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**A Strategic Framework for
Setting Priorities for
Research, Analysis, and
Information Dissemination
for Safe Motherhood and
Reproductive Health
in Africa**

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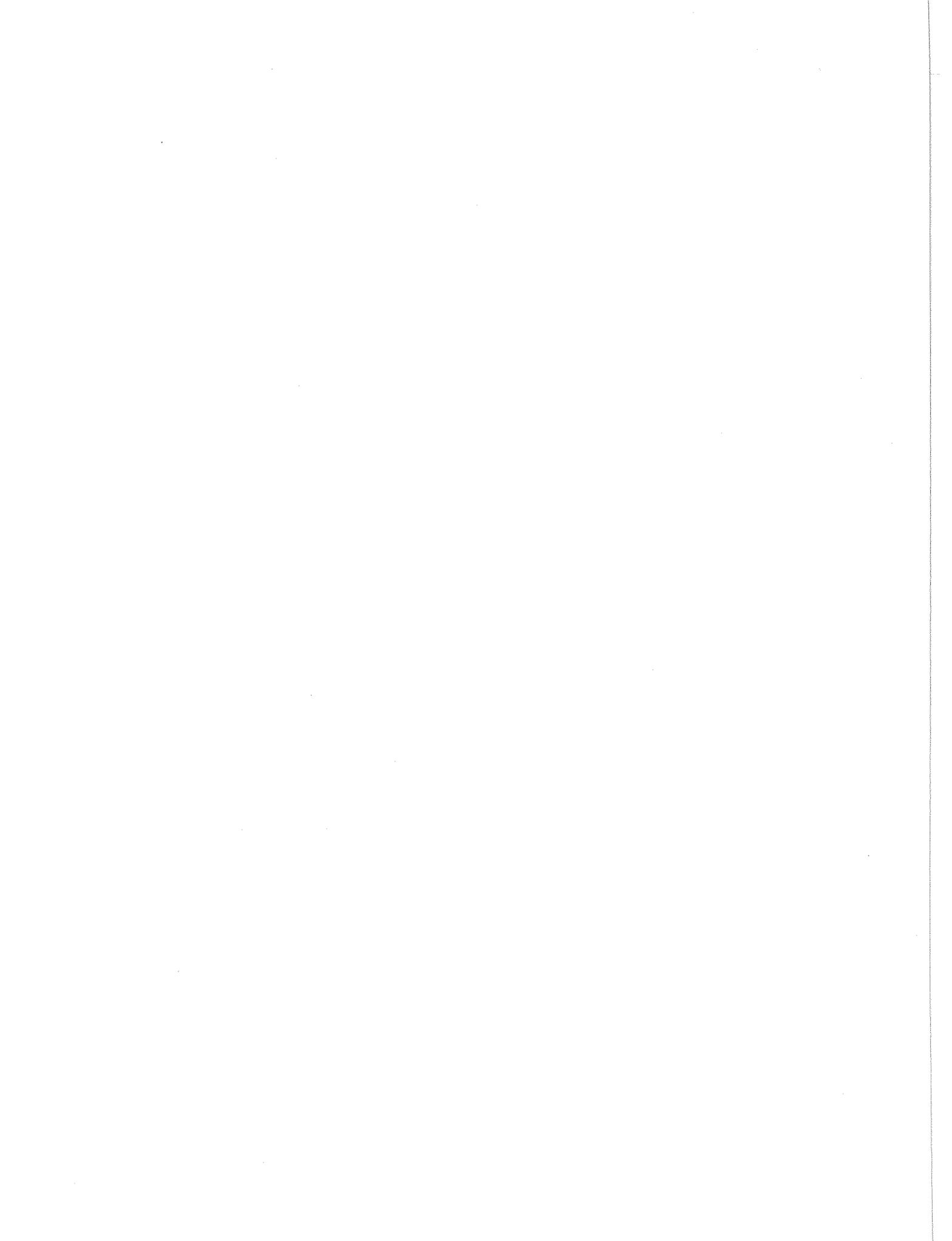


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Executive Summary

A woman's ill health not only affects her own opportunities and her potential to contribute toward development but those of her family as well, particularly her children. Thus, policies and programs should continue to place principal emphasis on pregnancy, childbirth, and reproductive health in developing countries. Research, analysis, and information dissemination activities are needed to guide the development of strategies and programs and the allocation of appropriate resources for safe motherhood and improved reproductive health in Africa. At the same time these activities need to be complemented increasingly over the longer-term by efforts to improve women's health and status more broadly, particularly before pregnancy occurs.

The purpose of this strategic framework is to assist the Office of Sustainable Development of USAID's Bureau for Africa, under its Health and Human Resource Analysis for Africa (HHRAA) project to identify key research, analysis, and dissemination issues on safe motherhood and reproductive health in Africa.

The strategic framework draws from previous consultations with African program managers and researchers, a review of the literature, and the products of international bodies convened to set women's health agenda and research priorities. The strategic framework assesses, analyzes, and prioritizes the information gaps and needs on a broad reproductive health point of view with several cross-cutting issues involving infectious diseases, population, and nutrition, including (a) family planning, (b) unsafe abortion, (c) pregnancy and HIV, (d) reproductive tract infections, (e) infertility, (f) maternal nutrition, (g) adolescent reproductive health, and (h) integration of services.

The strategic framework presents a synthesis of existing knowledge and information gaps and sets research priorities relevant to decision-making toward reaching the following objectives:

- ◆ To expand and strengthen the analytical base for reproductive health policy and program implementation by identifying, discussing, and prioritizing knowledge gaps and information needs in the following areas:

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- ♦ the extent, causes, and distribution of women’s morbidity and mortality;
 - ♦ the relative effectiveness, efficiency, impact, and cost of alternative safe motherhood and reproductive health strategies; and
 - ♦ the economic, social, medical, and legal constraints to safe motherhood and improved reproductive health.
- ♦ To identify approaches for increasing policy and program support, community participation, and individual empowerment for safe motherhood and improved reproductive health.

It discusses and recommends, based on USAID Africa Bureau’s comparative advantage, a number of analytic approaches to address the information gaps and priority issues involved in designing and implementing safe motherhood and reproductive health services.



Acronyms

ACNM	American College of Nurses and Midwives
AFR	Africa
AIDS	acquired immunodeficiency syndrome
BV	bacterial vaginosis
CIE	Centre International de l'Enfance
COWAN	Country Women's Association of Nigeria
CPO	Center for Population Options
D.C.	District of Columbia
DHS	demographic and health survey
FGM	female genital mutilation
FP	family planning
GPA	Global Programme on AIDS
HHRAA	Health and Human Resource Analysis for Africa
HIV	human immunodeficiency virus
HRD	human resource and democracy
ICRW	International Center for Research on Women
IPAS	International Project Assistance Services
IPPF	International Planned Parenthood Federation
IUGR	intrauterine growth retardation
KAP	knowledge, attitudes, and practices
LBW	low birth weight

LSS	life saving skills
MCH	maternal and child health
MNHC	Maternal Nutrition and Health Care
MVA	manual vacuum aspiration
PID	pelvic inflammatory disease
PMM	Prevention of Maternal Mortality
PRB	Population Reference Bureau
RTI	reproductive track infection
SD	sustainable development
STD	sexually transmitted disease
TBA	traditional birth attendant
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Introduction

Background

Since the 1960s, several initiatives have been undertaken to influence women's health status in developing countries. First, the family planning movement, which increasingly expanded its focus from a demographic rationale to one based on providing women with reproductive choice and the ability to avoid unwanted and poorly timed pregnancies, as well as protection from sexually transmitted diseases. Over the last decade, the child survival program brought greater recognition of the significant impact of maternal health and nutritional status on infant outcome, reflected by the inclusion of maternal mortality goals at the World Summit for Children in 1990.

The Safe Motherhood Initiative, launched in Nairobi in 1987, focused world attention on the magnitude of maternal mortality, morbidity, and disability in the developing countries and the inadequacy of related health care. It also emphasized measures to improve women's health status, access to family planning, and access to quality maternity care. A consensus was developed that programmatic emphasis on specific, integrated maternal health and nutrition measures, in addition to satisfying unmet demand for family planning, will have the greatest impact on reducing maternal mortality and should receive priority in the short run.

Although increased attention has been paid to maternal health since the Initiative was launched, the transition from advocacy to implementation has been slow and a great deal more still needs to be done. Women's health should be recognized as an important health sector priority in its own right because of a number of factors. First is the knowledge that 500,000 women die each year from pregnancy-related causes and some eight million suffer serious complications—mortality and morbidity that are largely preventable and manageable. This high death and disability toll reflects the failure of health programs to meet the needs of the more than one billion women of reproductive age in the developing world. Second is the growing recognition of the social and economic dimensions of women's contribution to development.

A significant obstacle that prevents women from fulfilling their productive potential is poor health. This has adverse consequences on the well-being



of households and on the formal economy. One-third of poor families in much of Africa are headed by women. In rural Namibia, for example, some 40 percent of households are headed by women. In Tanzania women constitute 75 percent of the total population engaged in agriculture, many of whom bear full responsibility for feeding their families. Data on women's contribution to development, while still weak, indicate that women are responsible for up to three-quarters of the food and cash crops produced annually in the developing world. Understanding the important but previously largely invisible, productive role of women has increased greatly during the past fifteen years, stimulated in large part by the United Nations Decade for Women, which ended in 1985.

A woman's ill health not only affects her own opportunities and her potential for contribution toward development but those of her family as well, particularly her children. Therefore, the problem is not confined to the health of women and mothers but has a major impact on the survival and quality of lives of babies and children. WHO estimates that about seven million perinatal deaths each year in developing countries are associated with complications of pregnancy, labor, and delivery, and the woman's general health and nutritional status before and during pregnancy. Thus, policies and programs should continue to place principal emphasis on pregnancy, childbirth, and reproductive health in developing countries.

Research, analysis, and information dissemination activities are needed to guide the development of strategies and programs and the allocation of appropriate resources for safe motherhood and improved reproductive health in Africa. At the same time these activities need to be complemented increasingly over the longer-term by efforts to improve women's health and status more broadly, particularly before pregnancy occurs.

Purpose and Objectives of the Strategic Framework

The purpose of this strategic framework is to assist the Office of Sustainable Development of the USAID's Bureau for Africa, under its Health and Human Resource Analysis for Africa (HHRAA) Project to identify key research, analysis, and dissemination issues on safe motherhood and reproductive health in Africa. Interventions to reduce maternal morbidity and mortality in Africa are available, but it is unclear whether any of these have been used effectively or whether the relative effectiveness of different interventions has been studied.



A number of elements may have contributed to the success or failure of safe motherhood and reproductive health programs, particularly program support components including advocacy, policy dialogue, human resource development (specifically training), financing of services, management, supervision, logistics, quality assurance, the use of information and communications, marketing, evaluation, private sector involvement, and, most of all, community support and participation. Expert analyses from previous efforts in these areas will be instrumental in developing a new generation of cost-effective maternal and reproductive health projects and programs.

The strategic framework presents a synthesis of existing knowledge and information gaps and sets research priorities relevant to decision-making toward reaching the following objectives:

- ◆ To expand and strengthen the analytical base for reproductive health policy and program implementation by identifying, discussing, and prioritizing knowledge gaps and information needs in the following areas:
 - ◆ the extent, causes, and distribution of women's morbidity and mortality;
 - ◆ the relative effectiveness, efficiency, impact, and cost of alternative safe motherhood and reproductive health strategies; and
 - ◆ the economic, social, medical, and legal constraints to safe motherhood and improved reproductive health.
- ◆ To identify approaches for increasing policy and program support, community participation, and individual empowerment for safe motherhood and improved reproductive health.

The Process of Developing the Strategic Framework

Developing the strategic framework involved (1) consultations with African researchers and program managers in the field; (2) consultations with USAID and other development agencies' field staff; and (3) desk and case study analyses of relevant literature.

The SARA Project took advantage of its staff participation in a number of international meetings organized in 1993 on safe motherhood and reproductive health to consult with experts and decision makers and to identify a preliminary list of issues to be addressed through research and analysis. The issues identification exercises consisted mainly of consultation and discussion with African experts attending World Bank, WHO, USAID, and other sponsored meetings of experts on safe motherhood and child survival.

The strategic framework is developed based on the above-mentioned consultations with African program managers and researchers, participation at several international workshops and conferences, and an extensive literature review. The strategic framework assesses, analyzes, and prioritizes the information gaps and needs on a broad reproductive health point of view with several cross-cutting issues involving infectious diseases, population, and nutrition, including (a) family planning, (b) unsafe abortion, (c) pregnancy and HIV, (d) reproductive tract infections, (e) infertility, (f) maternal nutrition, (g) adolescent reproductive health, and (h) integration of services.

A working group was convened on June 15, 1994, in Washington, D.C., to discuss the paper and a prioritization activity was started and included in the draft paper. The working group participants were experts from the John Snow Incorporated MotherCare Project, The World Bank, the International Center for Research on Women, the American College of Nurse-Midwives, USAID, the Program for Appropriate Technology for Health, the Tulane University School of Public Health and Tropical Medicine, the Population Reference Bureau, the Academy for Educational Development, and the Morehouse School of Medicine. A number of African experts, such as selected participants at the third Congress of Society of African Gynecologists and Obstetricians, will be sought for their input before final vetting and dissemination.

Summary of Research and Dissemination Priorities

The working group convened in Washington, D.C., has looked at research issues raised in this paper and tried to come up with a list of priorities relevant to the African setting. The international community already agreed that the levels of maternal mortality may change from one setting to another, and the five leading causes are known. What can be done to reduce

maternal mortality and morbidity? Discussions indicate the need for more information on factors contributing to higher pregnancy-related morbidity and mortality in Africa, and the need for more intervention-oriented research. A consensus was to focus on three major areas:

- ◆ social and cultural issues,
- ◆ interventions and services, and
- ◆ monitoring and evaluating interventions.

Social and Cultural Issues

- ◆ Identify through community surveys and existing studies and literature reviews, cultural and traditional barriers that affect motivation to seek or not seek appropriate care and use of maternity services. Findings can be used to develop specific approaches to address these barriers. Special attention should be given to adolescents and women in rural, isolated settings where the majority are illiterate and have little access to information. Find out the community point of view of quality of care.
- ◆ The effectiveness of social support networks should be evaluated, their different approaches and their impact on improved women's reproductive health. Also, research can focus on how community-based support networks might be formed and/or used to help provide women with better health information and better access to health facilities through the establishment, for example, of cooperative transportation arrangements. Best practices and lessons learned from the research can be disseminated and used to develop and strengthen community-based networks, based on specific socio-cultural settings.
- ◆ Community involvement is crucial to the success of any safe motherhood intervention. Therefore, information dissemination and research studies should be supported on innovative community interventions that have the potential for expansion and replication to support safe motherhood and improved reproductive health in Africa.

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- ◆ How can we increase awareness about risk factors by pregnant women and the community as a whole to prompt their support when need arises?
 - ◆ Given the role TBAs play in the community, mechanisms to link traditional and modern care systems for efficient and effective maternity care should be explored.
 - ◆ Female genital mutilation (FGM) needs special attention. Social science research is needed to learn more about the attitudes of community members toward female circumcision so that strategies to reduce the incidence of the practice can be identified. Analysis and information dissemination on the devastating consequences of FGM on women's reproductive health and its social and psychological impact should be carried out. Disseminating the initiative and action agenda of the organizations involved in the fight against FGM to sensitize policy makers and stimulate creation of a joint advocacy group should be considered. Involve young people themselves, and look at the potential role of youth organizations in eradicating female genital mutilation.

Interventions and Services

What interventions will increase safe motherhood and improve reproductive health in poor and undeserved areas? During the working group discussion special attention was paid to:

- ◆ situation analysis of services,
- ◆ prenatal care leading to intrapartum and postpartum care,
- ◆ risk assessment,
- ◆ emergency referral systems,
- ◆ first referral facilities,
- ◆ abortion issues, and
- ◆ family planning and its integration with other services.



Consensus was reached on the following:

- ◆ Situation analysis of existing reproductive health services is needed. Use the results to determine how infrastructure and services can be made accessible to patients; based on a synthesis for different countries, design an optimum service package, an African standard approach for pregnancy management and patient care practice and norms to include in training curriculums.
- ◆ What components of prenatal care are most useful in reducing maternal mortality? What should optimum prenatal care be? Research design should be done in the field to come up with appropriate standards and methodologies for urban and for rural areas. Percentage of women coming for prenatal care is increasing while percentage coming to deliver in health facilities is not. What concrete actions should be taken to have women deliver at safe sites: health education, husbands' involvement, increasing health care providers' awareness about sociocultural factors against hospital delivery?
- ◆ Carrying out further research on risk assessment in maternity care in the African environment to develop and adapt guidelines for health providers to screen women for the most important complications is a priority. Screening should not be limited to the prenatal period but should be continuous during intrapartum and postpartum period. How can we concentrate attention on those most likely to need specific care?
- ◆ What can be done to bring high-risk women into first referral facilities by involving the community in: (1) an emergency transportation system through social support network (saving groups and village cooperative transportation systems), and (2) the conception and building of maternity waiting homes to increase their acceptance?
- ◆ Once high-risk women are at the first referral level facility, what can be done to shorten the waiting time before intervention: increase provider competence through revised curriculums or put emphasis on life saving skills (LSS) training, need for role mod-

els, incentives to increase morale? What can be done to ensure quality care at that level?

- ◆ Policy makers awareness of the magnitude of unsafe abortion must be raised by doing epidemiological studies specifically focused on high-risk groups—adolescents, single or divorced women—and looking at the effectiveness and impact of different treatment techniques.
- ◆ Review experiences regarding integration of family planning with maternal and child health services. What is the most effective and efficient way to change reproductive behavior and increase access to contraceptive information and supplies? What can be done at the policy level to delay birth of first child? When are women most receptive to family planning counseling and services (during prenatal care, postnatal care, or post-abortion care)? Which degree of integration is more effective: should we only integrate family planning counseling in all maternity services with a strong referral system to family planning services, or should we offer family planning counseling and services on site at contact points? Conduct studies on the effectiveness of targeting family planning activities on postpartum and post-abortion patients.

Monitoring and Evaluation

Monitoring and evaluation should be an important component of each safe motherhood program. Communities should be involved in the process and kept informed about progress. Policy makers also should be informed. A major constraint to effective program monitoring and evaluation is the lack of or a weak management information system in most African countries. Alternative strategies can be introduced to monitor program performance and impact. Selection of a limited number of indicators, development of simplified data collection tools for program operations, periodic household interviews, focus group discussions, and occasional surveys (such as the DHS) are some approaches to elicit information for monitoring and evaluation of safe motherhood and reproductive health.

Review of Information Needs and Gaps

Major Reproductive Health Problems

Pregnancy-related Mortality and Morbidity

Half a million women die in pregnancy or childbirth (Tinker 1994). Of those deaths more than 99 percent occur in developing countries (Winikoff et al. 1991). The majority occurs in Africa and South Asia, where maternal mortality ratios may be about 200 times higher than those in industrialized countries (Tinker, Koblinsky 1993).

Because of poor access to safe, hygienic deliveries with trained attendants, WHO estimates that the majority (80 percent) of maternal deaths are direct obstetric deaths due to obstetric emergencies such as hemorrhage, unsafe abortion, hypertensive disorders, sepsis, and obstructed labor. The remaining are estimated to be indirect obstetric deaths due to existing illnesses aggravated by pregnancy. In developing countries, indirect obstetric deaths have mainly been associated with illnesses such as hepatitis, malaria, anemia, and diabetes (Lettenmaier et al. 1988.) These conditions may put women at higher risk of dying from one of the direct complications of pregnancy. Malaria, for example, may be more severe in pregnant women and may contribute to anemia, which in turn may decrease a woman's chance of surviving a hemorrhage.

High fertility rates in Africa remain an enormous constraint to the improvement of maternal health and child survival. The average total fertility rate there is 6.5 children per woman compared with 3.9 in Asia and 1.9 in industrial countries. The maternal mortality ratios (the number of women dying from causes related to pregnancy and childbirth per 100,000 live births) are 630, 380, 23, and 12, respectively for Africa, Asia, Europe, and North America. Given the current fertility rates, if the rates of maternal mortality in the developing world remain unchanged, by year 2000 there will be 650,000 maternal deaths a year (Population Reference Bureau 1992).

In addition, long after delivery, a number of women suffer from pregnancy and labor-related maternal morbidities and disabilities. For example, a community-based study in a rural area in Egypt found that more than half of the women suffered from uterine prolapse, although many cases were

unrecognized by the women themselves (Zurayk 1991). A study at the Gondar Hospital in Ethiopia found that more than half of the patients with obstetric fistulae, a disability caused by prolonged labor, had been divorced by their husbands and one-third had resorted to begging (Royston and Armstrong 1989). In Zaria, Nigeria, where the social consequences of fistulae had been the subject of a detailed study, 77 percent of long-term fistulae patients were living apart from their husbands, while none from the control group was divorced or living apart. Childlessness as a result of the fistulae was found to be an important factor in the marital breakdown (World Health Organization 1991b). Data from The World Bank *World Development Report 1993* indicate that although males generally have higher rates of premature mortality, women have higher rates of disability during their reproductive years and in old age (60 and older), much of which can be attributed to pregnancy, childbirth, and sexually transmitted diseases (STDs).

Basic epidemiological data on maternal mortality and morbidity is essential to examine the efficacy of many established maternity care practices. Without adequate, reliable information on levels and patterns of maternal mortality and morbidity, it will be difficult to decide on directions, services, and priorities. Discussions with concerned professionals in the field indicate the need for more information on factors contributing to higher pregnancy-related morbidity and mortality in Africa. Data on pregnancy-related deaths are usually not accurate for most African countries, because the majority of deliveries in rural areas are still domiciliary and often deaths are not reported as related to pregnancy and delivery. Furthermore, deaths and complications from miscarriages or ectopic pregnancies are often ignored and unreported. Therefore, rapid assessment methodologies must be developed and community-based studies conducted on the levels and patterns on pregnancy- and delivery-related morbidity and mortality.

In community-based studies, a variety of sources have been used, ranging from physicians, midwives, and health care providers to religious leaders and graveyard attendants. A community-based study on maternal mortality is being conducted by the Zimbabwe Medical School (Tinker, Koblinsky 1993). Maternal mortality studies supported by WHO's Maternal Health and Safe Motherhood Program are also being conducted in Côte d'Ivoire, Mali, Mozambique, Tunisia, and northern Ghana. Regarding maternal morbidities, the Family Health International Maternal and Neonatal Health Center is coordinating a five-country survey in Egypt, Ghana, Indonesia, In-



dia, and Bangladesh. The London School of Hygiene and Tropical Medicine is coordinating a project on methods for measuring maternal health. WHO's guidelines on measuring reproductive morbidity (using combinations of direct questioning, clinical examinations and laboratory testing) also exist. These modules/studies could be analyzed and used as models to design similar mortality and morbidity surveys adapted to specific African country settings.

Unwanted Pregnancy and Unsafe Abortion

Complications of unsafe abortion are a serious health problem in the developing world. As a leading cause of disease and death among women of reproductive age in Africa, post-abortion management, counseling, and family planning service should be a high-impact, focus area of concern.

Worldwide, an estimated 40 and 60 million abortions take place each year, and it is estimated that the majority are performed under unsafe conditions (World Health Organization 1992), resulting in significant social and psychological costs to the women and economic costs to the health system. WHO studies in various settings indicate that the share of maternal deaths caused by induced abortion ranges from seven percent to more than 50 percent (Tinker, Post 1991). And for every woman who dies, one study in India documented that 30-40 more suffer serious, often lifelong health problems (Jacobson 1990). At Jomo Kenyatta Hospital in Nairobi, Kenya, 50-60 women are treated for complications of unsafe abortion each day, accounting for 40 percent of all admissions (Henshaw 1990).

The desire for a pregnancy is also important, especially because women who have an unwanted or unplanned pregnancy are more likely to seek an abortion. Women resort to abortions even if the only procedures available are unsafe illicit abortions that greatly increase the risk of death and disability. In most developing countries, about 20 to 30 percent of married women wish to avoid pregnancy but are not using contraception (Westoff and Ochoa 1991), with the result that one in five births in these countries is unwanted.

In most sub-Saharan African countries, access to safe abortion is legally or logistically restricted. Health services are deficient in managing complications of unsafe abortions. Family planning programs are often targeted at



married couples. Women usually have little access to contraceptives after being treated for complications of unsafe abortion.

Between 30 and 40 percent of the very high maternal mortality in sub-Saharan Africa is due to unsafe abortion. Limited available hospital data indicate that complications of unsafe abortion account for one in three pregnancy-related deaths in sub-Saharan Africa (Dixon-Mueller 1990).

Unsafe abortion is one of the major causes of mortality as well as morbidity. The cost of treating complications is considerable—many times greater than offering medically safe abortion services—and places a heavy financial burden on health systems in developing countries where abortion complications may consume as much as 50 percent of hospital budgets (Coeytaux et al. 1993).

Data from selected urban hospitals such as the Kenyatta Hospital in Nairobi indicate that the number of women admitted for unsafe abortion complications is on the rise and puts a strain on the limited resources available at the hospital (Tinker, Koblinski 1993). In that hospital about 10,000 women are treated each year for complications of illicit induced abortions. This represents a fivefold increase over a decade earlier (Maine 1991). A community survey of maternal mortality in Addis Ababa found that illicit abortion was the leading cause of maternal death (Maine 1991). In Nigeria and Ghana one out of every five women interviewed in maternity centers had had an illicit abortion. A hospital survey in Tanzania showed that illicit abortion was the leading cause of maternal death.

Therefore, raising awareness of policy makers regarding the extent and dimensions of unsafe abortion as a health issue should be a high priority. Epidemiological, social (qualitative and quantitative), and economic research and analyses of the problem are needed to guide policy dialogue and develop programs to reduce abortion-related mortality and morbidity.

HIV/AIDS¹

As of mid-1993, of the eight million adults infected with HIV in sub-Saharan Africa, more than four million are women. Heterosexual transmission has been the overwhelmingly predominant mode of spread since the

¹Women and HIV/AIDS also discussed in the HIV/AIDS Strategic Framework.



pandemic began, and as a result, AIDS has struck men and women in this region in an almost even ratio. Infection rates in women aged 15-49 have reached as high as 25 percent in some urban areas and high-risk groups (WHO 1989b), and AIDS is already the leading cause of death among urban women aged 20-40 years (World Bank 1992). Since most infected women are of childbearing age, many infants are also at risk, as a result of HIV transmission from the infected mother to the fetus. Of the 1.1 million estimated pediatric HIV infections worldwide, the vast majority (90 percent) occurred in sub-Saharan Africa and WHO estimates that some 900,000 HIV-infected infants have already been born in Africa (WHO 1991a).

The decision about whether to bear children is highly complex. The presence of HIV infection is likely to complicate this decision even further. Infected women should be fully informed of the health risks of pregnancy in the presence of HIV and should also have access to a full range of effective methods of contraception to prevent pregnancy. In addition, condoms should be used consistently and correctly to minimize the risk of transmission.

HIV-infected women or women at high risk who do become pregnant should be advised about the risks of having an infected child. Studies have suggested that the transmission rate of HIV infection from mother to fetus during pregnancy and at the time of delivery is between 15 percent and 40 percent.

Some groups are advocating that a woman who decides not to continue the pregnancy should have access to safe abortion services where legal, but the final decision must be made by the woman herself. In particular, where pregnancy termination is not against the law, women should receive adequate counseling and support to enable them to make an informed choice. In this connection, training of health care providers should be strengthened at all levels to enable them to provide on-going support, counseling, and care. Training of health care providers in HIV counseling and care, and the cost-effectiveness and impact of such training on patient care quality needs further analysis.



Breastfeeding and HIV Transmission

The role of breastfeeding in HIV transmission also has to be clarified. In August 1991 the results of a study in Rwanda on HIV transmission through breastfeeding among a group of women who were infected with HIV *after* delivery were reported in *The Lancet*. Individual cases of transmission through breastfeeding have also been documented (for instance, where women have been infected postpartum through a transfusion of HIV-contaminated blood). However, the magnitude of the risk of HIV transmission through breast-feeding, especially among women already infected during pregnancy is not known—randomized controlled studies are underway in Kenya, Rwanda, and Haiti to determine the actual risk. Recent studies suggest however, that the risk is substantial (about 30 percent) among the small number of mothers who developed an HIV infection while their infant was nursing.

More research is needed regarding the risks and benefits of breastfeeding by HIV-infected women in different cultural settings. This information will be important to policy makers and health professionals in the formulation of policies related to breastfeeding by HIV-infected mothers.

Reproductive Tract Infections

Reproductive tract infections (RTIs) go largely undiagnosed and untreated among women in developing countries in part because many are asymptomatic, and in part because of the “culture of silence” surrounding these infections. The majority of RTIs are sexually transmitted and carry serious consequences for pregnant women and their fetuses as well as for non-pregnant women. In many cultures women accept vaginal discharges or the chronic abdominal pain that accompanies some RTIs as part of their womanhood. Existing prevalence data on RTIs are limited in quality and in scope, but Table 1 presents figures derived from community and country-level studies in Africa, Asia, and Latin America.

Table 1. Median Prevalence of RTIs in Third World

Disease	Population	
	High Risk ²	Low Risk ³
Chlamydia	14%	8%
Gonorrhea	24%	6%
Trichomoniasis	17%	12%
Syphilis	15%	8%
Chancroid	9%	Not available

Source: Wasserheit 1992.

Consequences of RTIs in Pregnant Women. In pregnant women RTIs are responsible for ectopic pregnancy as well as for adverse outcomes of pregnancy. Population-based incidence rates for ectopic pregnancy are rarely available for developing countries, but data from selected countries suggest that post-infectious ectopic pregnancy following RTIs is not uncommon. For example in Gabon, one in 62 pregnancies was ectopic; in Benin, one in 88; in Uganda one in 91 pregnancies was ectopic, compared to one in 133 in Sweden (Meheus and Wasserheit 1991). These studies revealed that gonorrhea and chlamydia played an important role in ectopic pregnancy.

RTIs also play a significant role in adverse pregnancy outcomes, such as fetal wastage (both spontaneous abortion and stillbirth), low birth weight (due to prematurity, intrauterine growth retardation [IUGR] or both), and congenital infection. Table 2 presents rates of adverse pregnancy outcomes associated with RTIs.

²Commercial sex workers, STD clinic patients, men in occupations involving extended or recurrent separations from family (truck drivers, military personnel).

³Antenatal, abortion, and family planning clients; participants in community surveys.

Table 2 : Rates of Adverse Pregnancy Outcomes Associated with RTIs.

Maternal Diagnosis	Fetal Wastage	LBW	Congenital infection
Chlamydia	?rare	10-30%	40-70%
Gonorrhea	?rare	11-25%	30-68%
Early syphilis	20-25%	15-50%	40-70%
Bacterial vaginosis	?rare	10-25%	rare
Trichomoniasis	?rare	11-15%	rare
No RTI	4-10%	2-12%	NA

Source: Wasserheit and Hitchcock 1992.

Consequences of RTIs in Non-Pregnant Women. If untreated or inappropriately treated, RTIs spread spontaneously from the lower reproductive tract to the upper reproductive tract, resulting in pelvic inflammatory disease (PID), a major cause of maternal morbidity and mortality. As many as 10-20 percent of women with untreated gonorrhea or chlamydia develop PID (Hamers and Wasserheit n.d.). In some countries PID is the most common diagnosis among women attending STD clinics. In Zimbabwe, for example, 47 percent of women attending an STD clinic had PID (Latif 1981). Women with a history of PID have a higher risk of ectopic pregnancy. For example, Westrom and Mardh (1990) reported from data collected in Sweden that ectopic pregnancy is six to ten times more common among women with a PID history than among those who have never had an upper reproduction tract infection. The same data also indicated that recurrent PID occurs in 20 to 25 percent of women with a PID history, and that 15 to 18 percent experienced chronic, disabling pelvic pain.

Infertility. Delay in PID treatment is a critical risk factor for impaired fertility. Women with PID who delay seeking health care for more than two days after onset of symptoms have a threefold increase in risk for infertility or ectopic pregnancy compared with those who seek care promptly (Hamers and Wasserheit n.d.). This risk is highest for women with chlamydia: 17.8 percent of those who delayed seeking care developed impaired

fertility compared with none who sought prompt treatment (Hillis et al. n.d.).

Fifteen to 25 percent of women with PID in developing countries become infertile (Wasserheit 1990). The risk of infertility also increases significantly with the number of episodes of PID—occurring in as many as 50 percent of women after a third episode (Westrom and Mardh 1990). The link between infection associated with PID and infertility has been well documented. In a standardized clinical investigation of more than 10,000 infertile couples in 25 countries by WHO's Special Program of Research, Development and Research Training in Human Reproduction, infections accounted for infertility in 36 percent of the cases in developed countries compared with 85 percent in Africa, 39 percent in Asia, and 44 percent in Latin America (World Health Organization 1987). The study also found that a history of STD in the male partner increased the risk of an infection-related infertility diagnosis in the female partner, regardless of whether she had a history of infection.

Post-partum infection and post-abortal infection are also important causes of acquired infertility. Women are at greater risk of infection leading to secondary infertility if they give birth in unsanitary conditions or without trained attendance. In addition some traditional childbirth practices may also promote infection. The 1987 WHO infertility review also noted that the risk of secondary infertility in one African country was twice as high among women delivered by an untrained attendant as among those delivered by a trained attendant. Post-abortal infection is another important cause of infertility in some countries. Abortions performed by untrained practitioners are often unsanitary and carry a high risk of infection. In a Nigerian study, it was found that the relative risk of secondary infertility occurring in women with previous abortions was 3.6 times higher than in those without previous abortions (Osinusi 1986). These findings suggest the prevalence of acquired infertility of infectious origin.

The majority of reproductive tract infections (RTIs) are sexually transmitted. WHO estimates that worldwide, about 250 million new infections are sexually transmitted annually. Compared with men, women are more susceptible to infection and are also more likely to experience complications from the primary infection, in part because these infections are often asymptomatic in women and thus go untreated. Non-sexually transmitted infections such as those due to an overgrowth of organisms normally

present in the reproductive tract (bacterial vaginosis, candidiasis) are also RTIs and are equally important. For example, bacterial vaginosis (BV) is notable for its potential role in pelvic inflammatory disease, infertility, and premature births.

In its approach to controlling RTIs in women, USAID is supporting a spectrum of activities. For example, in Nairobi, Kenya, a demonstration project aimed at maternal syphilis control was implemented in urban prenatal clinics by MotherCare. Although the impact, effectiveness, cost, and feasibility of the demonstration project have not yet been evaluated, the project demonstrated the feasibility of an integrated reproductive health service package by decentralizing screening facilities to a primary health level. In Mali, 1,000 women were educated about condoms through STD clinics. Sentinel surveillance systems have been established to track and monitor STDs in several developing countries including Burundi and Uganda. As part of its STD diagnostics initiative, USAID is funding research and development of field diagnostic technologies. And through USAID's HIV/AIDS prevention programs to reduce sexual transmission of HIV, STDs are being addressed with behavioral interventions, condom promotion, and STD control through provision of diagnosis and treatment at existing service delivery systems such as prenatal and family planning clinics.

Much is being done, but more is needed. Priorities for the future include:

- ◆ Assessing on-going prenatal screening and treatment demonstration projects and studies (for example, maternal syphilis control demonstration projects in Kenya and Jamaica, a study on prevention of premature births by treating pregnant women infected with bacterial vaginosis in Indonesia) to determine (a) program cost-effectiveness; (b) potential for improving pregnancy outcomes through STD control; and (c) opportunities for replication and expansion.
- ◆ Collaborating with HIV/AIDS prevention programs, continue research on (a) behavioral factors and interventions; (b) condom promotion and use; and (c) STD control activities such as counseling, diagnosis and treatment, partner notification, and referral. (Research topics are discussed in detail in the HIV/AIDS, STDs, and tuberculosis strategic framework.)

- ◆ Collaborating with family planning programs: (a) assess how key reproductive health interventions can complement and reinforce family planning; (b) compare the feasibility, acceptability, quality, and cost-effectiveness of integrated FP and STD programs with vertical programs; and (c) evaluate the use-effectiveness and acceptability of simultaneous use of two contraceptive methods, because the most effective choices to prevent pregnancy are not necessarily the most effective for preventing RTI.
- ◆ Analyze currently available data on integrated services and disseminate results on the most effective ways to integrate information, screening, and services for STDs/ HIV/AIDS /RTIs into ongoing health and FP programs.

Infertility

Infertility frequently results from complications of lower genital tract infections and pelvic inflammatory disease. Although experts generally agree that STDs are the major preventable causes of infertility, poor obstetric and gynecological practices (including unsafe abortions) also result in infections leading to infertility. Little research is available, however, on the relative importance of these two leading causes of infertility.

Estimated primary infertility rates are 10.1 percent in Africa and secondary infertility rates are very high in many of the countries—e.g., 33 percent in Cameroon, and 25 percent in Tanzania (Rooney 1992). Among infertile women in Africa, a study found that infertility was due to infection in 85 percent of the cases reviewed (Rooney 1992). In addition, infection-related infertility has been positively correlated with the frequency of asymptomatic infections in women, unavailability of diagnosis capability, unavailability of treatment capability, low efficacy of treatment, and frequency of unsafe abortion.

Infertility has consequences of particular concern for women in Africa where a woman's value and status are closely tied to her ability to bear children. Women who are unable to bear children are divorced by their husbands and socially ostracized, often turning to prostitution to survive.

Research is essential to establish the extent of the infertility problem the contributing factors and their prevention, management of the problem in

affected couples, and the social, psychological, and economical consequences.

The crucial role family planning programs play in infertility prevention should also be recognized. By promoting barrier contraceptives and spermicides, family planning programs can help interrupt transmission of STDs and reduce infection-related infertility. In addition, by making contraceptives available to women who want to prevent unplanned pregnancies, family planning programs can reduce the incidence of illegal abortions, the long-term consequences of which can lead to infertility.

Maternal Nutrition

Women's reproductive role is intimately related to nutritional needs and resulting vulnerabilities. Frequent reproductive cycling, where a woman is pregnant and/or lactating, increases the body's need for iron, vitamin A, and iodine, deficiencies of the last of these being the most common. By the same token, poor nutritional status is a major cause of maternal mortality. WHO estimates that half of non-pregnant and two-thirds of pregnant women in the developing world are anemic (World Health Organization 1990). Anemia reduces immunocompetence and increases the risk of death due to hemorrhage during labor. Four hundred and fifty million adult women in developing countries are also estimated to be stunted as a result of childhood protein-energy malnutrition (World Bank 1993), and the highest levels of malnutrition among women are found in South Asia and sub-Saharan Africa (World Bank 1994). Women who are stunted are at higher risk of obstructed labor, which is associated with higher maternal mortality and fetal asphyxia leading to brain damage or death of the fetus. Another indicator of maternal malnutrition is low birth weight (LBW). LBW is a major problem in developing countries and a WHO study in selected countries in seven regions estimated that 22 million LBW babies are born each year, 21 million of whom are in developing countries (Williams, Baumslag, and Jelliffe 1985).

The high prevalence of protein-energy malnutrition, iron deficiency anemia, and iodine and vitamin A deficiency disorders among women in developing countries is well documented. Based on an extensive 1991 literature review of women and nutrition, conservative estimates suggest that among the 1.1 billion women 15 years and older living in developing countries, more than 500 million were stunted as a result of childhood protein-en-



ergy malnutrition, about 250 million suffered effects of iodine deficiency, and almost two million were blind due to vitamin A deficiency (Leslie 1991). The magnitude of these serious problems argues for giving high priority to efforts to improve the nutrition status of women. When mothers are undernourished, their children are born with low birth weights and suboptimal nutrients stores, and they face a higher risk of morbidity, growth faltering, and premature death.

Causes of maternal undernutrition are varied. They include inadequate dietary intake (often commencing in infancy and early childhood), frequent and repeated infections (particularly hookworm, malaria), and the increased nutrient requirements that accompany frequent and closely spaced pregnancies. Consistent with this, strategies to improve maternal nutrition include improving girls and women's dietary intake and micronutrient status (through nutrition education, food and/or micronutrient supplementation, or broadly targeted food fortification programs), prevention and treatment of malaria and other parasitic infections, and child spacing.

Low-cost methods to improve women's dietary intake through nutrition education, or to improve their micronutrient status through direct supplementation have been introduced in many countries, but these activities have not been fully integrated nor have they received the attention they deserve.

Further research and analysis are required to assess 1) the efficacy of integrating nutrition services into family planning and women's reproductive health programs, 2) the effectiveness of specific interventions and delivery mechanisms for improving specific deficiencies (such iron, vitamin A, iodine, etc.), and 3) cultural and economic barriers to sustainability of these efforts.

Innovative Nutrition Programs

Several small-scale, innovative nutrition projects exist. Some well-known examples include the community kitchens organized by women's groups in Lima, Peru; a nutrition program organized by refugees in a refugee camp in Thailand; and the Tamil Nadu Integrated Nutrition project in India. All of these programs illustrate the importance of community participation in the design and management of nutritional interventions to ensure cultural



appropriateness and commitment of the beneficiaries. For example, in the Peruvian kitchens, women's groups worked together to prepare and distribute food that may be donated, subsidized, or purchased; in the Thai model, husbands played a strong, positive role in the nutrition of their wives; and in the Tamil Nadu project, the community nutrition worker played a key role in educating and mobilizing women to participate in the program. The Iringa Nutrition Program in Tanzania provided small hand-operated maize grinders (for women to grind their own maize at home), improved stoves to conserve fuel wood and reduce wood hauling, and provided hand carts to transport agricultural produce and water, to reduce women's caloric expenditure and compensate for time consuming nutrition-related activities.

Program Participation and Cultural Beliefs

The goal of improving women's nutrition will only be accomplished by working with the beneficiaries (women) to define and act on their nutritional needs. More research effort should be invested in understanding the beneficiaries' anticipation of a program's "benefit" to them relative to its "cost," such as work constraints, time, accessibility, income and/or value and quality of services, etc. For example, in Colombia child care services for participating mothers are part of the Nutrition and Child Care project and are perceived by the participants as a "benefit."

Research and analysis of costs and benefits as perceived by the intended beneficiaries could be carried out for existing programs. Information gained could be used in future program designs by reducing identified costs and increasing identified benefits to enhance demand and program participation.

Anemia in Pregnancy and Malaria

In areas where malaria is endemic, such as most of sub-Saharan Africa, malaria is an important contributor to severe anemia in pregnancy as a result of hemolysis. A study of anemia etiology in pregnant women in Zambia by Fleming et al. found *Falciparum* malaria to be the most common cause of the anemia. Studies have also shown that pregnant women regularly protected with antimalarial drugs do not become severely anemic provided the prophylaxis is not started too late in pregnancy. Why do many coun-

tries lack a policy for delivering malaria chemoprophylaxis to pregnant women?

There is a need to analyze and disseminate information on malaria chemoprophylaxis in pregnancy focusing on: 1) effects of malaria in pregnancy; 2) evidence of the benefits of chemoprophylaxis; 3) different approaches used for delivery of malaria chemoprophylaxis; 4) constraints and obstacles faced, such as the spread of the chloroquine resistance; 5) treatment of malaria-associated anemia in pregnancy; and 6) national policy for malaria chemoprophylaxis.

Social, Cultural, and Economic Issues in Women's Health

Adolescent Reproductive Health

Sexual activity—which can lead to early childbearing, unplanned pregnancy with unsafe abortion, and exposure to STDs (including AIDS)—poses the greatest health risk for adolescent women. In addition to the health risk, teenage unplanned pregnancy leads to school drop-out (e.g., 8,000 teenage girls in 1988 in Kenya, 18,766 in 1984 in Tanzania), loss of career opportunities, and sometimes devastating psychosocial consequences (“moral persecution,” disowning by the family, child abandonment, prostitution).

Early childbearing—Early childbearing rates are among the highest in the world in sub-Saharan Africa. On average more than 50 percent of African women have given birth by age 20, and in some African countries, as many as 40 percent of women have their first child before age 18. Given that 31 percent of Africa's population was between the age of ten and 24 in 1990, controlling births to adolescent mothers can have a tremendous impact on safe motherhood programs. Births to adolescents currently represent between 15 and 20 percent of all births for 11 African countries for which current data are available (Center for Population Options 1992). Although adolescent fertility rates vary greatly within and among countries, early childbearing is generally associated with rural residence, low education, low income, and early age of sexual initiation (United Nations 1989).

The medical consequences of early childbearing on the mother and child have been well documented by WHO and others. Women under age 20 suffer more pregnancy and delivery complications, such as toxemia, anemia, premature delivery, prolonged labor, vesico vaginal fistulae (VVF),

cervical trauma, and death than do women over age 20. A recent survey from northern Nigeria found that nearly 60 percent of 241 recent VVF cases were in women under age 18. In another Nigerian study, 17 percent of 14-year-olds developed hypertension during pregnancy compared with three percent of women aged 20 to 34 (World Health Organization 1989b). Infants born to adolescent mothers also have a higher risk of dying. In Burundi, Ghana, Kenya, Liberia, Mali, Nigeria, Senegal, and Zimbabwe, infants born to mothers aged 15 to 19 face a 20 to 60 percent higher risk of dying before their first birthday than those born to women aged 20 to 29 (Population Reference Bureau 1992). (See also *Effects of Reproductive Patterns*.)

Unsafe abortion—Where abortion is legal, roughly one-fourth of those receiving abortions are teenagers (Singh and Wulf 1990). Where abortion is restricted, teenagers often resort to clandestine procedures and account for between 1 and 4.4 million abortions annually (Center for Population Options 1992). Studies in Kenya, Mali, Nigeria, and Zaire have indicated that between a third and two-thirds of women hospitalized for consequences of unsafe abortion are aged 19 or less (International Center for Research on Women 1989).

Sexually Transmitted Diseases and HIV/AIDS—Research suggests that adolescent girls may be biologically more vulnerable to sexually transmitted diseases (STDs) and HIV infection than older women who have completed their physical development. For example, data from Rwanda documented that the younger the age of first pregnancy or first sexual intercourse, the higher the incidence of HIV infection: in the study, of the young women pregnant at age 17 or younger, more than 25 percent were HIV-infected; and of the young women 17 or younger at first sexual intercourse, 17 percent were HIV-infected (Chao et al. 1991). Infection rates declined sharply in both categories in later age groups.

In addition to biological vulnerability, economic dependence forces some adolescent girls into providing sexual favors to older partners. Studies in Ethiopia and Zimbabwe reveal that while the ratio of AIDS infection is equal among men and women 20 to 29 years old, adolescent girls aged 15 to 19 are three to five times more likely than boys to be infected (Werk-Zewdie 1993).

Raising Awareness and Advocacy—Awareness among policy makers of the cost and benefits of adolescent pregnancy prevention, sex education, and family planning needs to be raised.

To be examined are national costs associated with 1) adolescent abortion-related mortality and morbidity; 2) the consequences of early school drop-out due to pregnancy, early marriage and early childbearing, high parity, and subsequent maternal and child health problems; 3) loss of productivity due to reproductive health problems; and 4) the burden of illness. The findings and data from these examinations should be disseminated to high-level policy makers, community leaders and donors.

Many countries have a strong, vocal, and well-funded organized opposition to family planning for adolescents. On the other hand, there are few organized or effective advocacy groups to counter them. A priority approach could be to consider supporting establishment of joint advocacy groups made up of professionals and leaders of family planning, population, youth services, community development, and women's organizations to focus attention on adolescent reproductive health issues. This effort could include research into different advocacy strategies and organizational models to be used at regional and sub-regional levels.

A clear understanding of adolescents' health needs and how to address them should be a public health priority in sub-Saharan Africa. For example, existing data on the use of health services indicate that adolescents use health services less than either children or adults (World Health Organization 1986).

Services Catering to Adolescents—A number of successful adolescent programs exist, although their experience has not been sufficiently documented and disseminated. Given the increasing priority of meeting adolescent needs, it may be valuable to take a comprehensive look at existing teen services to better understand the context and recipe for their success. For example, the Youth Counseling Project in Ethiopia, housed in its own center, provides counseling, nonprescription contraceptives, and referrals for clinical services. The project, which plans to open its own clinic, reports that its condom distribution has been very successful; in one year it registered nearly 2,000 condom clients (CIE 1992). In Botswana the YWCA's Educational Center for Adolescent Women serves adolescent mothers and pregnant teens by offering basic schooling, child care,



parenting classes, sex education, and counseling. The center reports no dropouts and few repeat pregnancies in three years (IYF 1992). In Mexico, Guatemala, Costa Rica, and other Central American countries, family planning associations train adolescent counselors to promote family planning among their peers, and multi-service youth centers offer family planning information and service along with job-related and recreational activities (Harper, n.d.).

It might be useful to identify and analyze successful regional adolescent/youth services to develop a better understanding of recipes for success. How can existing family planning services be altered to make them more accessible to adolescents? What adaptations are needed to better serve adolescents? What strategies must be used to integrate FP and STD/AIDS services into family life education or youth programs? What approaches will enhance the ability and freedom of adolescents to make informed choices about health and contraception?

Effects of Unregulated Reproductive Patterns

The number of pregnancies and deliveries that a woman undergoes also determines her lifetime risk of maternal death. It has been estimated that in sub-Saharan Africa, a woman runs a one in 21 lifetime risk of dying from pregnancy-related causes; in South Asia, it is one in 34—compared with one in 10,000 in Northern Europe and one in 2,700 in North America (Rochat 1987; World Bank 1994).

The relationship between maternal mortality and reproductive characteristics such as age, pregnancy order, and birth interval, are among the best documented in the literature. Higher parities and births at younger and older ages carry high risks of mortality for the mother. For example, in the absence of obstetric care, women who give birth before age 18 are three times as likely to die in childbirth as those who give birth between ages 20 and 29; and for women over 34, the risk of maternal mortality is five times as high (World Bank 1993). Parity is also a strong determinant. For example, three population-based studies carried out in Bangladesh, Ethiopia, and The Gambia documented that women of parity five or more have about 1.5 to three times the risk of maternal death than women at lowest risk parities such as parity two or three (National Research Council 1989).

In addition, births to very young women elevate health risks not only to the mother but to the child as well. Data from Demographic and Health Surveys documented that in Mali, where 51 percent of the teenagers were pregnant with their first child or having one or more children, the infant mortality rate was 164 per 1,000 live births, compared with Zimbabwe, where the percent of teenagers pregnant or having one or more children was 21 percent and the infant mortality rate was 60 per 1,000 live births (USAID 1991).

Shorter birth interval contributes to maternal depletion and increases infant mortality rates. By spacing pregnancies (leading to longer birth intervals) family planning indirectly reduces maternal and childhood morbidity and mortality. Family planning alone could prevent between 25 and 40 percent of maternal deaths (Daly, Azefor 1993). One of the eleven points in the call to action adopted at the 1987 International Safe Motherhood Conference says: "We need to expand family planning and family life education programs, particularly for young people, and make services for planning families socially, culturally, financially and geographically accessible." But the challenge lies in the low level of contraceptive prevalence in sub-Saharan Africa: total contraception for 14 percent of married women and modern contraceptive methods for only ten percent. These figures are as low as seven and three percent for Western Africa (Population Reference Bureau 1993), showing the urgent need to focus research and analysis on factors susceptible to increasing family planning acceptance, and the best alternatives to target high-risk women.

Education

Formal education affects health behavior, which in turn affects health status. Illiteracy and low levels of educational attainment deprive women of knowledge about health problems and the will to seek care. For example, it is widely believed that pregnancy does not require medical care, which is sought only when there are complications (United Nations 1986). Similarly, a study in Zimbabwe found that the main reason women with cervical cancer delayed seeking care was that they did not recognize the seriousness of the problem.

Greater educational achievement is associated with an increased likelihood to use health services and seek health care. A multivariate analysis of household data from Jamaica (Strauss et al. 1992) showed education to be



an important determinant of the health status of adults. The World Bank's Agenda for Action to achieve greater advancements in health places "providing solid primary schooling to all children, especially girls" is crucial to foster an enabling environment for households to improve health (World Bank 1993). The report cited Kenya as an example, where rapid and sustained increase in female enrollment was achieved by a combination of high-level political commitment to universal primary schooling, and strong demand creation through information and support from the international community. Another example is Bangladesh, where girls' education in rural areas is now free up to the eighth grade and all new primary level teachers will be females (UNICEF 1991).

It might be useful to analyze different approaches to increasing women's literacy rates, especially among less favored populations. Assess and disseminate information on innovative programs to increase female enrollment (such as Kenya, Bangladesh), focusing on the constraints faced and the approaches used by the programs to overcome the obstacles, and the correlation between health improvement and investment in female schooling.

Impact of Culture and Tradition

Barriers to Use of Services. Culture and tradition greatly influence women's reproductive behavior and, therefore, maternal morbidity and mortality. For example, in many African settings women are reluctant to use maternity centers. Women's use of health facilities may be restricted by the necessity for privacy and/or the custom that a male relative must give permission or accompany them while traveling. For Saudi Arabian women, for example, the requirement that only women can give care has hindered the use of MCH services. Women in sub-Saharan Africa, particularly in rural areas depend on older women in the household or in the community for advice about their health, but older women are typically traditionalists with limited formal education and little knowledge of modern medicine.

WHO conducted a study in Nigeria on "The TBA and The Hospital System" to review factors contributing to choices pregnant women make in the use of obstetric services. Another WHO study of cultural factors influencing use of maternal services was conducted in rural Kenya in 1990 (World Health Organization 1991c). Also, a team from the Center for Population and Family Health, Columbia University, has worked with West

African institutions to form a network of multidisciplinary research teams known as the Prevention of Maternal Mortality (PMM) Network in nine universities located in Benin, Nigeria, and Ghana. The focus is on understanding the many interacting factors—cultural, social, economic, geographic, and others—that act as barriers to prompt emergency treatment of obstetric complications through focus group discussions, and to identify potentially effective interventions. It might be useful to identify through community surveys and existing studies and literature reviews (such as the Nigerian study, the Kenyan study, and the PMM findings), barriers (including cultural and traditional) that affect motivation to seek or not seek appropriate care and use of maternity services, specifically in settings where TBAs are preferred to trained health personnel. Findings can be used to develop specific approaches to address these barriers. (Give special attention to adolescents and women in rural, isolated settings where the majority are illiterate with little access to information.)

Maternal Autonomy and Self-esteem. Maternal autonomy and self-esteem exert powerful influences on a wide range of maternal care choices and behaviors such as use of health services. Women lack legal title to land and are less likely to obtain credit, despite contributing the majority of labor for food production. While men receive the income from cash crops for export, women rarely do. For example, Ghanaian women farm but do not have the right to sell their farm crops and, despite the significant contribution that women in Lesotho make to household income, expenditure decisions are made by men (Rahman 1992). A number of examples correlate women's inadequate access to health services because of income constraints.

In Senegal a study found that decreased use of health services by women, particularly poor women, was in response to rising user fees (Timyan et al. 1993). Educational attainment and financial accessibility through involvement in income-generating positions can contribute greatly to female autonomy and self-esteem and in turn affect women's health. For example, the Country Women's Association of Nigeria (COWAN) uses a traditional credit system as the vehicle for ensuring adequate health care for its members, through a membership card that entitles them to medical attention at the referral hospital (Timyan et al. 1993).

An analytic priority might be to assess and disseminate information on innovative programs to promote female autonomy (educational attainment, financial accessibility through involvement in income-generating activities), focusing on approaches used, lessons learned, impact on health, and potential for replication.

Female Genital Mutilation. Another example of culture and tradition influencing maternal morbidity and mortality is female genital mutilation (FGM), which is still practiced in many African countries. Major health problems are associated with FGM—particularly with the more severe forms such as clitoridectomy and infibulation. In addition to the immediate medical problems (e.g., hemorrhage, septicemia, shock, etc.), female circumcision significantly contributes to chronic health problems. A higher proportion of circumcised women are infertile, and many experience painful and difficult childbirth leading to a longer expulsion phase, perineal lacerations, and urinary fistulae.

The practice of such traditions, which are deeply rooted in cultural and religious beliefs, is clearly a major health concern in Africa. The estimated number of mutilated women and girls in East, West, and Central Africa is more than 110 million which is more than half of the female population (Hosken 1992). IPPF is organizing campaigns to eradicate the practice. In 1989 IPPF sent a questionnaire to all 48 African and Arab national family planning associations to gauge the extent of female genital mutilation and the work being done to overcome it. IPPF's International Medical Advisory Panel has now drawn up a draft statement on female genital mutilation, which is being circulated internationally before being finalized (IPPF 1991). But more organizations must bring female genital mutilation into the broader programs aimed at improving the reproductive health of women. Priority areas for future research include a) analysis and information dissemination on the devastating consequences of FGM on women's reproductive health and the social and psychological impact, and b) social science research to learn more about the attitudes of community members toward female circumcision so that strategies to reduce the incidence of the practice be identified.

Organization and Efficacy of Reproductive Health Interventions

Even the most common, accepted, and established interventions need to be re-examined for their impact on safe motherhood and improved repro-



ductive health in Africa. Information on efficacy of interventions is crucial for decision making about strategies and resource allocation. WHO has been promoting well-equipped first referral centers with strong connections to the community-level maternity centers to deal with obstetric emergencies in several African countries. The following interventions are examined in this section:

- ◆ family planning;
- ◆ prenatal, intrapartum, and postpartum care;
- ◆ the use of risk assessment/approach;
- ◆ upgrading first referral level facilities; and
- ◆ referral system.

Efficacy of Reproductive Health Interventions

Family Planning

Family planning has always been an important component of safe motherhood. Family planning allows women to delay motherhood, space births, and avoid unwanted, unplanned pregnancies. In addition, reducing the number of pregnancies also means less pregnancy-related morbidity and mortality. By satisfying unmet needs for family planning, maternal deaths could be reduced by 17 percent in Africa (Maine 1991). The World Bank *World Development Report 1993* ranks family planning among the most cost-effective interventions to improve maternal and child health.

Studies of the potential market for contraception show that substantial proportions of women want to space or limit future pregnancies, yet they are not using any contraceptive method. Studies also document that at least a fourth of all maternal deaths could be prevented if women who said they want no more children were able to avoid future pregnancies. By satisfying these unmet needs for family planning, maternal deaths could be reduced considerably, and for Africa specifically, it is estimated that maternal mortality could be reduced by 17 percent (Maine 1991).

Providing family planning services at each point of contact by women with the health system can ultimately increase women's access to contraception.

Some successful contraception programs have been linked to health services most often used by women. Examples include the Sfax Tunisia postpartum program and the Matlab Bangladesh program. In the Matlab program, where family planning was linked to a community-based service that also provided basic maternal and child health care, contraceptive prevalence rate in the intervention area increased from 8 percent in 1977 to 56 percent in 1989, compared with the comparison area where the prevalence rate remained at less than 20 percent. In the Tunisia program family planning was integrated with postpartum care. A post-abortion family planning program exists in Cotonou, Benin, and was evaluated by WHO. An evaluation of a community-based program to provide family planning services to women at high risk of unwanted pregnancy was also done by WHO in San Borja, Peru (World Health Organization 1991c).

It would be useful to review experiences regarding integration of family planning with maternal and child health services. What is the most effective and efficient way to change reproductive behavior and increase access to contraceptive information and supplies? When are women most receptive to family planning counseling and services (during prenatal care, postnatal care, or post-abortion care)? Which degree of integration is more effective: should we only integrate family planning counseling in all maternity services with a strong referral system to family planning services, or should we offer family planning counseling and services on site at contact points? Conduct studies on the effectiveness of targeting family planning activities on postpartum and post-abortion patients.

Prenatal, Intrapartum, and Postpartum Care

Operations research and comparative analyses on established interventions offered during prenatal, intrapartum, and postpartum care are required to guide the planning of effective health services to reduce maternal mortality and morbidity.

Studies should be designed to provide answers to such questions as, What conditions can benefit most from early prenatal care? What conditions can benefit most from postpartum care? What components of prenatal and postpartum care are most useful in reducing maternal morbidity? Are these different from those components most likely to reduce mortality? Do these components of care contribute to measurable improvements in maternal mortality and morbidity? How much do these interventions cost?

The Risk Assessment/Approach. For women in sub-Saharan Africa, the risks of complications in pregnancy are much higher than in the rest of the world. It has been estimated that in sub-Saharan Africa, a woman runs a one in 21 lifetime risk of dying from pregnancy-related causes, compared with one in 34 in South Asia, one in 73 in Latin America, one in 10,000 in Northern Europe, and one in 2,700 in North America. Antenatal care programs throughout the world are based to some extent on risk assessment. This risk approach requires that all pregnant women be screened for risk factors during the prenatal, intrapartum, and postpartum periods, and that those identified as being at high risk receive special surveillance and treatment from a suitable level of care, to concentrate attention on those most likely to need such care.

However, recent studies in developing countries have suggested that most of the women who are identified as having risk factors may not develop life-threatening complications, because most of the major problems that can lead to maternal mortality cannot be predicted with sufficient accuracy, except in the case of obstructed or prolonged labor (Winikoff et al. 1991; Maine 1991). The largest number of maternal deaths come from those women who are identified as low risk. For example, analysis of data from Kasongo, Zaire, show that of 100 women who were labeled high risk for obstructed labor because of bad history, only ten percent actually developed obstructed labor. Conversely, of all obstructed labors, only 29 percent were predicted. Thus, the poor predictive power of screening was challenged. The rationale was that using the risk approach may overload an already over-stretched maternity unit, and that women may lose confidence in the system because they were designated high risk but delivered without problem (Kwast 1993). Improving the medical care system, including early identification and treatment of complications for every woman (plus an adequate referral system) to deal with obstetric emergencies seems to be the option of this advocacy group.

In fact, screening programs face a problem sometimes referred to as the "inverse care law." It is often those at highest risk of adverse outcome (very young age, lack of education, poverty) who are least likely to use or have access to health services. And many women in developing countries (especially those in rural areas) find it impossible to follow the advice they are given during screening. For example, a study in Kenya found that of the women who intended to deliver in the hospital, only about one-third did

so. The women didn't change their minds; practical difficulties, such as lack of transportation, arose (Maine 1991).

One problem may be use of the terms "high risk" and "low risk," and the fact that once categorized, all our efforts are focused on high risk women. However, Cameroon has adopted the risk approach in Yaounde for several years and concluded that the program has succeeded in bringing about significant reductions in maternal mortality.

Clearly, the effectiveness of the risk approach is the subject of some controversy. During a meeting held in April 1993 in Bujumbura, Burundi, the francophone African Resource Group for Safe Motherhood (a group of African experts) agreed on the following: A significant number of African women possess one or more of the broad characteristics that are frequently used to define maternal risk, such as pregnancy under age 15 or over age 40; multiple pregnancies or previous complications; or other associated health problems such as malaria, hypertension, stunted growth, or malnourishment. But there are not enough studies to assess the predictive value of risk factors for maternal mortality in developing countries. And, because of the issues of access and availability to health services in Africa, some African health and family planning professionals still see the risk approach as an evolving process and have identified it as an important area for continued research. The socioeconomic status of most women in Africa and the barriers to access of care create an environment in which it is important to screen women for early indications of complications and to refer them to trained health providers.

Expanding Essential Reproductive Health Services

Upgrading First Referral Level Facilities

Equally important is the role of first referral level facilities (upgraded health centers, rural hospitals) in providing the essential elements of obstetric care. Identifying risk will not help women if essential obstetric care to prevent or treat problems is not available or is inaccessible. For example, in Senegal's Kaolak Hospital, transfusion was not available for 80 percent of women referred in labor needing transfusion, nor was anesthesia for 64 percent of those needing it (Region Medicale de Kaolak 1988). It is widely accepted by international expert bodies that the route to safer motherhood lies not through expensive technology but through strengthening

and upgrading existing health centers and district hospitals to provide essential elements of obstetric care to all those in need. But, what has been learned so far about first referral level facilities? How efficient are they? How can quality care be ensured at first referral facilities? Lack of infrastructure, an insufficient number of personnel (and in some Muslim cultures, lack of female health workers specifically), inadequate training, shortage of supplies and equipment, and inadequate monitoring and supervision all contribute to inefficient, poor-quality services (Starrs 1993).

Future research should focus on evaluating existing first referral level facilities to assess their efficiency and sustainability as well as their impact on safe motherhood, and to identify the best approaches to ensure key quality care at the facilities. Studies should be designed to provide answers to questions such as, What has been learned so far about the efficiency of first referral level facilities? Which services when provided at first referral level facilities most effectively reduce maternal mortality and morbidity?

The Referral System

Getting women to the nearest first referral level facility when complications arise still presents formidable problems in many developing countries. Many women die while waiting for or during transportation. For example, in Addis Ababa, 13 percent of maternal deaths recorded over a two-year period occurred on the way to the hospital. Between 1975 and 1983, eight percent of maternal deaths recorded in two rural areas in Turkey took place on the way to the hospital. In rural China, a maternal mortality survey revealed that 15 percent of maternal deaths occurred on the way to the hospital. This problem is being tackled by bringing services closer to the people and bringing people closer to the services. Information about the effectiveness and impact on maternal mortality and morbidity of these various approaches (maternity waiting homes, mobile teams, village cooperative transportation systems, etc.) is generally incomplete and often unavailable.

In some countries, such as Malawi, Ethiopia, Zaire, maternity waiting homes are used. The positive impact of the *tukul* or maternity waiting home in reducing maternal mortality and morbidity at the Attat Hospital in Central Ethiopia is well-documented. And in Zimbabwe, maternity villages were an integral part of the maternity services offered by four rural missionary hospitals. Conversely, experience in Zaire showed that maternity waiting



homes in Karawa were under-used primarily because of a lack of community involvement in designing and building the homes and consequent lack of consideration for community concerns, particularly related to patients' food preparation. Other approaches such as village cooperative transportation systems, obstetric emergency flying squads, mobile teams for primary health care and family planning that can identify high-risk women in the community are also being tried. In southern Ethiopia, maternal messengers who run and walk for up to three hours from a village to alert the midwife at the health center are being used. In some parts of Africa, women's groups pool funds and lend them to various members in turn. This custom could be adapted to provide funds for obstetric emergencies.

Quality Assurance of Maternity Care

African health professionals are quite concerned about the quality of health services for women in Africa. Even where health services are readily available and affordable, women may not use them because of their poor quality (Parker et al. 1990), so efforts to improve the quality of services are crucial. Lack of infrastructure, an insufficient number of personnel (and in some Muslim cultures, lack of female health workers specifically), inadequate training, shortage of supplies and equipment, and inadequate monitoring and supervision all contribute to poor-quality services (Starrs 1993). Researchers should focus on finding the best ways to ensure the key quality of care factors in service delivery points: provider competence, appropriate physical infrastructures and management system, adequate supplies and equipment, good information to patients, and strong follow-up system.

One component of high-quality care is the presence of qualified personnel. A shortage of physicians, nurses and trained midwives in developing countries—particularly in rural areas—contributes to maternal deaths (Maine 1991). Also, most of the nurses, midwives, and physicians in Africa, once in the field, do not have any time for additional updates and training. Moreover, no one evaluates their ability to diagnose, treat, or refer clients to the closest hospital. A MotherCare project has provided annual continuing education to some midwives in Uganda and Nigeria to upgrade their midwifery skills and develop proficiency in life saving skills (LSS), including risk assessment, use of partograph for monitoring labor, use of written protocols for referrals, and problem solving. This LSS program was developed by the American College for Nurses and Midwives (ACNM) and has been



offered in various countries by different donors (MotherCare in Nigeria and Uganda, Carnegie Corporation in Ghana, and Population Council in Vietnam). The effectiveness of such projects should be evaluated and documented.

As a basis for effective intervention, evaluate existing services providing care to women, focusing exclusively on factors that create a negative perception of quality, including:

- ◆ provider competence (training curricula, refresher training, conformity to guidelines, supervision);
- ◆ client-oriented physical infrastructures and services (convenient service hours, privacy, special needs of adolescents, availability of counseling, and a range of treatment and diagnostic options);
- ◆ adequate equipment and supplies;
- ◆ adequate staffing (female health care providers);
- ◆ provider sensitivity;
- ◆ information flow between clients and providers;
- ◆ continuity of care and follow-up;
- ◆ monitoring and supervision;
- ◆ means of payment for services;
- ◆ and identification of ways to improve quality care.

Increasing Maternity Care Coverage and Maximizing Access

Some approaches to increasing maternity care coverage and maximizing access include 1) incorporating community obstetrics into the physician training; 2) upgrading the skills of non physician personnel (nurse-midwives and midwives) in management of obstetric emergencies and delegating responsibility to them; 3) increasing the supply of trained female health care providers; 4) influencing national policy in the practice and quality of maternal care including delegation of responsibility; 5) increasing outreach services; and 6) community involvement. For example, a

1989 World Bank economic and social strategy study in Pakistan suggested that more efforts should be focused on outreach and community-based delivery systems to overcome the lack of facility-based services for women.

Responsibility Delegation. There are few physicians in most African countries and the number of physicians trained in obstetric care is even lower. Almost all of them are in big cities while 80 percent of the population is in rural areas. For example, of the 200 obstetricians in Nigeria in 1980, more than 90 percent were located in the national and state capitals. By contrast, the proportion of the population living in urban areas was estimated at 11 percent (Maine 1991). A study in East Africa in 1979-81 found that only an estimated one in ten women who needed an emergency cesarean section had one (Maine 1991).

Obviously, the responsibility for performing life-saving tasks, such as symphysiotomy, cesarean section, or manual removal of a retained placenta, is typically in the hands of a few who work far from where the women actually deliver. This can be overcome by coordinating communication and transport among levels and/or delegating specific life saving functions to non-physician personnel after special training. Legislation and licensure problems prevent this option in some countries, however.

In many countries midwives already perform essential functions such as manual removal of placenta, vacuum-assisted deliveries, etc. In Zaire selected obstetric nurses are trained to perform emergency surgery, including cesarean section, symphysiotomy, repair of ruptured uterus, and hysterectomy (White et al. 1987). This is also being done in The Gambia, where selected nurse-midwives are trained in high-risk obstetrics and are posted to upgraded health facilities. In Uganda and Nigeria MotherCare demonstration projects are improving the quality of maternal care by upgrading the knowledge and skills of midwives through training that focuses on management of obstetrical emergencies.

Analysis and evaluation of existing field works regarding responsibility delegation, focusing on impact and lessons learned (including acceptability of greater responsibility for MCH care by non physicians and approaches used to influence national policy in responsibility delegation) should be considered among the research priorities.

Manual Vacuum Aspiration. For several years the International Projects Assistance Services (IPAS) has been conducting studies and supporting services (e.g., training and equipment) related to the use of manual vacuum aspiration (MVA). MVA is a simple procedure using a hand-held syringe that can be used safely by all levels of health staff, including trained paramedical personnel, in the management of complications of unsafe abortions. The manual kit for MVA marketed by IPAS is inexpensive, easy to use, and appropriate to a wide range of settings. In Kenyatta National Hospital, Nairobi, substantial health care resources were being used to manage complications of unsafe abortions. After the introduction of the manual vacuum aspiration technique, clients and providers have benefited from shorter hospital stays, better results, and costs that have been reduced by 23 to 66 percent (Tinker, Koblinsky 1993).

A group of health professionals in Nigeria, Kenya, Zimbabwe, Ghana, Ethiopia, Zambia, and other countries have worked closely with IPAS and could serve as resources. The knowledge and experience of these health professionals should be capitalized to extend MVA training and study the cost-effectiveness and impact of manual vacuum aspiration in the treatment of incomplete abortion in African countries where it has already been adopted.

Community Participation

Community Involvement

Community involvement is seen as very important in Africa. Knowing the danger signs of pregnancy, labor, and delivery and where to go for appropriate services is essential to reducing maternal and neonatal mortality. To improve timely and appropriate use of services, these signs must not only be recognized by the woman, but also by those who are in the community and are in a decision-making position during the time she may be disabled (MotherCare 1993). And mobilizing resources to transport the woman to health services once complications are identified may require a community-wide effort, which in itself needs a convincing push (MotherCare 1993). Therefore, community involvement should be a high priority of safe motherhood programs in Africa to increase maternity care coverage. MotherCare carried out a three-year community-based project in Inquisivi, Bolivia, based on so-called autodiagnosis of health problems through the community women's group. The project also promoted income-generat-

ing activities (including the production and sale of safe birth kits) that would provide emergency funds to transport obstetric complications. If effective, such projects could be a model for community participation.

Information dissemination and research studies on the evaluation of innovative community interventions that have the potential for expansion and replication (approaches used, costs, impact on women and sustainability) to support safe motherhood and improved reproductive health in Africa should be supported.

Traditional Birth Attendants

WHO estimates that in developing countries some 60 to 80 percent of births are still delivered at home by traditional birth attendants (TBAs). Furthermore, results from the Maternal Nutrition and Health Care (MNHC) Program, a USAID-funded 13-country research program, indicated that surprisingly large numbers of women selected traditional birth attendants as their care providers. Accessibility of the TBAs was the one factor consistently identified as a key determinant of use. Investing in TBA training has been the focus of a number of national and international organizations, and many countries now offer some form of training program for TBAs. Training programs have already brought benefits—for example, a World Bank-supported evaluation in The Gambia documented that trained TBAs demonstrated significantly greater knowledge of risk factors and referred more pregnant women with complications than did untrained TBAs (Post et al. 1990).

One barrier to successful TBA training programs is the lack of collaboration between the formal health system and the TBAs. The PROAIS project in Fortaleza, Brazil, is an example of successful collaboration. The project trains TBAs and serves as a base for professors and health science students from the Fortaleza University to meet their rural community work requirement. The program not only succeeded in providing rural areas with modern medical care but students have also benefited from the opportunity to combine their formal training with beneficial traditional practices (Bomfin 1991). The success of the project has prompted similar efforts elsewhere in Brazil. The Karawa Health Zone project in Zaire and the project in Zimbabwe in which community midwives are trained to improve coverage of antenatal, delivery, and postnatal services are other examples (Tinker, Koblinsky 1993).



Given the role TBAs play in the community, mechanisms for integrating trained TBAs into the modern health care system need to be determined, specifically in areas with very limited access to modern medical care. Mechanisms to link traditional and modern care systems for efficient and effective maternity care should be explored, and the impact on maternal mortality and morbidity of training TBAs should be assessed.

Social Support Networks

Social support systems such as the presence, guidance, and assistance of a wide network of family, extended family, and community members are crucial factors influencing maternal care choices throughout all phases of the reproductive process. Appropriate social support can also provide a means to reinforce desired maternal health practices and health care seeking behavior. In some parts of sub-Saharan Africa these traditional systems appear to be eroding. In areas where these networks, particularly women's groups and associations, have been successful in providing health information and drawing on local women to promote their own health, there has been no evaluation on their effectiveness and their impact on improved women's reproductive health.

There is a need to evaluate the effectiveness of social support networks, their different approaches, and their impact on improved women's reproductive health. Also research can be focused on how community-based support networks might be formed and used to help provide women with better health information and better access to health facilities through the establishment, for example, of cooperative transportation arrangements. Best practices and lessons learned from the research can be disseminated and used to develop and strengthen community-based networks, based on specific socio-cultural settings.

Monitoring and Evaluation

Monitoring and evaluation should be an important component of each safe motherhood program. The community should be involved in the process and kept informed of its progress. Policy makers also should be informed. UNICEF has planned to do an evaluation of essential obstetric functions in several countries, followed by policy recommendations. A document on guidelines for monitoring progress in reduction of maternal mortality has been developed for this purpose, raising methodological issues in measur-



ing maternal mortality and giving indicators of efforts to reduce it. If widely disseminated, that document can be a useful tool for monitoring and evaluating safe motherhood.

A major constraint to effective program monitoring and evaluation is a weak management information system—or lack of one—in most African countries. Alternative strategies can be introduced to monitor program performance and impact. Selection of a limiting number of indicators, development of simplified data collection tools for program operations, periodic household interviews, focus group discussions, and occasional surveys (such as the DHS) are some of the approaches to elicit information to monitor and evaluate safe motherhood and reproductive health.

Research, Analysis, and Dissemination Approaches

Because research, analysis, and dissemination activities need to be demand driven, the AFR/SD will revise and update this framework as new information and requests are presented by African decision-makers, experts in reproductive health, and USAID Mission and field staff.

The research, analysis, and dissemination activities will be implemented through a range of approaches based on the issue and the information gap to be addressed. These approaches may be thought of as falling along a continuum involving different levels of methodological sophistication and input. At one end of the continuum is literature review and synthesis of existing information, especially lessons learned from previous or ongoing studies and programs. An approach might involve a literature review and synthesis followed by short-term field work to verify conclusions or test hypotheses. At the other end of the continuum is long-term, multi-country research with primary data collection.

Effective dissemination of information generated will be essential to improve reproductive health policies, strategies, and programs in Africa. The dissemination activities should support advocacy efforts for improved reproductive health in Africa.

Research priorities and approaches to implementing analytical activities should be tied to field programs that offer the potential for effective African participation during all the phases of implementing the analytical ac-

activities, including assessment of the impact of activities on decision-making related to reproductive health in Africa.

USAID has addressed maternal health and nutrition as part of its overall health strategy. A.I.D.'s experience in maternal and reproductive health in Africa has included a variety of bilateral and centrally funded child survival, population, and family planning projects. These programs should facilitate implementation of a broader approach to reducing maternal mortality and morbidity, and to improving reproductive health services.

USAID plays a major leadership role in population and family planning that strongly influences actions and priorities throughout the world. One of the principal objectives of the Agency's population, health, and nutrition strategy is to improve individual reproductive health, with special attention to the needs of women and adolescents. USAID Bureau for Africa interest in improving reproductive health in Africa will help to draw more attention and resources to this important public health area.

A number of USAID cooperating agencies active in the family planning arena could address the broader issue of safe motherhood and improved reproductive health. For example, in its approach to controlling RTIs in women, USAID is supporting a spectrum of activities through various cooperating agencies. In Nairobi, Kenya, a demonstration project aimed at maternal syphilis control was implemented in urban prenatal clinics by the MotherCare project. Although the impact, effectiveness, cost, and feasibility of the demonstration project have not yet been evaluated, the project demonstrated the feasibility of an integrated reproductive health service package by decentralizing screening facilities to a primary health level.

In Mali, 1,000 women were educated about condoms through STD clinics. Sentinel surveillance systems have been established to track and monitor STDs in several developing countries including Burundi and Uganda. As part of its STD diagnostics initiative, USAID is funding research and development of field diagnostic technologies. And through its HIV/AIDS prevention programs to reduce sexual transmission of HIV, STDs are being addressed with behavioral interventions, condom promotion, and STD control through provision of diagnosis and treatment at existing service delivery systems such as prenatal clinics and family planning clinics.



During each analytical agenda-setting cycle, AFR/SD will use the strategic framework to select priority issues. The analytical activities would be implemented based on their likelihood to provide information for better decision making on strategies and programs to improve reproductive health in Africa.

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