mortality and morbidity. The highest risks of mortality are those for pregnancies among women who are too old (over 35), too young (under 16), or who have borne more than five children.

AVOIDING THE EXTREMES OF MATERNAL AGE

Family planning allows women to avoid becoming pregnant at the ages that pose the greatest risk to their health and the health of their children. Women older than 35 years tend to be at higher risk of death.^{4,16} These older women, generally multiparous, may have a flaccid uterine wall from repeated stretching during previous pregnancies.

Table 1:4 Infant and child mortality

Country, Year	Deaths per 1,000 births
Burkina Faso	97
Cameroon	69
Egypt	54
Ghana	77
Kenya	68
Madagascar	87
Malawi	140
Namibia	60
Morocco	51
Niger	119
Nigeria	73
Rwanda	121
Senegal	74
Togo	87
Tunisia	37
Uganda	112
Zambia	85
Zimbabwe	64

Source: McDeavitt TM (1996)

The weakened walls can lead to malpresentation, uterine rupture, hemorrhage associated with rupture, and hemorrhage associated with a flaccid uterine muscle. An abnormal placenta is more common in women above age 35 and in women who have had more than five births.⁷

Younger women and primigravidas tend to be at a higher risk of developing pregnancy-induced hypertension.^{1,28} The increased risk among younger primigravidas may reflect not so much increased physiological risk, but socioeconomic differences between younger mothers and women who have their first child at ages 20 to 24. For example, women who have their first child at very young ages may be from poorer families and have less access to, or make less use of, prenatal care, which could help prevent the risk factors for hypertension.^{6,14}

DECREASING RISKS BY DECREASING PARITY

Contraceptives allow a woman to avoid pregnancy and child-bearing once she reaches her desired family size. A mother's risk of dying climbs steadily as the number of births increases. Women who have had five or more births are 1.5 to 3 times more likely to die from pregnancy-related causes than are women who have had only two or three births.²⁰ If all women had five births or fewer, the number of maternal deaths could drop by 26% worldwide.⁸

PREVENTING HIGH-RISK PREGNANCIES

Family planning can improve women's health by preventing or delaying pregnancies among the women who are most likely to have a high-risk pregnancy:

- Women who have had previous pregnancy complications
- Women who have a chronic disease
- Women who have anemia (hemoglobin less than 10 gm)

The high rates of maternal mortality and morbidity in many developing countries can be partially attributed to the norms of living there: frequent pregnancies, prolonged lactation, heavy work, and food customs that are unhealthy for women (for example, women eat with the children after the men have satisfied themselves). This combination of factors produces a "continuous cumulative nutritional drain" on women; their bodies do not have time to replenish stores of vital nutrients.^{15,22} As a result, they are less able to combat infections associated with pregnancy, incomplete abortions, childbirth, puerperium, or everyday exposures to illness.

DECREASING ABORTION RISKS

One of the fundamental goals for family planning is to make "every child a wanted child." Some unwanted pregnancies are aborted. Although not conclusively documented, many maternal deaths related

to pregnancy are associated with incomplete abortions, whether self-induced or induced by a trained or untrained practitioner.

The major causes of maternal mortality related to abortion are hemorrhage and sepsis; the latter is an infection that spreads from the uterus to the abdominal cavity and then to the overall body. These conditions, which are caused by retained fetal or placental tissue, can lead to septic shock and death. In Addis Ababa, Ethiopia, post-abortion complications rank as the most common cause of maternal death, and are particularly common among young, unmarried women who have no other children.¹⁷

IMPROVING HEALTH THROUGH NONCONTRACEPTIVE BENEFITS

In addition to providing protection against pregnancy-related risks, a contraceptive may offer protection against STIs and reproductive tract cancers. Hormonal contraceptives such as pills, injectables, and implants protect a user against cancer of the uterus and ovaries, cysts in the breast or ovaries, ectopic pregnancy, and pelvic inflammatory disease (PID). Barrier methods such as condoms and diaphragms can protect women against STIs such as HIV and gonorrhea as well as related problems such as ectopic pregnancy, PID, and cancer of the cervix.

FAMILY PLANNING BENEFITS CHILDREN'S HEALTH

Many African families still measure their riches by the number of healthy children they bear. Family planning programs, along with diarrheal treatment programs, mass immunizations, health services, and nutrition programs, help contribute to children's well-being.²³

Family planning contributes indirectly to children's health, development, and survival by reducing the risk of maternal mortality and morbidity. The death of a mother is traumatic; losing a mother has an immense impact on the emotional well-being of the family

members that survive her. It also may affect the physical health of her survivors since many women earn a living and most are directly involved in the hygiene and health care of children.

Family planning contributes directly to the survival, health, and development of children in three ways:²¹

- Encouraging women to space births at least 2 years apart
- Planning births during the mother's optimal age—not too old or too young
- Preventing further pregnancies in a mother who has had numerous pregnancies already

SPACING BIRTHS

Infants born at least 24 months after the previous birth in their family have lower mortality rates than children born at shorter intervals. (See Table 1:5.) The exact reasons why birth spacing saves lives are not fully understood, but experts suggest that it improves infant birthweight and child nutrition.

A pregnancy occurring too soon after a previous pregnancy may result in a spontaneous abortion, a stillbirth, or a low-birthweight baby who is much less likely to survive. On average, babies born less than 2 years after the previous birth in the family are about twice as likely to die in the first year as babies born after at least a 2-year interval.²¹

Even older children who are spaced too closely face an increased risk of death during the toddler and childhood years. Closely spaced siblings compete for food and other resources. A young child may be weaned too soon because the mother stops breastfeeding when she becomes pregnant with another child. This practice has long been recognized in some societies and has even found its way into the language through the word "kwashiorkor," which means "the child displaced from the breast too soon" because the mother is pregnant again.²⁷ Children born within 2 years of a previous child are 1.3 times more likely to die between the ages of 1 to 5 years than those born after a longer interval.²⁰

Table 1:5 Estimated average mortality rates for children born to women with two kinds of reproductive patterns

	Mortality rate per 1,000 live births	
	Good spacing pattern	Poor spacing pattern
Teenage mothers	92	165
Mothers ages 20-34	67	120

Source: Hobcraft (1989)

PLANNING BIRTHS DURING OPTIMAL MATERNAL AGE

Women who are very young or very old are more likely to have an infant or child who dies:

- Children of teenagers are 1.2 times more likely to die during the neonatal period, 1.4 times more during the postneonatal period, 1.6 times during ages 1 to 2, and 1.3 during childhood to age 5.²⁰
- Children of older mothers are more likely to be born with congenital abnormalities, including Down's syndrome, heart defects, and cleft palate and lip.¹¹

However, these congenital anomalies are a relatively minor cause of infant death in developing countries.⁹ Most of the excess death associated with older maternal age is probably linked to the additional risk associated with a greater number of births an older woman will likely have had.

PREVENTING A LARGE NUMBER OF PREGNANCIES PER WOMAN

The eventual size of the family directly affects an infant's or child's chance for survival because it determines what proportion of the family resources and food each child receives. Studies also show that birth order affects the nutritional status of a child. In many areas of the world, families know too well the effects of limited resources

such as food. More children means more mouths to feed, and the more mouths to feed, the less food for each. The third, fourth, and subsequent children are likely to eat fewer calories and proteins, thus making them more susceptible to illness, including fatal illness. Much of the risk associated with high birth order is probably the result of close birth spacing.²⁰ On average, the seventh or later child has a smaller chance for survival than a child who has a lower birth order.¹²

FAMILY PLANNING BENEFITS WOMEN AND THEIR SOCIETIES

Family planning reduces health risks of women and gives them more control over their reproductive lives. With better health and greater control over their lives, women can take advantage of education, employment, and civic opportunities.

In delivering family planning services, providers have a unique opportunity to enhance the lives of women:¹⁹

- **Help women learn to make informed choices.** In many countries, women report they have little or no say in decisions about having children. Women need to learn how to make these decisions and gain confidence in their abilities so that they can apply their decision-making skills and confidence to other arenas in their lives.
- **Support women's choices.** The provider needs to listen to and encourage women. The provider can give information, engage women in discussion, help them recognize their needs and desires, and answer questions. When the woman makes a decision, the provider can acknowledge its value.
- **Encourage women to recognize their strengths and build on them.** Through counseling, women can recognize their abilities: performing household chores, planning their time, saving money or food staples, caring for their children, helping their husbands and in-laws, and supporting their friends and neighbors.

- **Improve women's skills in communicating with their husbands and with people outside their families.** The provider can help establish avenues for communication during joint discussions with the wife and husband. The couple's improved communication will increase the adoption of contraception as well as the continuation and more successful use of the couple's chosen method. Ideally, communication about family planning also will open opportunities for discussion about other issues in the couple's lives. Women's discussion groups are useful in helping women feel respected and less isolated. These groups can consider ways to discuss issues with husbands.
- **Create new images and models of competent women and caring men.** By treating and portraying women as competent and men as caring, family planning workers can help men and women adopt and accept these perceptions.

Throughout the world, not just in Africa, women suffer from having a lower status than men. They have fewer rights, lower salary levels, under-representation in politics and decision-making positions, less economic power, and inadequate protection from violence.² The Program of Action adopted by the delegates of the International Conference on Population and Development, held in Cairo, Egypt, calls for an end to discrimination against women:²⁵

- Ensure that women can have economic parity with men: property ownership, credit, right to negotiate contracts, and right to inheritance.
- Eliminate discrimination against women in the workplace and in educational institutions.
- Eliminate violence against women in the home and the community in times of war and of peace.
- Enact laws to remove barriers to the advancement of women.

*The woman's place is not in the kitchen anymore;
her place is everywhere there is human activity.
The hour has come to revisit our prejudices against women.*
— Brigadier General G. Miyanda, Vice President of Zambia

FAMILY PLANNING IN AFRICA

Sub-Saharan Africa has the lowest rate of contraceptive use in the world. Several factors have contributed to this low rate: difficulty in getting contraceptive supplies, not enough family planning clinics, a largely rural population, low socioeconomic levels, high rates of infant and child mortality, and the high value many cultures place on large family size.

The percentage of married women of reproductive age using contraception ranges from 4% in Niger to 48% in Zimbabwe to 75% in Mauritius.³⁰ (See Table 1:6.) Less than 20% of women use a contraceptive in Burkina Faso, Madagascar, Malawi, Niger, Nigeria, Tanzania, Togo, and Uganda. In contrast, the rest of the developing world, excluding China, has a contraceptive use rate of 43%; the developed world has a rate of 68%.

As contraceptive use increases, total fertility rates decrease. In Kenya, for example, contraceptive use increased threefold during the 1980s, a rise associated with a decrease in family size from 8.3 to 6.5 children per woman.⁵

As contraceptive use increases in Africa, so will family survival. Planned pregnancies, which are generally safer for the mother, produce children who are usually healthier than children from unplanned pregnancies. Sub-Saharan Africa stands out as the region having the highest unmet need for contraception in the world.³ (Most recent estimates of unmet need include women not using any contraceptive method who state they want to space out their children or that they have reached their desired family size and wish to have no more children. See Table 1:7.)

The woman with an unintentional pregnancy is less likely to receive prenatal care, which is instrumental in reducing the risks of pregnancy for both mother and child. The child of an unwanted conception is at greater risk of being born at low birthweight, dying in the first year of life, and not receiving sufficient resources for healthy development.¹³ Family planning is vital to family health.

REPRODUCTIVE LIFE PLAN

Family planning allows individuals and couples to plan at least one aspect of their lives: whether and when to have children and how many. Such planning increases the likelihood that mothers and their children will enjoy the health benefits of birth spacing and having intentional, rather than unintentional, pregnancies.

Every person, whether from a traditional or modern culture, already has at least a partially developed reproductive life plan. Cultural expectations about when to marry, when to bear children, and how many children to have can be strong and can form a person's future. In the process of accepting or challenging these expectations, a person is actually forming a reproductive life plan.

Table 1:6 Family planning methods currently used (in percentages) by married women of reproductive age, 18 African nations

Country	Any method	Trad. methods	Modern methods	Sterilization		OCs
				Female	Male	
Burkina Faso	10	6	4	<1	0	2
Cameroon	14	10	4	1	0	1
Egypt	47	2	45	1	0	13
Ghana	20	10	10	1	—	3
Kenya	33	6	27	6	0	10
Madagascar	17	12	5	1	0	1
Malawi	13	6	7	2	0	2
Namibia	30	3	26	7	<1	8
Niger	4	2	2	<1	0	2
Nigeria	6	3	4	<1	0	1
Rwanda	21	8	13	1	0	3
Senegal	7	3	5	<1	0	2
Tanzania	18	5	13	2	—	6
Togo	12	9	3	1	0	1
Tunisia	51	9	41	10	0	9
Uganda	15	4	9	1	—	3
Zambia	26	12	14	2	0	7
Zimbabwe	48	6	42	2	<1	33

Table 1:6 Family planning methods currently used (in percentages) by married women of reproductive age, 18 African nations —Continued

IUDs	Condoms	Injectables	Vaginal	Periodic abstinence	Withdrawal	Other
1	1	<1	<1	4	0	2
<1	1	<1	<1	7	2	1
28	2	1	<1	1	1	<1
1	2	2	1	8	2	1
4	1	7	<1	4	<1	1
1	1	2	<1	9	2	<1
<1	2	2	<1	2	2	2
2	<1	8	<1	1	<1	2
<1	<1	1	0	<1	<1	2
1	<1	1	<1	1	1	1
<1	<1	8	0	5	3	1
1	0	0	0	1	0	2
1	1	5	—	2	3	1
1	0	0	1	7	2	0
18	1	1	1	7	3	1
<1	1	3	0	4	1	3
1	4	1	<1	2	5	5
1	2	3	0	<1	4	2

Sources: Bureau of Statistics [Tanzania] (1997); Central Statistical Office [Zambia] et al. (1997); Central Statistical Office [Zimbabwe] (1995); Curtis SL and Neitzel K (1996); El-Zanaty F, et al. (1996); Statistics Department [Uganda] 1996.

Table 1:7 Percentage of currently married women with a potential demand for contraception

Region	Potential demand	Current users (met need)	Nonusers (unmet need)	Proportion of demand satisfied
Sub-Saharan Africa	38.9	15.9	23.0	0.41
North Africa/ Middle East	59.8	40.9	18.9	0.68
Asia	60.8	46.7	14.1	0.77
Latin America	67.2	47.8	19.4	0.71

Potential demand = current users (met need) + nonusers (unmet need)

Source: Bongaarts and Bruce (1995)

Reproductive life plan

1. Would I like to have a child in the future?
2. How many children would I be happy having?
3. What are the things that I would like to achieve most in life, and by when?
4. Of all the things I could do in life, what might be the most important to accomplish?
5. This goal would be affected by or would affect childbearing in what ways?
6. How old would I like to be when I have my last child?
7. How concerned would I be if I were to become pregnant before I was ready?
8. What would I do if I were to become pregnant before I wanted to?
9. How compatible is my life plan with my religious beliefs, my husband's (or wife's), my community's?

Choices are essential to human dignity. Without choices and without opportunities, a person cannot hope for a better future. Without choices, a person can have little self-respect. A person imprisoned is punished by being denied choices; a person denied choices is punished even without being imprisoned.¹⁹

REFERENCES

1. Arkutu AA. A clinical study of maternal age and parturition in 2791 Tansanian primiparae. *Int J Gynaecol Obstet* 1978;16(1):20-23.
2. Ashford L. New perspectives on population: lessons from Cairo. *Popul Bull* 1995;50(1):17-22.
3. Bongaarts J, Bruce J. The causes of unmet need for contraception and the social content of services. *Stud Fam Plann* 1995;26(2):57-75.
4. Chi LC, Agoestina T, Harbin J. Maternal mortality at twelve teaching hospitals in Indonesia — an epidemiologic analysis. *Int J Gynaecol Obstet* 1981;19(4): 259-266.
5. Cross AR, Obungu W, Kizito P. Evidence of a transition to lower fertility in Kenya. *Int Fam Plann Perspect* 1991;17(1):4-7.
6. Efiog EI, Banjoko MO. The obstetric performance of Nigerian primigravidae aged 16 and under. *Br J Obstet Gynaecol* 1975;82(3):228-233.
7. Faundes A, Fanjul B, Henriquez G, Mora G, Tognola C. Influencia de la edad y de la paridad sobre algunos parametros de morbilidad materna y sobre la morbi-mortalidad fetal. *Rev Chil Obstet Ginecol* 1972;37(1):6-14.
8. Fortney JA. The importance of family planning in reducing maternal mortality. *Stud Fam Plann* 1987;18(2):109-114.
9. Haaga J. Mechanisms for the association of maternal age, parity, and birth spacing with infant health. In: Parnel AM (ed.). *Contraceptive use and controlled fertility: health issues for women and children*. Washington DC: National Academy Press, 1989.
10. Hatcher RA, Trussell J, Stewart F, Cates W, Stewart GK, Guest F, Kowal D. *Contraceptive technology*. 17th edition. New York: Irvington Publishers, Inc., 1998.
11. Hay S, Barbano H. Independent effects of maternal age and birth order on the incidence of selected congenital malformations. *Teratology* 1972;6:271-280.
12. Hobcraft JN. Does family planning save children's lives? In: National Research Council. *Contraception and Reproduction* (ed.). Health consequences for women and children in the developing world. Washington D.C.: National Academy Press, 1989.
13. Institute of Medicine. *The best intentions. Unintended pregnancy and the well-being of children and families*. Washington DC: National Academy Press, 1995.
14. Jelley D, Madeley RJ. Antenatal care in Maputo, Mozambique. *J Epidemiol Community Health* 1983;37(2):111-116.

15. Jelliffe DB. Assessment of the nutritional status of the community (with special reference to field surveys in developing countries). Geneva, World Health Organization, 1966.
16. Koenig MA, Fauveau V, Chowdhury AI, Chakraborty J, Khan MA. Maternal mortality in Matlab, Bangladesh: 1976-1985. *Stud Fam Plann* 1988;19(2):69-80.
17. Kwast BE, Rochat RW, Kidane-Mariam W. Maternal mortality in Addis Ababa, Ethiopia. *Stud Fam Plann* 1986;17(6):288-301.
18. McDeavitt TM. World population profile; 1996. U.S. Agency for International Development and U.S. Department of Commerce, 1996.
19. McCauley AP, Robey B, Blanc AK, Geller JS. Opportunities for women through reproductive choice. *Popul Rep* 1994;series M(12).
20. National Resource Council. Contraception and reproduction. Health consequences for women and children in the developing world. Washington D.C.: National Academy Press, 1989.
21. Population Reference Bureau. Family planning saves lives: a strategy for maternal and child survival. Baltimore, MD: IMPACT, 1986.
22. Rao KV, Gopalan C. Nutrition and family size. *J Nutr Diet* 1969;6:258-266.
23. Robey B, Rutstein SO, Morris L. The reproductive revolution: new survey findings. *Popul Rep* 1992;Series M(11).
24. United Nations. Mortality of children under age 5: world estimates and projections, 1950-2025. Population Studies No. 105. New York: United Nations, 1988.
25. United Nations International Children's Education Fund (UNICEF). Report of the International Conference on Population and Development. Presented in Cairo, Egypt, September 5-13, 1994.
26. Wasserheit JN, Holmes KK. Reproductive tract infections: challenges for international health policy, programs, and research. In: Germain (ed.). Reproductive tract infections. New York: Plenum Press, 1992.
27. Williams CD. Child health in the Gold Coast. *Lancet* 1938;1:97-102.
28. World Health Organization. Geographic variation in the incidence of hypertension in pregnancy. *Am J Obstet Gynecol* 1988;158(1):80-83.
29. World Health Organization and UNAIDS. The current global situation of AIDS. June 30, 1996.
30. World Health Organization and United Nations Children's Fund. Revised 1990 estimates of maternal mortality: a new approach by WHO and UNICEF. April 1996.

Late References

31. Bureau of Statistics [Tanzania] and Macro International Inc. Tanzania demographic and health survey 1996. Calverton, MD: Bureau of Statistics and Macro International, 1997.
32. Central Statistical Office [Zambia] and Ministry of Health and Macro International Inc. Zambia demographic and health survey, 1996. Calverton, MD: Central Statistical Office and Macro International, 1997.
33. Central Statistical Office [Zimbabwe] and Ministry of Health and Macro International Inc. Zimbabwe demographic and health survey, 1994. Calverton, MD: Central Statistical Office and Macro International, 1996.

34. Curtis SL, Neitzel K. Contraceptive knowledge, use, and sources. Demographic and health surveys no. 19. Calverton, MD: Macro International, 1996.
35. El-Zanaty F, Hussein EM, Shawky GA, Way AA, Kishor S. Egypt demographic and health survey 1995. Calverton, MD: National Population Council [Egypt] and Macro International, 1996.
36. El-Zanaty F, Hussein EM, Shawky GA, Way AA, Kishor S. Egypt demographic and health survey 1995. Calverton, MD: National Population Council [Egypt] and Macro International, 1996.
37. Statistics Department [Uganda] and Macro International Inc. Uganda demographic and health survey, 1995. Calverton, MD: Statistics Department [Uganda] and Macro International, 1996.

