IMPROVING *Reproductive Health in Developing Countries*

A summary of findings from the National Research Council of the U.S. National Academy of Sciences, prepared by the Population Reference Bureau

TABLE OF CONTENTS

Summary

Developing countries face serious reproductive health problems such as sexually transmitted diseases (STDs), unintended pregnancies, and complications from childbirth. Most of these problems can be prevented or solved, however, through well-coordinated efforts and additional investments.

At the International Conference on Population and Development (ICPD) in 1994, governments from around the world defined a new agenda to promote reproductive health. In response to this, the U.S. National Academy of Sciences organized the Panel on Reproductive Health in Developing Countries to help identify reproductive health problems and measures to deal with them. The panel outlined several priorities for policymakers, researchers, and health care providers.

- **Emphasize prevention and provision of information about STDs and other reproductive tract infections (RTIs).** The consequences of RTIs include a higher likelihood of HIV transmission, infertility, and permanent disabilities in newborns. Primary health care and family planning clinic staff should be well informed about RTIs and HIV/AIDS so that they can counsel clients on the prevention of infections, proper use of condoms, and where to go for diagnosis and treatment of suspected infections.
- **Provide care for RTIs at family planning and health facilities.** Program managers should encourage provision of basic RTI treatment services in clinics wherever possible. Prenatal and delivery care should include syphilis screening and treatment during pregnancy and eyedrops for newborns to prevent eye infections that result from maternal STDs.
- **Improve essential services for pregnant women.** The health problems that cause pregnancy-related deaths, such as hemorrhaging and prolonged labor, are difficult to predict. Moreover, the majority of births in developing countries take place outside of health facilities. Pregnant women, their families, and birth attendants should be trained to recognize life-threatening complications of labor and delivery so that treatment can be sought at health care facilities. Hospitals and clinics should upgrade equipment and train staff to provide essential care for these emergencies.
- **Expand access to contraceptive services and information.** Between 20 and 60 percent of births in developing countries are unintended—either unwanted or mistimed. Individuals need access to a range of contraceptive choices, as well as high-quality information and services. In addition, family planning providers and clients should be informed about emergency contraception.

- **Eliminate sexual violence and coercion.** The health consequences of sexual violence and coercion include STDs, unwanted pregnancies, and other injuries. Laws against sexual and domestic violence should be enacted and enforced, and victims need greater access to the law enforcement system and support services. Laws also must be enforced and the public mobilized to eliminate the practice of female genital mutilation.

Whether to integrate services has been a central issue in reproductive health care. Integrating services can have several advantages, such as increased management efficiency and greater convenience for users. On the other hand, service integration can lead to overload of health care workers and may not work well for specialized services, such as care for obstetric emergencies. More research and evaluation are needed to determine the most effective configuration of services in each setting.

Given the limited resources available for health care in most developing countries, no single package of reproductive health services can be adopted everywhere. In any setting, reproductive health services are among the most cost-effective areas in which to invest health care resources. However, just to maintain present inadequate levels of reproductive health service provision will require increased spending because of population growth in developing countries. To expand and improve services will require both increased resources and improved management.

There are actions that can be taken now to improve reproductive health. Well-targeted efforts—involving public services, the private sector, and policy changes supported by the international community—can help even poor countries make progress on the major reproductive health problems.

Introduction

In 1994, representatives of more than 180 nations met at the International Conference on Population and Development (ICPD) and approved a Programme of Action that emphasized the need to improve reproductive health. To help define and evaluate strategies to carry out the ICPD program, the Committee on Population of the U.S. National Academy of Sciences (NAS) organized the Panel on Reproductive Health in Developing Countries. The panel was composed of independent experts from several countries and fields of expertise (see appendix A).

The panel's objectives were to (1) examine the magnitude and severity of reproductive health problems in developing countries, (2) assess the likely costs and effectiveness of interventions to address these problems, and (3) recommend priorities for programs and research. This report summarizes the panel's findings and recommendations.*

The panel adopted the vision of reproductive health embodied in the ICPD Programme of Action, which implies that

- every sex act should be free of coercion and infection,
- every pregnancy should be intended, and
- every birth should be healthy.

No population in the world has met these goals, but shortfalls are particularly acute in developing countries:

- Between 20 and 40 percent of births in developing countries are unwanted or mistimed, posing hardships for families and jeopardizing the health of millions of women and children.
- An estimated 50 million induced abortions are performed each year, with some 20 million of these performed in unsafe circumstances or by untrained providers.
- Nearly 600,000 women die each year from pregnancy-related causes; 99 percent of these women live in developing countries. Each year, approximately 7.6 million infants are stillborn or die in the first week of life.
- There are more than 333 million new cases of curable STDs worldwide each year. Largely as a result of these infections, a high proportion of couples in some regions cannot conceive the children they want. Among women who have

* The full report, entitled *Reproductive Health in Developing Countries: Expanding Dimensions, Building Solutions,* can be obtained from National Academy Press. See details on page 32.

sexually transmitted infections and who do become pregnant, between 30 and 70 percent will transmit the infection to their infants. Many of these infected women will deliver prematurely or suffer a miscarriage or stillbirth.

- Nearly 22 million people are estimated to be infected with the human immunodeficiency virus (HIV, the virus that causes AIDS); 14 million of them live in sub-Saharan Africa, but the number of people infected is rapidly increasing in South and Southeast Asia. Infection with other STDs increases the risk of transmission of HIV through heterosexual contact by at least two to five times.

One immediate challenge for reproductive health is the sheer growth in the size of the populations to be served. Even though birth rates have fallen in most developing countries, there will still be large increases in the numbers of individuals in or approaching their reproductive years, because of high birth rates in past decades *(see table 1)*. The challenge is most daunting in countries where contraceptive use is low. In those countries, the size of the reproductive age group will increase by 50 percent or more between 1995 and 2010.

Table 1
Women of Reproductive Age in Selected Developing Countries

	Number of women ages 15 to 49, in millions, 1995	Percent increase 1995 to 2010
Kenya	6.2	60
Pakistan	30.8	59
Nigeria	25.3	59
Tanzania	6.9	56
Bangladesh	28.0	47
Colombia	9.7	26
Thailand	16.6	9

SOURCE: United Nations, *World Population Prospects: The 1996 Revision* (New York: United Nations, 1996): Medium variant projections.

Even in countries not experiencing rapid population growth, resources and policy attention should be devoted to reproductive health. Addressing the STD and AIDS epidemics, improving the quality of existing reproductive health services, and reaching previously underserved populations all present major challenges.

No one package of interventions will serve all reproductive health needs. But there are steps that can be taken now in all settings to address the major reproductive health problems. The findings and recommendations in the NAS report and summarized here should be useful for those who design reproductive health programs, set priorities for funding them, and conduct or fund research to improve them.

Healthy Sexuality

Healthy sexuality is a vital component of reproductive health. It implies control over one's body and informed and responsible choice in sexual relations. Healthy sexuality is related to reproductive health in three ways:

- A lack of healthy sexuality—or worse, sexual violence and coercion—can have serious health consequences, including unintended pregnancies and STDs.
- Childhood sexual experience and coercion may lead to sexual problems and risky behaviors in adulthood.
- Healthy sexuality is an intrinsic aspect of health, defined to include emotional and mental well-being.

Cultures differ in norms about sexuality, particularly those concerning sexual behavior of young people before marriage and a woman's right to refuse unwanted sex within marriage. Yet many serious health problems are caused by behaviors that violate widely shared norms, such as those against sexual violence and sexual exploitation of children.

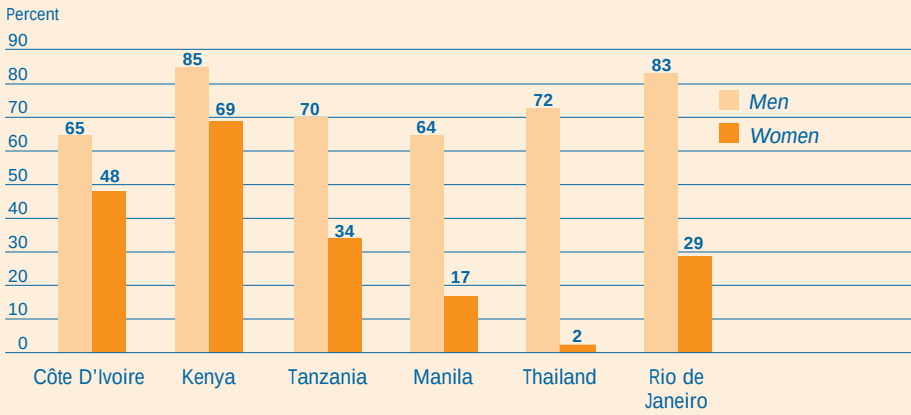
Sexuality in the Cultural Context

Premarital sex is common in many parts of the world and is reported to be on the rise in all regions *(see figure 1)*. Surveys conducted in Asia and Africa indicate that young women are under strong social and peer-group pressure to engage in premarital sex. The average age of marriage has risen in many countries, giving young people more years "at risk" of having premarital sex. Moreover, some features of modern life may increase both the desire and opportunity for premarital sexual activity: the mass media, increased migration and urbanization, increased materialism, and relative impoverishment within societies leading to rises in commercial sex.

Premarital sexual activity is more common among men than women. In most societies,

Figure 1

Married Men and Women Ages 25 to 29 Who Reported Having Had Premarital Intercourse



SOURCE: Adapted from "Sexual Behavior" by M. Carael, in *Sexual Behavior and AIDS in the Developing World*, edited by J. Cleland and B. Ferry (London: Taylor and Francis, 1995): 75-123.

prohibitions against premarital sex are weaker and less strictly enforced for young men than for young women. Condoning and even encouraging young men's sexual activity affects the reproductive health of both men and women.

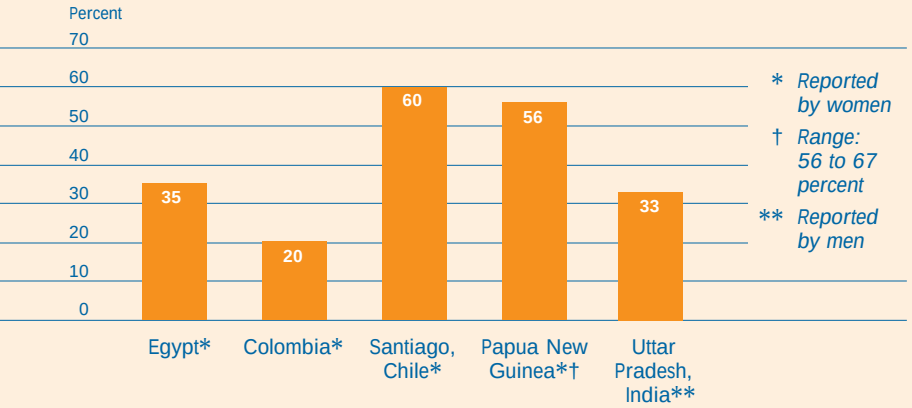
Having sex with multiple partners also has implications for reproductive health because wider sexual networks lead to increased infections. In sub-Saharan Africa, between 8 and 49 percent of married men and up to 19 percent of married women report having one or more nonregular sexual partners. The percentages are higher for individuals who have never married: up to 54 percent of men and up to 32 percent of women have one or more nonregular sex partners. In countries in Asia where it has been researched, from 33 to 45 percent of never-married men and only 1 percent of never-married women have one or more nonregular partners.[1]

Sexual Violence

Sexual violence occurs in many women's lives—both within and outside formal relationships. Data on this type of violence are limited, in part because it has only recently been recognized as a public health issue. Enough is known, however, to justify including violence against women as a serious reproductive health problem. In some of the available surveys conducted in developing countries, from 20 to 60 percent of women are reported to have been beaten by their husbands *(see figure 2)*.

Figure 2

Women Reportedly Beaten by Their Spouses



SOURCE: L. Heise, J. Pitanguy, and A. Germain, *Violence against Women: The Hidden Health Burden*, World Bank Discussion Paper No. 255 (Washington, D.C.: World Bank, 1994); S. Martin, A. Tsui, K. Maitra, and R. Marinshaw, "Wife Abuse in Northern India," Unpublished paper (Chapel Hill, NC: Carolina Population Center, University of North Carolina, 1997); F. el-Zaraty et al, *Egypt Demographic and Health Survey 1995* (Cairo, Egypt: National Population Council and Calverton, MD: Macro International: 1996).

Violence against women affects women's control over their sexuality and therefore their sexual health. The negative consequences of violence include physical injuries, STDs, unwanted pregnancies, unsafe abortions, and miscarriages, as well as mental disorders such as depression and anxiety. The fear of domestic violence can make a woman unable to negotiate condom use or practice contraception if, for example, she fears accusations of infidelity.

Although most societies do not condone violence against women, they often implicitly or explicitly support dominating and aggressive male behavior, which can lead to violence. Societies also may do little through legal channels to stop the

violence against women. For example, the concept of rape does not exist in many penal codes, and domestic violence is often neglected by the police and the courts.

The sexual exploitation of children deserves special mention. The consequences of this form of sexual coercion are likely to be even more traumatic and long-lasting than those of violence against adult women. Evidence from the United States indicates that a history of childhood sexual abuse is associated with unhealthy sexual behavior in later years and greater incidence of STDs. Children in difficult circumstances—street children, orphans, and refugees—are especially vulnerable to abuse.

Female Genital Mutilation

Female genital mutilation, some forms of which are also called female circumcision, is performed on some two million girls each year. It is typically intended as a restraint on sexual behavior. The practice has been reported in more than 30 countries on the African continent, 7 in the Middle East, and 4 in Asia, as well as in the developed countries where certain ethnic groups have migrated.[2] The World Health Organization (WHO) estimates that there are currently 114 million women and girls who have undergone some form of genital mutilation.

Female genital mutilation is usually carried out in unhygienic circumstances, most often without anesthesia. It puts girls at high risk of infection and later sexual and reproductive problems. The immediate health consequences can include infection, hemorrhage, urinary retention, shock, and death. Long-term consequences include a range of reproductive problems—from frigidity and sterility to complications during childbirth—that pose further risks for mothers and newborns.

Program and Policy Implications

Policies and programs to promote healthy sexuality can be divided into three broad types:

- Increasing public awareness of sexual health problems.
- Providing sexuality education and health services for young people and adults.
- Providing social and legal support to prevent sexual violence and protect and treat victims of violence.

Since open discussion of sexuality is limited in most societies, dissemination of research findings about sexual behaviors and beliefs can be a powerful tool in bringing public attention to the issues. A high priority for research should be documenting the extent of problems such as violence and sexual coercion, sexual exploitation of children, and female genital mutilation.

Sexuality education

In every culture, sexuality education and communication are needed to build images of responsible sexual behavior. In many regions, sex education is already an accepted part of the response to high rates of adolescent pregnancy and the threat of HIV infection. Approximately half of Latin American adolescents, for example, receive some type of sexuality education, much of it provided by nongovernmental organizations.[3]

Most sex education programs provide information about reproduction, contraception, and STDs. To address a wider range of healthy sexuality issues, curricula should include components on gender roles, self-esteem, decision making, sexual and domestic violence, and communication and negotiation skills. Young people enrolled in schools are easiest to reach; however, adults are also misinformed and require education related to sexuality.

Evidence from developed countries suggests that well-designed sexuality education can reduce risky sexual behaviors. A recent review in the United States concluded that these programs do not promote earlier or more frequent sexual activity among young people.[4]

Broadening health services

As sexual activity in many countries is common before and outside marriage, reproductive health programs need to provide information and services to individuals who have not been traditionally considered as clientele. These include men, adolescents, and unmarried individuals of all ages.

Reproductive health services also should be broadened to address healthy sexuality issues. Service providers should receive training that allows them to explore the factors that might influence clients' misuse of contraceptives or exposure to STDs. Health providers also need to play a stronger role in detecting domestic violence and sexual abuse of children and in counseling and treating victims. The health system may be the only public service with which victims come into contact.

Legal and policy changes

Every society should place high priority on improving access to the law enforcement system and creating support services for victims of sexual violence. Laws against sexual and domestic violence should be enacted and existing laws enforced.

A principal barrier to women's control over their sexuality is their dependence on men for economic survival. Therefore, in addition to direct policies aimed at sexual violence, measures to increase women's autonomy—through higher education, opportunities for financial independence, laws guaranteeing inheritance and divorce rights—are also likely to reduce women's vulnerability to coercion and violence.

Where female genital mutilation is common, reproductive health strategies should include measures to educate the public and health care providers about its harmful effects on women's health and to enforce existing bans on the practice.

Infection-Free Sex and Reproduction

Sexual relations and reproduction should be free of infection. Reproductive tract infection (RTI) is a generic term that covers three types of infections:

- STDs.
- Infections that result from overgrowth of organisms normally present in the reproductive tract.
- Infections associated with medical procedures, including abortions and insertion of intrauterine devices.

RTIs are a persistent global health problem. Studies of women in India, Bangladesh, and Egypt have found RTI rates ranging from 52 to 92 percent, and fewer than half the women recognized the conditions as abnormal.[5] WHO estimates that at least 333 million new cases of curable STDs occurred globally in 1995, mostly in developing countries *(see table 2).*

Table 2
New Cases of Curable STDs among Adults, 1995

	Millions
World	333
South and Southeast Asia	150
Sub-Saharan Africa	65
Latin America and Caribbean	36
East Asia and Pacific	23
North Africa and Middle East	10

SOURCE: WHO, "An Overview of Selected Curable Sexually Transmitted Diseases," unpublished paper (Geneva, Switzerland: WHO Global Programme on AIDS, 1995).

Both sexual and health-related behaviors affect the prevalence of RTIs. STDs are caused mainly by risky sexual behaviors. These include early initiation of sexual activity, sex with multiple partners, commercial sex, and specific sexual practices. Other health-related behaviors—such as use of health services, compliance with treatment, or use of contraceptive methods—also can influence RTI patterns.

RTIs can have severe health implications. They increase the likelihood of transmission of HIV, the virus that causes AIDS. By the end of 1996, more than 22 million people worldwide were infected with HIV, of whom nearly two-thirds were in sub-Saharan Africa.[6] Though the infection emerged later in Asia, rapid increases have occurred in both South and Southeast Asia. HIV infection in developing countries has been spread mainly through heterosexual contact.

Chlamydia and gonorrhea can ascend into a woman's uterus and fallopian tubes, where the infection, called pelvic inflammatory disease, may greatly reduce a woman's chances of becoming pregnant. Other consequences of RTIs include increased risk of ectopic (tubal) pregnancy and genital cancers. Nearly every STD can be passed to a fetus or infant, with tragic consequences such as HIV/AIDS, premature birth, neurological impairment, blindness, or newborn pneumonia.

Interventions to Prevent and Treat RTIs

The design and implementation of programs to prevent and treat RTIs require a multifaceted public health response. Such a response would include primary prevention efforts aimed at changing individual behaviors, measures to interrupt the transmission of infections within a community, and strengthening the capabilities of clinic services to treat individuals with RTI symptoms. Given local differences in disease patterns, available technologies and resources, the specific elements can be expected to vary considerably in different settings.

Education and behavior change

The prevention of RTIs requires changes in individual behavior and changes in community norms. For the general public, interventions should

- increase knowledge of the symptoms and consequences of RTIs and STDs,
- encourage delay in initiation of sex among adolescents,
- promote use of condoms and other barrier contraceptive methods among individuals whose sexual relationships are not mutually monogamous, and
- identify sources of care for suspected infections.

The public education campaigns that appear most successful have used a range of media, have respected local cultures, and have used techniques such as audience segmentation, pretesting, and professional production. Social marketing programs for condoms have successfully used print and broadcast media, widespread distribution, and point-of-purchase advertising to increase condom sales, even in some of the world's poorest countries. Mass media campaigns can be a valuable channel for these efforts, but on their own they are not enough to change behavior on a widespread basis.

RTI prevention also requires efforts to improve women's and men's knowledge of reproduction, personal hygiene, health-seeking behavior, and adherence to prescribed therapies. Efforts should focus on reducing the use of harmful vaginal

substances (e.g., deodorant products) and on curtailing inappropriate use of antibiotics. The latter will require changing practices of both traditional and modern health care providers, pharmacists, and family members.

Family planning programs can take some immediate steps to respond to the RTI-related needs of clients and staff, whether or not clinic treatment is available. All clinic staff need to be well informed about RTIs, STDs, and HIV/AIDS so that they can answer clients' questions and help them choose the most appropriate contraceptive methods. Clinics and community-based health workers need basic informational materials about RTIs and ample condom supplies.

Controlling the spread of STDs

A two-pronged approach is needed to control STDs: (1) reducing symptoms and consequences for individuals, and (2) stopping the spread of infections within a community. A tension may exist between these two strategies, particularly if resources are severely limited. From a community perspective, it may be most cost-effective to focus prevention and treatment efforts on core groups (e.g., commercial sex workers and men with multiple partners) that are key to sustaining the spread of STDs. On the other hand, this approach does not completely address the needs of individuals outside the identified core groups.

Family planning and maternal-child health services have often missed important opportunities to help their clients prevent STDs. A more coordinated approach is needed in which all health program managers recognize the scope of the problem and design a balanced response based on local disease patterns.

Different settings call for different program approaches. Family planning, prenatal, and general health services should be able to treat women with RTI symptoms, since many of these women would not otherwise come to a specialized STD clinic. Contraceptive counseling should be provided, recognizing the dual objectives of preventing pregnancy and preventing infections. STD programs, on the other hand, should provide regular STD detection and treatment not only to individuals with symptoms, but also to asymptomatic persons at high risk for STDs.

Treatment and risk-reduction counseling for infected individuals, and whenever possible their partners, are essential to the success of STD prevention services. Treatment strategies must be developed and periodically revised in light of local disease and antibiotic resistance patterns. More research on STDs and antibiotic resistance patterns is needed to guide these decisions.

Screening of high-risk groups requires resources for laboratory testing and targeted outreach activities. Together with treatment of men who have symptoms, STD detection and treatment among sex workers are often central to limiting

the spread of STDs in the community. Sex workers should be offered screening and treatment for STDs, whether or not they have symptoms. Over time, prevention efforts aimed at these groups should help reduce the STD burden among clients attending family planning and other health facilities.

Strengthening clinic services

Standardized treatment for RTIs should be a routine responsibility of family planning and other reproductive health services. At a minimum, family planning and primary health care facilities should ensure that women and men showing symptoms can obtain care for genital ulcers, abnormal discharge, and pelvic inflammatory disease.

The use of locally adapted versions of standardized treatment procedures developed by WHO can help achieve this goal. The WHO procedures do not require medical laboratories and work well for genital ulcers in both sexes and for certain infections (urethritis) in men. Unfortunately, the procedures do not work well for the ailments most common among women—vaginal discharge and lower abdominal pain. A current challenge is to refine these guidelines to avoid costly and unnecessary overtreatment of clients.

Prenatal and delivery care should include syphilis screening and treatment during pregnancy. Antibacterial eyedrops should be given to newborns to prevent blindness that could result from an STD transmitted from mother to child. These are simple, inexpensive interventions that are highly cost-effective in most parts of the developing world.

To address RTIs resulting from overgrowth of normal organisms, family-planning and other health services should use simple, inexpensive tests of vaginal secretions for women who have RTI symptoms and provide care when needed.

Improvements in service quality are needed to prevent infections brought on by medical procedures. Simple measures such as hand washing, use of gloves, and sterilization of instruments should be a minimum standard. One of the most effective ways to prevent RTIs associated with medical procedures is to reduce the number of unsafe abortions. This can be achieved in part by improving the supply of contraceptive services—including the use of emergency contraception—and by taking measures to make abortion safer, where it is legal.

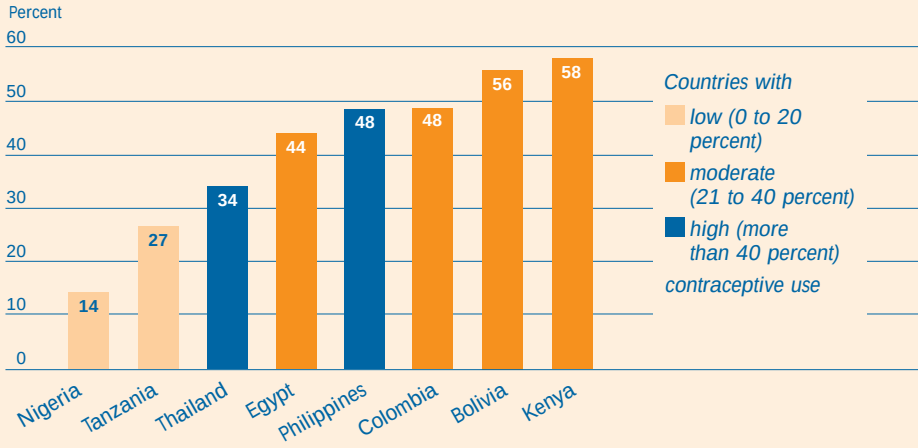
Intended Births

Reducing the number of unintended pregnancies promotes reproductive health mainly by reducing the number of times a woman is exposed to the risks of pregnancy and childbearing in adverse circumstances. In developing countries outside sub-Saharan Africa, between one-tenth and one-third of all recent births are reported as unwanted, and similar percentages are reported to be mistimed.[7] In Africa these percentages are lower, but because African women have more births, the problem is as great as elsewhere.

Figure 3 shows the percentage of women who reported that their most recent pregnancy or birth was unintended—that is, unwanted or mistimed. Women are most at risk of unwanted births in countries where contraceptive use is in the range of 20 to 40 percent, probably because contraceptive use is lagging behind the more rapid changes in desired family size.

Figure 3

Women Whose Most Recent Pregnancy or Birth Was Unintended



SOURCE: Data from Demographic and Health Surveys, unpublished tabulations.

Even in sub-Saharan Africa, where desired family size is still large (and contraceptive use low), about one-fifth of births on average are reported as mistimed, which suggests a need for contraceptive methods for birth spacing. In countries where more than 50 percent of couples use contraception, unwanted birth rates are lower because there are fewer births and contraceptive use is more widespread and effective.

These data show that for countries that are experiencing a fertility decline, the proportion of births that are unintended may actually grow while use of contraception becomes more common. For policymakers, this makes the goal of eliminating unintended births a moving target.

Consequences of Unintended Pregnancies

Unintended pregnancies and births can have negative consequences for the children themselves, for their parents, for their siblings, and for society as a whole. Unintended pregnancies expose women, especially poor women, to health risks simply by increasing the number of pregnancies and deliveries in their lifetimes.

For any level of health care access and use, reducing the number of pregnancies will lower maternal death rates.

Unintended pregnancies also affect children's health, because these pregnancies occur disproportionately among women in high-risk categories—including very young or old women and those with many births and short pregnancy intervals. These factors are all associated with a higher risk of infant mortality. In addition, many studies have shown that children in large families receive less schooling and health care and have poorer nutrition than children in small families.

Data on induced abortions provide evidence both of the extent of unintended pregnancy and of one of its potentially harmful consequences. The most authoritative studies estimate that in 1987, there were 26 to 31 million legal abortions and 10 to 22 million illegal abortions worldwide.[8] Most abortions in developing countries are carried out in inadequate settings and therefore can be dangerous. Unsafe abortions are one of the four leading causes of pregnancy-related deaths and also account for a huge number of nonfatal injuries.

Helping Couples Achieve Reproductive Goals

If desired family size continues to fall, as it has in most places, helping individuals achieve their reproductive goals will also result in lower fertility rates overall. Reproductive health programs should place a high priority on meeting the growing need for family planning through safe access to a range of contraceptive methods. Access to contraceptive services should be expanded through clinical and nonclinical channels, including during postpartum care and in conjunction with STD prevention services.

Information, education, and communication programs and improvements in counseling are needed, even where family planning programs are well established. Providers, clients, and potential clients still have gaps in knowledge about how to use contraceptives and the advantages and disadvantages of the methods available. Better counseling, informed choice, and higher-quality services will build trust and create effective demand for family planning.

Improving the quality of family planning services should not be viewed as competing with expanding access for several reasons. First, many of the problems with quality of care (e.g., missing equipment and supplies, poorly motivated health workers who turn clients away) are also barriers to an adequate quantity of services. Second, providing family planning services is inseparable from providing information. For methods requiring effective use and resupply, such as pills, the continued engagement of providers and clients is necessary. Last, improvements in the quality of care in existing facilities may result in greater efficiency (more family planning users for the same level of investment) than the deployment of new workers or building of new facilities would.

Expanding the range of contraceptive options

Since the "contraceptive revolution" in the 1960s, when the pill became widely available, most advances in contraceptive technology have been in hormonal methods for women. Hormonal methods for men and contraceptive vaccines for men and women will not be available for at least another decade or two. Research and development of new contraceptive methods have not kept pace with the demand for low-cost, safe, effective methods for avoiding pregnancy and sexually transmitted infections.[9] At the same time, large parts of the world, particularly sub-Saharan Africa, have not fully benefited from existing information and technologies.

Use of contraceptive pills for emergency contraception appears safe and effective for women who have unprotected intercourse. Emergency contraception, which is not an abortifacient,[10] can be used as an effective backup to regular contraceptive use and may be particularly important for women who are victims of coercive sex. However, emergency contraception is not widely used in developing countries, because few health care providers and clients know about it. Thus, information on the techniques should be provided widely to health care and family planning staff and to others who may need it.

*Access to safe abortion care**

Though it is likely that improved access to high quality family planning services will reduce high rates of abortion in many countries, they will not eliminate the demand for abortions. In practice, temporary contraceptive methods are rarely 100 percent effective, and coerced or unplanned sexual relations remain common.

Access to safe abortion care, including prompt treatment of abortion complications, would reduce the number of maternal deaths. Even where abortion is legal, services are often low in quality, stigmatized, and difficult to access, making abortion needlessly dangerous.

In countries where abortion is legal, health systems should have adequate equipment and training for manual vacuum aspiration in the first trimester of pregnancy. Manual vacuum aspiration, a procedure that does not require a hospital facility, can make early abortion safer and less expensive than more traditional medical procedures.

Where abortions are illegal, health services should ensure that women who have had unsafe abortions are treated appropriately and promptly. For both the provision of legal abortions and treatment of incomplete abortions, the equipment and training for manual vacuum aspiration should be made widely available.

---

* The NAS panel was not asked or constituted to deal with the ethical and religious issues concerning legalization of abortion. The report makes recommendations for ways to improve health under the range of legal conditions for abortion.

Healthy Pregnancies and Childbearing

An estimated 585,000 women die each year from pregnancy-related causes. The risk of dying is highest in Africa, both because African women are pregnant more often than women on other continents and because each pregnancy is riskier *(see table 3)*. The actual number of deaths is highest in Asia.

The major direct causes of maternal deaths in the developing world are hemorrhage, infection, obstructed or prolonged labor, unsafe abortion, and hypertensive disorders of pregnancy. Most maternal deaths (excluding abortion-related deaths) occur during labor and delivery or soon thereafter. Even among women who survive, the consequences of these conditions can be severe. Country estimates vary widely, but a reasonable estimate is that between 12 and 15 percent of pregnant women in developing countries suffer serious or life-threatening complications.[11]

Table 3

Maternal Mortality by Major Regions, circa 1990

Region	Number of maternal deaths per year	Maternal mortality ratio[1]	Lifetime risk[2]
Developed countries	4,000	27	1 in 1,800
Developing countries	582,000	480	1 in 48
Africa	235,000	870	1 in 16
Asia	323,000	390	1 in 65
Latin America and the Caribbean	23,000	190	1 in 130

[1]The maternal mortality ratio is the number of deaths due to pregnancy- or childbirth-related causes per 100,000 live births.

[2]This column calculates a woman's lifetime risk of dying from pregnancy- or childbirth-related causes.

SOURCE: WHO and UNICEF, *Revised Estimates of Maternal Mortality: A New Approach by WHO and UNICEF* (Geneva, Switzerland: WHO, 1996).

The impact of women's reproductive health on the fetus or newborn is immediate and dramatic. About half of all deaths of children under age five occur in the first month of life. A large number of these deaths are associated with the mother's health and nutritional status before and during pregnancy and delivery. A mother's death also has profound consequences for her family: if she dies, the chance of death for her children under age 5 is as high as 50 percent in some developing countries.[12]

Although prenatal care has been widely available and used in developing countries, the use of medical services for delivery and postpartum care lags far behind. WHO estimates that only 40 percent of births in developing countries

take place in a health facility and 53 percent with a skilled attendant.[13] (Figure 4 provides estimates in selected developing countries.) Home birth remains common, either for cultural reasons or because health facilities are inaccessible or perceived to be of poor quality.

Preventing Maternal Deaths

The major direct causes of maternal deaths cannot be predicted or prevented well enough to rely on prenatal care and screening of pregnant women for high risk. Because all pregnant women face some unpredictable risks, they need access to medical care when complications arise.

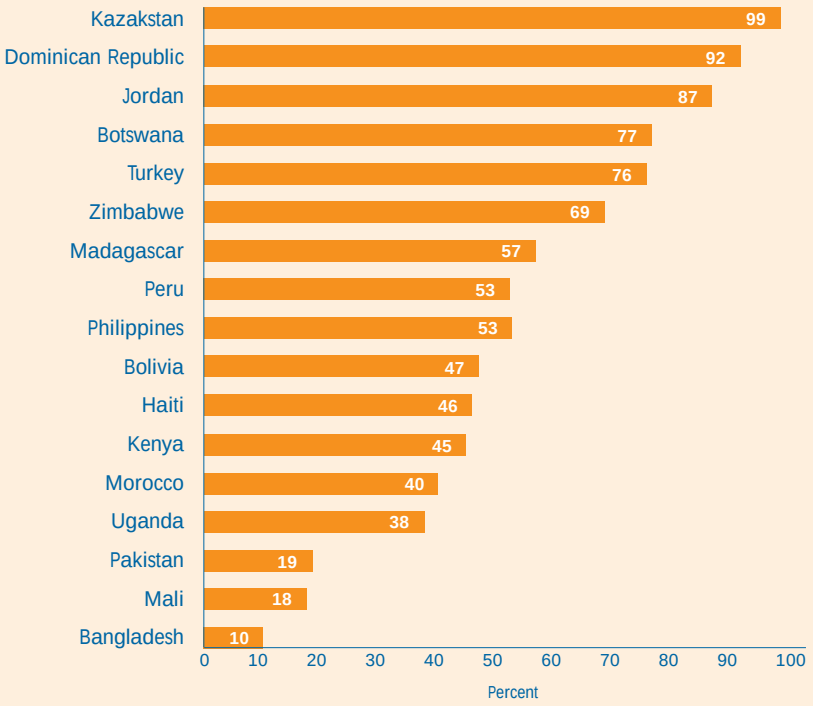
Essential care for obstetric complications includes the ability to carry out surgery and provide anesthesia, blood transfusions, intravenous drugs, other medical treatments, and special care for newborns. Obstetric units at hospitals should be established or strengthened, and the quality of skills upgraded. Some basic care can be provided by professional providers such as midwives through outreach to women in their homes.[14]

Implementation of some elements of essential care for obstetric complications in a few developing countries has resulted in sharp declines in maternal deaths. Sri Lanka's maternal mortality ratio dropped dramatically—from 555 deaths per 100,000 live births in the 1950s, to 239 in the 1960s, to 95 in 1980. A nationwide extension of the health center system and expansion of midwifery skills are credited with this decline. There was also a major increase in the proportion of births attended by trained personnel.

Since most births in developing countries take place outside

Figure 4

Births Delivered by Medically Trained Attendant



SOURCE: Demographic and Health Surveys

health facilities, the most effective strategy for reducing maternal deaths is to ensure that complications of pregnancy and delivery are recognized once they occur and that women are taken to a facility with professionals who can provide care for complications. Assuming that labor begins at home, a four-step process is needed:

1. recognizing a life-threatening complication, by the woman, her family, traditional birth attendant, or others in attendance;
2. deciding to seek care, typically by family members;
3. reaching services in time, which often involves overcoming barriers such as distance, cost, lack of transportation, and perceived poor quality or difficult attitudes of health care providers; and
4. obtaining adequate care in the healthcare facility for maternal complications and for the newborn.

Making each step more likely may require one or more interventions, especially in rural settings, where home births are preferred and often necessary for logistical reasons. In urban settings, where more women deliver in health facilities, interventions may promote more selective use of facilities. In both rural and urban areas, efforts to improve quality of care are needed to complement community efforts to encourage families to seek care.

Encouraging families to seek care

As a first step, families—and those who influence them—need to recognize the signs of obstetric complications and know where to seek care. Interventions should focus on families, including men, because they often make the decisions about whether and where to seek care. Efforts to train traditional birth attendants to refer their clients to care for complications have met with mixed results. Nevertheless, connecting attendants to medical facilities and making them welcome at facilities has sometimes proved beneficial.

Communities need to be aware of and involved in the transportation of women with obstetric complications to facilities that can deliver essential care. A number of experiments have been tried, using taxi subsidies, ambulances, revolving transportation funds, and even country boatmen. In many cases, however, the cost or poor reputation of the facilities prove to be more of a problem than transportation alone.

Increasing access to care

Rural health centers may be able to manage some obstetric problems (e.g., provide antibiotics for infections and sedatives for hypertension) before referring women to a site where more complete care is available, if needed. However, these

centers might not see enough cases each year to keep skills sharp and make the investment worthwhile. Operations research can be used to test how to use peripheral centers and outreach providers (i.e., midwives) effectively and for which complications.

Other solutions, such as maternity waiting homes and birthing homes, have been tested as a way to address the problem of distance to medical facilities. These sites offer women who have a history of complications a place to stay within reach of a hospital or trained medical personnel. It is not known, however, whether such facilities increase the proportion of women with serious complications receiving adequate treatment.

Improving the quality of maternity care

The few existing studies on the quality of maternity care indicate that there are typically major deficiencies. Many preventable maternal deaths are due to inappropriate or delayed care in health facilities. Efforts in a number of countries, including Guatemala, Nigeria, and Uganda, demonstrate that high-quality care generates demand. Several studies show that the use of delivery services increases where medical providers have been trained in advanced obstetric care.[15]

Another intervention to improve quality of care has been training midwives in life-saving skills and interpersonal communication skills. But training of one type of worker is not enough to improve practices. Programs must also train those to whom midwives are supposed to refer, and policies must be in place to allow trainees to use newly acquired skills. To sustain quality assurance, training should be reinforced by adequate supervision and logistics.

Protocols for managing obstetric complications are useful to guide and coordinate the actions of medical care providers. These protocols provide the standard against which to measure the appropriateness of actions, especially if mechanisms are in place to monitor provider practices.

Prenatal care of some kind now reaches the majority of pregnant women in developing countries and should be used to improve both maternal and newborn health. Prenatal care should include screening and treatment for syphilis and anemia, as well as detection and treatment of pregnancy-induced hypertension. Prenatal counseling also provides an opportunity to give women information about appropriate diet and other healthy behaviors and about pregnancy complications and where to go for care.

Program Design and Delivery

No one program design will serve all reproductive health needs. Instead, a number of clinical and nonclinical interventions can be implemented at different levels of the health care system and in other sectors. The experiences of previous large-scale health initiatives—in family planning, child immunization, and infectious disease control—offer lessons on how best to accomplish this.

Almost all countries have some infrastructure in place to deliver maternal and child health (MCH) and family planning services. Some have services for testing and treatment of STDs, though these are typically weak and poorly coordinated with other services. Most countries also have health education or communication programs. Hence, organizing for effective reproductive health programs does not require starting from the beginning. Rather, it requires strengthening coordination, linking or diversifying existing services, and adding new ones.

Deciding Whether to Integrate Services

Whether to integrate services is a central issue in reproductive health care. Reproductive health services have typically been offered through separate programs such as family planning, STD prevention, and maternity care. A move toward service integration can have several advantages:

- Services can address the neglected health problems of individuals who are already in contact with health providers (e.g., detection and treatment of syphilis in pregnant women, treatment of RTI symptoms).
- Linkage of family planning with child health services can be a major convenience for mothers and, in some places, legitimize what would otherwise be an embarrassing clinic visit.
- Family planning and MCH providers offering information and counseling can raise clients' awareness about STD prevention, complications of childbirth, and where to seek assistance.
- Administrative integration can allow for better coordination and priority setting, while spreading administrative costs over many programs.

On the other hand, integration can have drawbacks. Some services will work better if they are organized as distinct programs.

- Integration of a large number of services can overload insufficiently trained and supervised health workers.
- Administrative integration in public systems is often difficult to impose. Managers may neglect certain functions if they do not feel accountable for them.
- Programs designed to reach special populations would benefit little from integration into mainstream health services. Examples include programs aimed at persons at high risk for STDs (e.g., commercial sex workers) and programs for adolescents and men. Multiple services may be provided, of course, even when the target clientele is narrowly defined.
- Provision of essential care for obstetric complications requires facilities, equipment, and trained personnel not usually available at sites providing preventive services such as family planning and prenatal care.

Thus, integration of services has some benefits but does not guarantee an effective program. Development of comprehensive reproductive health services will require research and evaluation on the effectiveness of different organizational approaches in different settings.

Garnering High-Level Commitment

Reviews of health programs in developing countries over several decades suggest that successful performance requires a focused commitment to achieving program objectives and access to adequate resources. Commitment to promoting and supporting a new health initiative can be demonstrated in several ways: placing the initiative under the authority of strong and capable leadership, formulating or reformulating national policy, undertaking highly visible strategic planning, identifying specific goals, and ensuring adequate resources to implement them.

Measurable results provide program managers with unambiguous means of gauging performance. Reproductive health programs will benefit from the use of indicators such as reduction in STD and HIV prevalence, increased contraceptive use, universal prenatal care, increased levels of obstetric complications managed by medical staff, and reductions in maternal mortality.

However, an emphasis on measurable program achievements does have some risks. If programs pressure workers to achieve simple targets, coercion of clients or distortion of objectives could result. Effective reproductive health programming will require a reorientation of existing MCH, family planning, and STD services toward

service-quality standards and an emphasis on identifying and meeting the needs of individuals. For example, the family welfare programs in some states in India are now trying to promote accountability without contraceptive acceptor targets.[16]

Setting Priorities

How should program designers and managers select among possible reproductive health interventions? One approach is to set out measurable objectives and a timetable for reaching them. This has advantages both in calling attention to goals and in translating goals into actions for which managers can be held accountable.

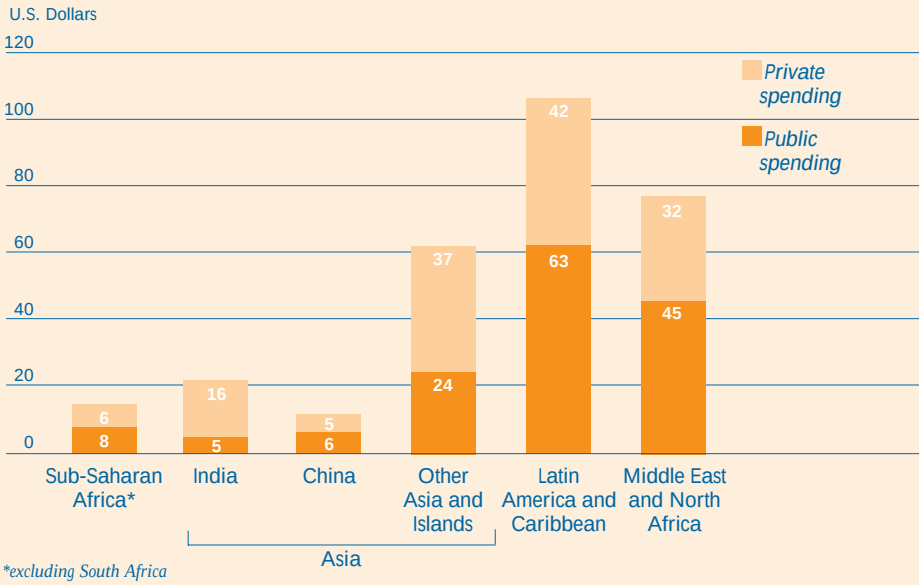
Appendix B provides an illustration of how objectives and interventions can be selected and organized for the major reproductive health goals outlined in this report. Entries in this table will not be appropriate in every country. The table is intended to serve as a point of departure or checklist to ensure that a comprehensive reproductive health strategy is being built.

A national-level participatory process can be useful in specifying the objectives to be met, the strategies to achieve them, and the agencies and communities that will be involved. The process of putting together such a framework can help connect a number of agencies, departments, and organizations to the larger social goals to which they contribute. Leadership and political commitment are required, but a top-down process is unlikely to work. The process of undertaking such an exercise and making it relevant to local conditions can be valuable in stimulating new partnerships and encouraging data-based decision making.

Investing in Reproductive Health

Financial resources for health are severely limited in low-income countries. Average spending on health care is estimated at only U.S. $14 per person in low-income countries and $62 in middle-income countries. Roughly half these expenditures are from public funds. Health spending by region varies from as low as $11 per person in China and much of Africa to more than $1,800 per person in more developed countries *(see figure 5)*. Such variation among countries means that no single set of recommendations for reproductive health will be feasible in all settings.

Figure 5
Per Capita Expenditures on Health, by Region



*excluding South Africa

SOURCE: World Bank, *World Development Report 1993: Investing in Health*, (Washington, D.C.: World Bank, 1993): Table A.9.

Costs of Reproductive Health Services

Cost-effectiveness estimates are imprecise, but even allowing for a wide margin of error, many reproductive health interventions rank high in comparison with other potential health sector investments and should receive greater priority in health sector budgets.

The World Bank has estimated the cost per person per disability-adjusted life year (DALY), a measure of cost-effectiveness, for several reproductive health interventions. In this exercise, costs are measured in dollars, and health outcomes are measured in terms of the loss of disability-free life years *(see table 4, next page)*. In low-income countries, for all reproductive health interventions, one DALY could be saved by spending $112 or less. In comparison with other health interventions that range from $1 to $1,000 per DALY saved, reproductive health services are among the most cost-effective.

In addition, some reproductive health services, such as family planning, have social benefits that go beyond reducing mortality and disability; they enhance individual control over reproduction. Benefits such as these do not appear in a simple cost-effectiveness measure.

Table 4

Cost-Effectiveness of Selected Reproductive Health Interventions in Low-Income Countries (in U.S. dollars)

Reproductive health intervention	Annual cost, per case or participant	Cost-effectiveness (cost per DALY* saved)
Treatment of STDs	$11	$1–$3
AIDS prevention programs	$112	$3–$5
EPI Plus**	$15	$12–$17
Family planning	$12	$20–$30
Prenatal and delivery care	$90	$30–$50

* The disability-adjusted life year (DALY) is a measure of the healthy years of life lost through death, disease, or injury.

** EPI (Expanded Programme on Immunization), plus includes vaccinations and micronutrient supplementation for women.

SOURCE: World Bank, *World Development Report 1993: Investing in Health* (Washington, D.C.: World Bank, 1993).

Other studies have attempted to estimate the cost of a more comprehensive package of reproductive health services. For example, the "Mother-Baby Package" of safe pregnancy, delivery, and postpartum services developed by WHO and other agencies carries an estimated cost per person ranging from $2.50 to $3.00. (The cost per pregnancy ranges from $66 to $93.[17]) Costs for any given community vary widely, depending on how many pregnancies women have and whether they live in rural or urban areas.

Costs also vary depending on salary levels, training costs, and the degree to which personnel and infrastructure are used to capacity. Costs per person can be high when expensive facilities are underused, as is often the case.

Public- and Private-Sector Roles

Improvements in reproductive health are probably best achieved by a mix of public and private efforts. Governments can play a role in developing standards and regulations and providing and subsidizing health services. Governments need not actually provide all health services: they can and should target subsidies to make services more affordable to the poor, especially in middle-income countries and where services are well established.

Nongovernmental organizations (NGOs) play an important role in improving reproductive health. In addition to providing family planning services and supplies—already common in many developing countries—NGOs are suitable for other tasks that governments are often unable or unwilling to take on. For example,

NGOs can provide services to rape victims, high-quality abortion services (where legal), and information about warning signs of labor complications.

The most effective organizations for delivering services will vary a great deal, depending on the setting. Alternative approaches will need to be tested to find the most appropriate local solutions. The social and economic benefits of improving reproductive health provide a strong rationale for public funding of these services. Even so, private-sector funding will also have to be mobilized to achieve these benefits in most countries.

User fees are increasingly common in developing countries. While they can generate resources and spur efficiency, user fees should be carefully evaluated and implemented with caution. Many reproductive health services benefit the community at large, not just the individual receiving services, and thus are good candidates for subsidy to encourage wider use. Some reproductive health services are new and unfamiliar to their intended clients; efforts to make them self-sufficient too quickly could stifle attempts to build demand. Safeguards are needed to protect access to services for the poor and services with significant public health benefits.

Additional Investments Needed

More external assistance to reproductive health programs would remedy a past imbalance among programs in terms of their contributions to improving health. Obstetric care in particular has been a neglected component of external assistance to population, health, and nutrition programs, making up less than one percent of total donor contributions in this sector.

These and other investments in reproductive health can bring about substantial improvements in health in relation to costs. The recommendations in this report should help in planning for more efficient spending of resources already devoted to programs such as family planning and mother-child health. But it is difficult to envision serious reforms and improvement coming with no additional resources for the health sector.

References

1. M. Carael, "Sexual Behavior," in *Sexual Behavior and AIDS in the Developing World*, edited by J. Cleland and B. Ferry (London: Taylor and Francis, 1995): 75–123.

2. World Health Organization, "WHO Leads Action against Female Genital Mutilation," *World Health Forum* 15 (1994).

3. International Planned Parenthood Federation, *Challenges: Women's Health, Women's Rights* (London: International Planned Parenthood Federation, 1995).

4. D. Kirby, et al, "School-based Programs to Reduce Sexual Risk Behaviors: A Review of Effectiveness" *Public Health Reports* 109 (1994): 339–360.

5. R.A. Bang, et al, "High Prevalence of Gynaecological Diseases in Rural Indian Women," *Lancet* 1 (1989): 85–87.

   J.N. Wasseheit, et al, "Reproductive Tract Infections in a Family Planning Population in Rural Bangladesh: A Neglected Opportunity to Promote MCH-FP Programs," *Studies in Family Planning* 20, no. 2 (1989): 69–80.

   N. Younis, et al, "A Community Study of Gynecological and Related Morbidities in Rural Egypt," *Studies in Family Planning* 24 (1993): 175–186.

   V. Singh, et al, "Association Between Reproductive Tract Infections and Cervical Inflammatory Epithelial Changes," *Sexually Transmitted Diseases* 22 (1995): 25–30.

6. UNAIDS and World Health Organization, *HIV/AIDS: The Global Epidemic* (Geneva: UNAIDS, 1996).

7. Special tabulation of demographic and health surveys.

8. S. Henshaw and E. Morrow, *Induced Abortion: A World Review, 1990 Supplement* (New York: The Alan Guttmacher Institute, 1990).

9. P.F. Harrison and A. Rosenfield, eds., *Contraceptive Research and Development: Looking to the Future*, Committee on Contraceptive Research and Development, Institute of Medicine (Washington, D.C.: National Academy Press, 1996).

10. J. Trusell and C. Ellertson, "The Effectiveness of Emergency Contraception," *Fertility Control Reviews*, 4, no. 2 (1995): 8-11.

11. M.A. Koblinsky, O. Campbell, and S. Harlow, "Mother and More: A Broader Perspective on Women's Health," in *The Health of Women: A Global Perspective*, edited by M.A. Koblinsky, J. Timyan, and J. Gay (Boulder, Colorado: Westview Press, 1993).

    World Health Organization, *The Mother-Baby Package: Implementing Safe Motherhood in Developing Countries*, Document FRH/MSM/94.11 (Geneva: World Health Organization, 1994).

12. World Bank, *World Development Report 1993: Investing in Health* (Washington, D.C.: World Bank, 1993).

13. World Health Organization, *Coverage of Maternity Care, A Listing of Available Information*, Document WHO/RHT/MSM/96.28 (Geneva, Switzerland: Maternal and Newborn Health/Safe Motherhood, World Health Organization, 1997).

14. I. Pathmanathan and S. Dhairiam, "Malaysia: Moving from Infectious to Chronic Diseases," *Achieving Health for All by the Year 2000: Midway Reports of Country Experiences*, edited by Tarimo and Creese (Geneva: World Health Organization, 1990): 151-172.

15. K. O'Rourke, "The Effect of Hospital Staff Training on Management of Obstetrical Patients Referred by Traditional Birth Attendants," *International Journal of Gynecology and Obstetrics 48* Supp. (1995): s95–s102.

    L. Payne, C. Hooks, and M. Marshall, *MotherCare Project Nigeria: Needs Assessment, December 4–18, 1994*, Trip Report prepared for the U.S. Agency for International Development, MotherCare Project No. 5966–C–00–3038–00 (Arlington, Virginia: John Snow, Inc., 1995).

    M.L. Mantz and P. Okong, *Evolution Report: Uganda Life Saving Skills Program for Midwives, October-November 1994*, Report prepared for the U.S. Agency for International Development, MotherCare Project No. 5966–C–00–3038–00 (Arlington, Virginia: John Snow, Inc., 1994).

16. J. Townsend and M.E. Khan, "Indicators and a Management Information and Evaluation System for a Reproductive and Child Health Program," in *Supplement to India's Family Welfare Program: Moving to a Reproductive and Child Welfare Approach*, edited by A.R. Measham and R.A. Heaver (Washington, D.C.: World Bank, 1996): 72–82.

17. P. Cowley and J.L. Bobadilla, *Costing the Mother-Baby Package of Health Interventions* (Washington, D.C.: Population, Health, and Nutrition Department, World Bank, 1995).

APPENDIX A

Panel on Reproductive Health in Developing Countries

AMY O. TSUI *(Cochair)*, Carolina Population Center, University of North Carolina, Chapel Hill, North Carolina

JUDITH WASSERHEIT *(Cochair)*, Centers for Disease Control and Prevention, Atlanta, Georgia

ALAKA M. BASU, Division of Nutritional Sciences, Cornell University, Ithaca, New York

JOSE LUIS BOBADILLA,* Inter-American Development Bank, Washington, D.C.

WILLARD CATES, JR., Family Health International, Research Triangle Park, North Carolina

CHRISTOPHER J. ELIAS, The Population Council, Bangkok, Thailand

MARJORIE A. KOBLINSKY, John Snow, Inc., Arlington, Virginia

PIERRE MERCENIER, Institute of Tropical Medicine, Antwerp, Belgium

MARK R. MONTGOMERY, The Population Council, New York, New York

SUSAN E. PICK, Instituto Mexicano de Investigación de la Familia y la Población (IMIFP), Mexico City, Mexico

ALLAN ROSENFIELD, School of Public Health, Columbia University, New York, New York

HELEN SAXENIAN, The World Bank, Washington, D.C.

JAMES TRUSSELL, Office of Population Research, Princeton University, Princeton, New Jersey

HUDA ZURAYK, The Population Council, Cairo, Egypt, and American University of Beirut, Beirut, Lebanon

JOHN G. HAAGA, *Study Director*

CAROLE JOLLY, *Study Director* (to November 1994)

JOEL A. ROSENQUIST, *Senior Project Assistant*

---

* Deceased, October 1996

Appendix B

Illustrative National-Level Objectives for Reproductive Health

Reproductive Health Goals & Objectives	Strategies to Achieve Objectives	Critical Partnerships
(1) Every sex act free of coercion and based on informed and responsible choice		
Eliminate commercial sex involving children, by [year]	Enforcement of laws and penalties for sexual exploitation of children	Police and courts, news media, parents groups, NGOs working for children
Reduce incidence of female genital mutilation by [proportion], by [year]	Information campaign about health consequences of female genital mutilation	Public- and private-sector health care providers, religious leaders, social-science and communication researchers
Reduce percentage of women beaten by husband or partner, by [proportion], by [year]	Enforcement of laws, raised awareness of violence, better detection and treatment referrals in health centers	Police and courts, religious and other community leaders, health care providers, teachers
Provide sexuality education appropriate to grade level in all schools, by [year]	Development and adoption of appropriate curricula to train teachers and principals	Parent groups, private-school associations, educators, religious leaders
(2) Every sex act free of infection		
Increase average age of first sexual intercourse, by [year]	Health promotion via mass media; health education in schools; community-based peer intervention programs; legal sanctions against marriage at young ages; legal sanctions against adults engaging in sex with minors	Religious and lay community leaders, mass media, community-based organizations, ministry of education, teachers, judicial system, medical and family planning communities
Decrease percentage of sexually active persons who have more than one sex partner, by [proportion], by [year]	Health promotion via mass media, health education in schools (with component to build sexual negotiation skills), targeted community-based programs	Religious and lay community leaders, ministry of education, teachers, mass media, community-based NGOs, medical and family planning communities
Increase percentage of consistent and correct condom use among sexually active persons who have more than one sex partner, by [proportion], by [year]	Condom social marketing, community-based programs, health education in schools (with component on condom use), adequate condom supplies at all distribution outlets	Religious and lay community leaders, mass media, community-based NGOs, ministry of education, teachers, agency that sets import tariffs, drug companies, medical and family planning communities

APPENDIX B CONTINUED

REPRODUCTIVE HEALTH GOALS & OBJECTIVES	STRATEGIES TO ACHIEVE OBJECTIVES	CRITICAL PARTNERSHIPS
(2) Every sex act free of infection (cont.)		
Increase the percentage of family planning and primary health care clients who receive both STD risk assessment and contraceptive method counseling, by [proportion], by [year]	Development and dissemination of guidelines on risk assessment and counseling for both pregnancy and infection, tailored to local sociocultural context	Behavioral intervention experts, physicians, family planning providers
Increase the percentage of family planning, prenatal, and primary health care clients who are appropriately tested and treated for STDs and other RTIs, by [proportion], by [year]	Development and dissemination of STD and RTI detection and treatment guidelines; treatment using WHO procedures of STDs in symptomatic men and women; prenatal syphilis screening; tests of vaginal secretions for abnormal discharge and for chlamydia and gonorrhea where feasible	Medical and family planning communities, agency that sets tariffs, pharmaceutical companies, pharmacists, public and private laboratories, behavioral intervention experts
Increase percentage of providers of gynecological services who can document adherence to infection control guidelines by [proportion], by [year]	Development and dissemination of infection control guidelines, adequate supplies and equipment	Physicians, family planning providers
(3) Every pregnancy and birth intended		
Ensure that all couples have access to more than one method of effective contraception, by [year]	Training of providers in clinical methods, strengthening of logistical systems for resupply of contraceptive methods	Public and private health care providers, family planning NGOs, pharmacists
Ensure that young adults know about contraceptive options and where to obtain supplies, services, and information about effective use and health effects, by [year]	School health curricula, mass media campaigns, health and family planning provider training, packages for emergency contraception	family planning NGOs, health care providers, pharmacists, social marketing agencies, mass media, teachers, school administration

APPENDIX B CONTINUED

REPRODUCTIVE HEALTH GOALS & OBJECTIVES	STRATEGIES TO ACHIEVE OBJECTIVES	CRITICAL PARTNERSHIPS
(3) Every pregnancy and birth intended (cont.)		
Ensure that, (where legal) all sexually active women have access to safe abortion in the first trimester, by [year]	Health care provider training and quality assurance	Health care administrators, quality assurance managers, health care providers
Ensure that contraceptive supplies and services, safe abortion (where legal) and postabortion care are affordable to the poor, by [year]	Sliding-fee scales, outreach services in poor communities	Health-sector planners, hospital and clinic administrators, family planning program managers
(4) Every pregnancy and birth safe		
Increase percentage of women with complications attended by trained medical staff by [proportion], by [year]	Increased knowledge of warning signals and where to go in emergencies, increased availability of transportation to essential care facilities, increased number of facilities trained and equipped to provide essential care for obstetric complications, targeted subsidies, reduced unauthorized fees	Community leaders, teachers, first level health care providers, family planning providers
Increase percentage of women with complications correctly managed, by [proportion], by [year]	Quality assurance and provider training, elimination of financial incentives for inappropriate obstetric care	Hospital and clinic administration
Decrease clinic and hospital care fatality rate for women and newborns, by [proportion], by [year]	Quality assurance and provider training; development of protocols	Hospital and clinic administrators, medical education and licensing authority, health care providers
Reduce prevalence of anemia among women ages 15 to 49, by [proportion], by [year]	Distribution of iron and folate supplements to all pregnant women, public education campaigns about iron-rich foods	Health educators, mass media, primary prenatal care providers

Acknowledgements

This summary report was prepared by Lori Ashford of the Population Reference Bureau (PRB) based on a report of the National Research Council of the National Academy of Sciences (NAS) entitled *Reproductive Health in Developing Countries: Expanding Dimensions, Building Solutions*. The report was produced following a three-year study by the Panel on Reproductive Health in Developing Countries. While the findings and recommendations presented here are consistent with those of the NAS Panel, some minor modifications have been made in terminology and presentation of the data. For a copy of the full report, see ordering information below.

This summary report was funded by the U.S. Agency for International Development (USAID). The original NAS study was supported by USAID, the Andrew W. Mellon Foundation, and the William and Flora Hewlett Foundation. The views expressed in both the original and summary reports are those of the panel members and not of the funding agencies or PRB.

The editor wishes to thank several individuals for reviewing and offering guidance on this summary: John G. Haaga, study director, especially for his careful review and advice throughout; Amy Tsui and Judith Wasserheit, cochairs of the Panel on Reproductive Health; panel members Christopher J. Elias and Marjorie A. Koblinsky; Peter J. Donaldson and Alene Gelbard of PRB; and USAID staff Jennifer Adams, Barbara Crane, Elizabeth Maguire, Jim Shelton, and Ellen Starbird. Kate Chalkley of PRB also provided valuable research assistance.

Design and production: *Dever Designs*
Production management at PRB: *Sara Adkins-Blanch*
Translation into French: *Magali Rheault*
Translation into Spanish: *Ángeles Estrada*
Printing: *Sauls Lithograph*

To request additional copies of this summary, please contact International Programs at PRB (see address on back cover).

To order a copy of *Reproductive Health in Developing Countries: Expanding Dimensions, Building Solutions*, send a letter, fax, or e-mail to:

National Academy Press
2101 Constitution Avenue, NW
Washington, DC 20418

Tels.: (202) 334-3313 or (800) 624-6242
Fax: (202) 334-2451
E-mail at: http://www.nap.edu/bookstore

The full text of the report is also available at http://www.nap.edu on the World-Wide Web.

MAP ART PROVIDED BY: NATIONAL ACADEMY PRESS

OCTOBER 1997

. . . informing people about population since 1929.

Population Reference Bureau
1875 Connecticut Avenue, NW
Suite 520
Washington, DC 20009 USA

Tel.: (202) 483-1100
Fax: (202) 328-3937
E-mail: popref@prb.org
Web site: http://www.prb.org