Network

FAMILY HEALTH INTERNATIONAL, VOL. 14 NO. 3, FEBRUARY 1994

Maternal Health

News Briefs

RU-486 POSSIBLE MALE "PILL"

An abortion pill available in Europe is being studied as a potential oral contraceptive for men after new research showed it immobilizes sperm.

A derivative of RU-486 may provide reversible contraception with few side effects, says Dr. Etienne-Emile Baulieu, of France's National Institute of Health and Medical Research. The pill could potentially be taken just before sexual intercourse to work.

Baulieu's research, done in collaboration with Dr. Pierre Jouannet of the Bicêtre Hospital in Paris, has shown that RU-486 and some of its chemical derivatives prevent calcium from penetrating sperm. Sperm require calcium to remain mobile and fertilize eggs. The research was reported Jan. 18 in the *Proceedings of the National Academy of Sciences.*

"I can envisage a pill that can be effective for varying amounts of time — for one hour to one week to one month," Dr. Baulieu says. "I'm extremely optimistic that a good contraceptive pill for men, without the negative side effects usually associated with hormone treatments, is just down the road."

In test-tube experiments, RU-486 has successfully immobilized sperm, and tests with the drug on rats and monkeys are expected to begin as soon as an appropriate RU-486 derivative is selected. Human testing is not expected to begin within the next couple of years. RU-486, also known as mifepristone, produces a complete abortion in 85 percent of women who use it within three weeks of the expected onset of a missed menstrual period.

TUBAL STERILIZATION LOWERS OVARIAN CANCER RISK

Women who have tubal sterilizations are much less likely to develop ovarian cancer than other women, U.S. researchers have reported.

From a survey of more than 77,500 nurses conducted over 12 years, Dr. Susan E. Hankinson and other researchers at Brigham and Women's Hospital in Boston concluded that women who had fallopian tubal ligations faced a lower risk of contracting the cancer, which kills more U.S. women than any other gynecologic malignancy.

"Protection against this cancer may be the most important non-contraceptive benefit of tubal sterilization," wrote Dr. David A. Grimes in an editorial in the *Journal of the American Medical Association*, where the research was published Dec. 15.

FHI TO OVERSEE AIDS VACCINE TRIALS

Family Health International has been selected for a five-year contract to manage clinical trials work in developing countries for promising experimental AIDS vaccines. The National Institutes of Health (NIH), a U.S. government agency, awarded the contract in October, one of two master contracts to evaluate preventive vaccines.

"The AIDS pandemic has caused untold human suffering and loss to families worldwide," says Dr. Theodore M. King, FHI's president and chief operating officer. "An estimated 14 million adults and children are currently infected with this terrible illness and that number may reach 40 million people by the end of this decade."

No drug is available to prevent transmission of HIV, which causes AIDS, and few are available for treatment. "New and more effective strategies, such as vaccines and other biomedical interventions targeted at prevention, are essential for curtailing this devastating pandemic," Dr. King says.

New preventive vaccines will be developed by private industry or public institutions, and NIH will select candidate vaccines or other biomedical methods for testing based on recommendations by an independent advisory group. Another NIH contract, awarded to Abt Associates, Inc. of Cambridge, MA, USA will oversee clinical trials in the United States and its territories.

SALMONELLA MAY OFFER CONTRACEPTIVE

A reversible, inexpensive birth control vaccine for men and women may come from an unlikely source — genetically altered salmonella bacteria.

The bacteria cause food poisoning, typhoid and diarrhea. But with some genes removed and others spliced in, an altered form produces proteins that make the immune system reject sperm and does not cause disease, says Dr. Roy Curtiss, a biology professor at Washington University in St. Louis, MO, USA. The approach was announced in November at a U.S. meeting of the Council for the Advancement of Science Writing.

"Salmonella act as the factory, making specific antigens. It is a slow-release system," he says. The altered bacteria produce sperm antigens, and both male and female immune systems make antibodies against them. To sustain immunity, a booster vaccine might be necessary every six to 12 months.

Numerous concerns, however, have been raised over the use of such live vaccines. A live vaccine, for example, could accidentally immunize people through fecal contamination of water or food.

Researchers are testing the vaccine approach in mice and are scheduled to begin experiments soon with macaque monkeys and baboons. Experiments among humans are not yet scheduled and would not begin until ethical and health issues are resolved. The contraceptive vaccine would be inexpensive to produce and would require no refrigeration, making it easy to store. It would probably be administered orally, eliminating costs and risks associated with injections, Dr. Curtiss says.

WOMEN'S STUDIES PROJECT BEGINS

Family Health International has begun a five-year program of research to determine the impact of family planning on women's lives in developing countries. The U.S. Agency for International Development awarded FHI an $8.6 million agreement to manage the project, which began in October.

Research has examined the impact of family planning services on infant health, demographic trends, health care costs and many other related subjects, says Dr. Theodore M. King, FHI's president and chief operating officer.

"With this project, we hope to examine the benefits of family planning on numerous aspects of women's lives, including self-esteem, education and autonomy," Dr. King says. An ultimate goal of the project is to provide leaders in developing countries with research to help shape their national health policies and programs.

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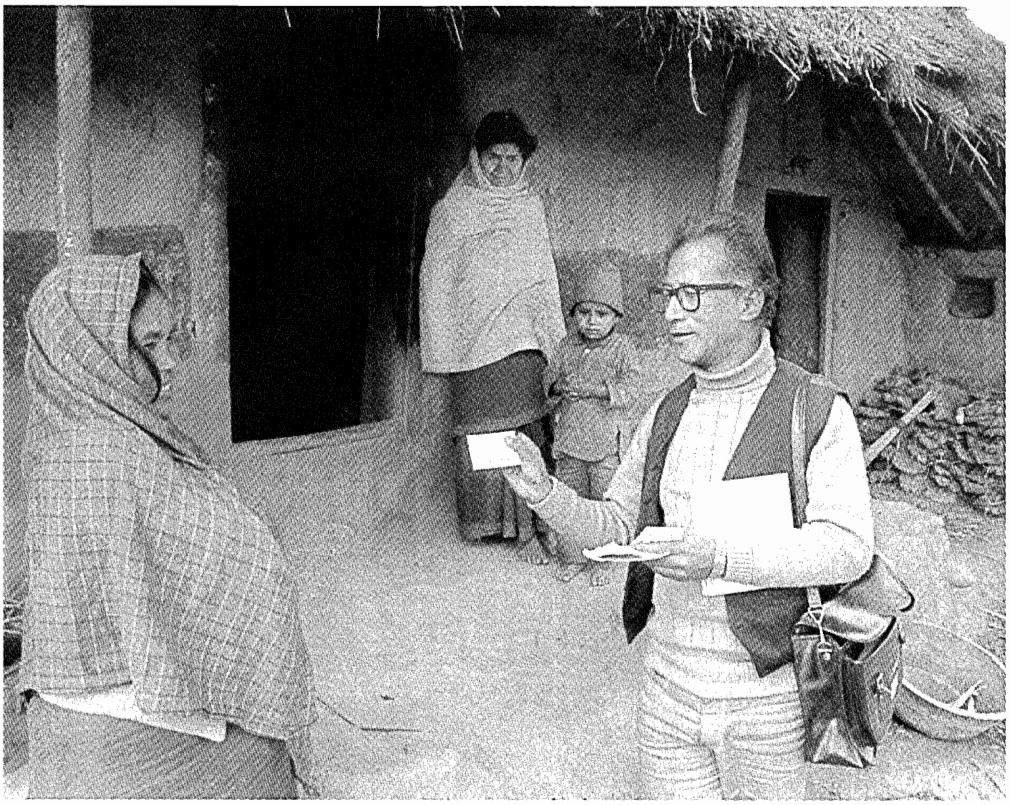
Cover photo by Lloyd Wolf, Folio Inc.

Family Planning Reduces Mortality

Fewer unwanted pregnancies mean fewer pregnancy-related deaths, a vital way to improve maternal health.

In the effort to reduce maternal deaths in developing nations, family planning can be an important and effective first step. Family planning can reduce the total number of pregnancies, thereby decreasing a woman's lifetime risk of dying in childbirth, and it can reduce the number of deaths due to high-risk pregnancies. In addition, by preventing unplanned and unwanted pregnancies, family planning can help decrease the number of women who risk their lives seeking unsafe abortion.

A FAMILY PLANNING COUNSELOR VISITS WOMEN IN THE KATMANDU VALLEY, NEPAL.



SEAN SPRAGUE/IMPACT VISUALS

"There are two ways to reduce maternal mortality," says Dr. Judith Fortney, director of the Maternal and Neonatal Health Center at Family Health International (FHI). "One is for women to have fewer babies, and the other is to make pregnancy safer.

"Family planning doesn't make any difference to obstetric risks [once a woman is pregnant], but it makes an enormous difference to the number of maternal deaths. It's a matter of arithmetic. If people have half as many babies, there will be half as many deaths even without any improvement in obstetric services."

In developing countries, as many as one-third of the deaths among women of reproductive age are related to pregnancy and its complications.[1] Women in Africa face a 1 in 21 lifetime risk of maternal death, while the risk for women in Asia is 1 in 54 and 1 in 73 for women in South America. Women in industrialized nations face a much smaller risk: 1 in 6,366 in North America and 1 in 9,850 for northern Europe.[2]

The impact of family planning largely depends on the country's fertility and mortality rates, says Dr. Fortney. Where fertility rates and maternal mortality are high, either lowering fertility (through family planning services) or improving obstetric care will help reduce maternal deaths, Dr. Fortney says. Where fertility is already low, increased contraceptive use is likely to have no significant impact on fertility and, therefore, minimal impact on mortality. Reductions in maternal mortality will only be achieved by improvements in obstetric services, she says.

"In areas where family planning is not very accessible, family planning is one of the first things that should be brought in a maternal health program," says Dr. Marjorie Koblinsky of the U.S.-based John Snow, Inc. (JSI)/MotherCare, Inc., project. "In the global effort to reduce maternal deaths, family planning should be the first line of offense."

Matlab project

The strongest evidence of the impact of increased contraceptive use on maternal mortality can be seen in the results of a study in the Matlab subdistrict of Bangladesh.

A prospective study of more than 38,000 women in the rural community, located about 40 miles southeast of Dhaka, compared deaths among two groups of women of reproductive age. One group received family planning services through the Family Planning and Health Services Project (FPHSP), a community-based distribution system that also offered basic maternal and child health care. A comparison group received family planning services as they had in the past, through government programs.

In the intervention area, female community health workers visited women's homes every two weeks offering information on family planning and an array of contraceptive methods. When women experienced health problems that could not be treated by community workers, women were referred to one of four nearby treatment centers, which were staffed by female paramedics. The centers also provided health care for children.

The contraceptive prevalence rate in the intervention area increased from 8 percent in 1977 to 56 percent in 1989, while the contraceptive prevalence rate for the comparison area remained at less than 20 percent.

During this time period, deaths due to obstetric complications were 57 percent higher in the comparison area than in the intervention area, leading researchers to conclude that the reduction of obstetric-related deaths in the intervention area "appeared to be largely attributable to the family planning component of the service program."[3]

"If you are using family planning, you have a lower possibility of becoming pregnant," says Dr. Andres de Francisco of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDRB), which coordinates the Matlab project. "Therefore, you have a lower chance of dying from obstetric causes."

While reducing the sheer number of pregnancies can mean fewer maternal deaths, family planning also can help lower the number of maternal deaths due to high-risk pregnancies — pregnancies that occur among women who are too old, too young or who have too many children. Pregnancies among women who are under 18 or over 40 are considered high-risk. Risks also increase for women who have given birth to more than three children. The risks of pregnancy are greater during the first pregnancy, are less for the second and third pregnancies, then rise for each pregnancy thereafter.

Unwanted pregnancies

Studies have suggested 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 unmet needs for family planning, maternal deaths could be reduced by 17 percent in Africa, 33 percent in Latin America and 35 percent in Asia. "Simply helping women to realize their childbearing desires would prevent a substantial proportion of maternal deaths," writes Deborah Maine of Columbia University's Center for Population and Family Health in New York.[4]

An example of unmet need can be seen in Bolivia, where the Warmi project (the Aymara word for woman) found a high demand for modern contraceptives among rural women in 25 communities. More than 35 percent of 437 married women interviewed in the project, conducted by JSI/Mothercare, said they would like to use contraceptives but do not. When women were asked how they felt when they learned they were pregnant, responses included: "Afraid because we already have many children; we don't want the baby and we also are afraid of dying;" "Sad because our family is large ... and there are no means to feed and educate them;" and "Afraid because sometimes we have small children or our last child is still too young."

By preventing unwanted and unplanned pregnancies, family planning also can help women avoid one of the major causes of maternal death — unsafe abortion. The World Health Organization estimates that 200,000 maternal deaths occur each year because of complications from unsafe abortions. The major causes of such complications are infection and hemorrhage.

In some countries, increased access to family planning has translated into dramatic reductions in abortion-related deaths. In Chile, family planning was introduced country-wide by government and private programs in 1965, when less than 6 percent of women were using contraception. By 1991, contraceptive prevalence had increased to 33 percent. The percentage of hospital admissions due to abortion complications fell from more than 30 percent in 1964 to 8 percent in 1990.

"We think these figures show that women's health, especially maternal health, has benefitted from the use of family planning," says Dr. Guillermo Delgado, executive director of the Asociación Chilena de Protección de la Familia, the International Planned Parenthood Federation affiliate in Chile.

While increased contraceptive use can help reduce the incidence of unsafe abortion, high contraceptive prevalence rates do not necessarily guarantee such reductions. In Brazil, abortion-related complications are the fourth-leading cause of maternal mortality, in spite of contraceptive prevalence rates as high as 65 percent, says Sarah Hawker Costa, a senior researcher with Fundacão Oswaldo Cruz. Although women have access to family planning services, the methods offered are primarily limited to surgical sterilization and oral contraceptives.

A recent study of 1,600 women admitted to hospitals in Rio de Janeiro found that many women had been taking the pill when they became pregnant. "Among women with induced abortion in hospitals, 40 percent said they had been using contraception at the time of their abortion," Costa said. "When we asked 'why do you think you became pregnant?,' 50 percent said they had not been using contraceptives consistently or correctly.

"Women [in Brazil] feel very motivated to control fertility. Improved contraceptive use and services would reduce the number of unsafe abortions."

Dr. Beverly Winikoff of the Population Council in New York has said that estimates of family planning's effectiveness in reducing maternal mortality presuppose correct and consistent use by high-risk women and do

not take into account pregnancies due to contraceptive failures. "There's a shortcoming in that it [family planning] can't solve 100 percent of your problem," she says. "It doesn't solve the intrinsic problems of mortality and morbidity for women who are pregnant."

In measuring the impact of family planning, distinctions should be made between maternal mortality rates and ratios, says Dr. Fortney. The two terms measure different risks, and each risk is affected by different interventions. The maternal mortality ratio is the number of maternal deaths per 100,000 live births, while the maternal mortality rate represents the number of maternal deaths per 100,000 women ages 15 to 49.

Family planning affects the number of pregnancies, and consequently, affects the maternal mortality rate. Because family planning does not affect health risks once a woman is pregnant, family planning has no impact on the maternal mortality ratio. Results of the Matlab project in Bangladesh illustrate this difference. Although the actual number of pregnancy-related deaths declined in the intervention area, the maternal mortality ratio was not dramatically affected. It remained high — 550 deaths per 100,000 live births — indicating that there was no reduction in risks once women were pregnant.

"If researchers are only measuring the ratio they won't see an effect from family planning," says Dr. Fortney of FHI.

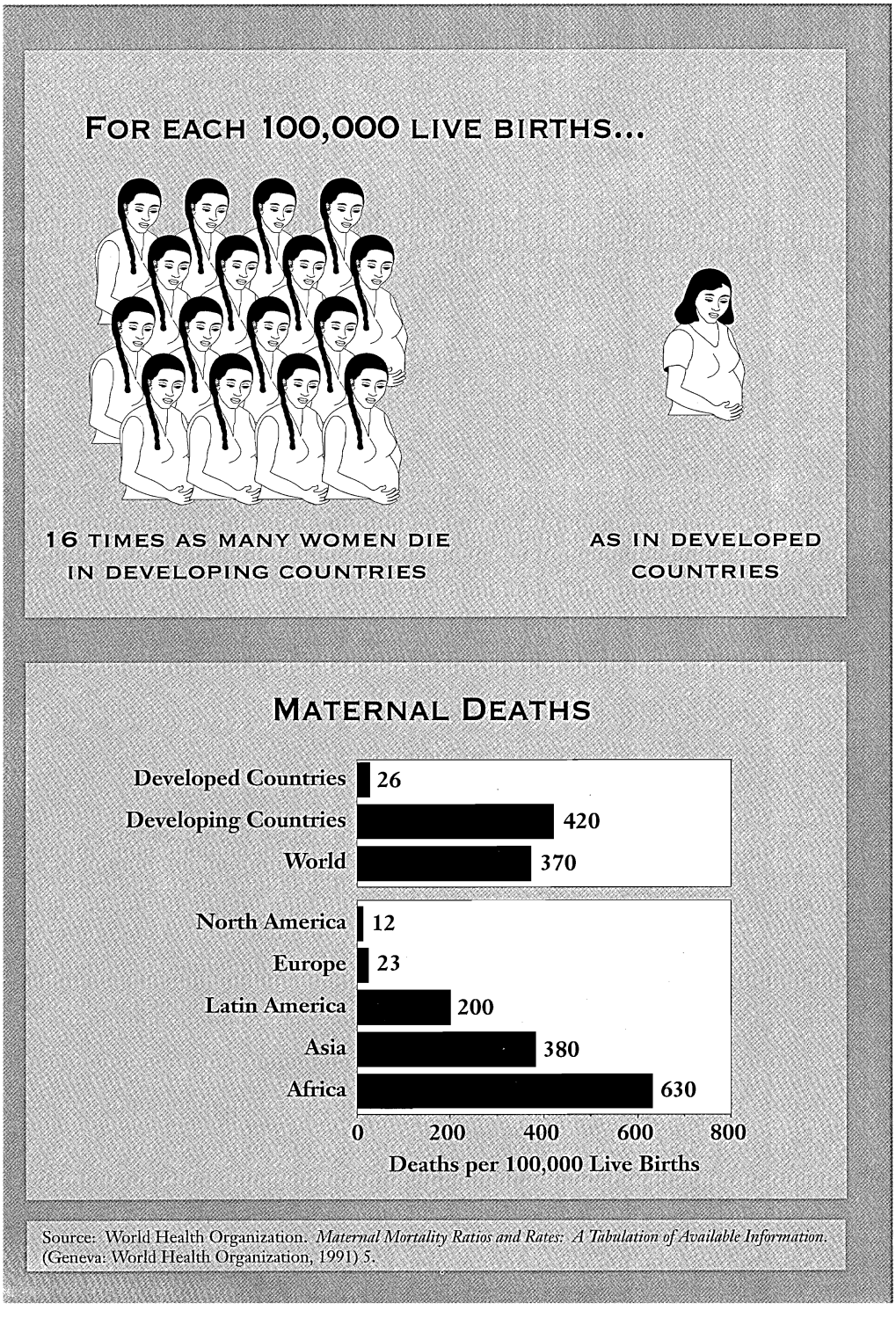
Contraceptive risks

Lack of knowledge about modern contraception and limited access to services and supplies can hinder family planning's impact in reducing maternal deaths. Another barrier is unfounded fears about contraception. In some parts of India, for example, individuals are reluctant to undergo surgical sterilization, says Frances Plunkett, a population specialist with the World Bank. They incorrectly believe the operation causes permanent weakness and fatigue. In a culture where economic survival depends on strength, such a myth discourages family planning, she says. In Romania, a survey of 1,000 women in Bucharest, Moldova and Transylvania revealed erroneous beliefs that the IUD causes cancer, that condoms usually break, and that female sterilization leads to mental disorders.

While most contraceptives carry some health risks, family planning providers agree that the health risks resulting from pregnancy are greater than the risks associated with contraceptive use among women in developing nations.

"Although contraceptive methods are not without risks, the risks tend to be small, balanced by some health benefits, considerably outweighed by the risks of pregnancy and childbirth, and dwarfed by the risks of unsafe abortion," says a World Bank report. "The health benefits and risks of each method vary by the individual circumstances and the medical condition of the user; careful counseling of users by family planning providers can further reduce the risks."[5]

An FHI study in two areas — Bali, Indonesia, and Menoufia, Egypt — showed that the health risks of pregnancy were greater than the health risks of contraceptive use. In Bali and Menoufia, complications of pregnancy were the first and second leading causes of death, respectively, among women ages 15 to 49. In Menoufia, a single pregnancy carried a risk of death that was 48 times greater than the risk of death from one year of contraceptive use. In Bali, pregnancy and delivery were 120 times more likely to result in death than a year of contraceptive use.[6]



Source: World Health Organization. *Maternal Mortality Ratios and Rates: A Tabulation of Available Information.* (Geneva: World Health Organization, 1991) 5.

Integrating services

As part of a strategy to reduce maternal deaths, some developing nations are integrating family planning with maternal and child health services. Family planning services are discussed during prenatal visits, postpartum visits and during postabortion care.

Integrating health services ultimately can increase clients' access to contraception, says Dr. Suman Mehta, a medical officer with WHO's Task Force for Epidemiologic Research and Reproductive Health. "Whenever you can catch them, one has to talk about family planning — even when they are pregnant, even if the pregnancy is not wanted," she says. "My view is that we should not lose any opportunity."

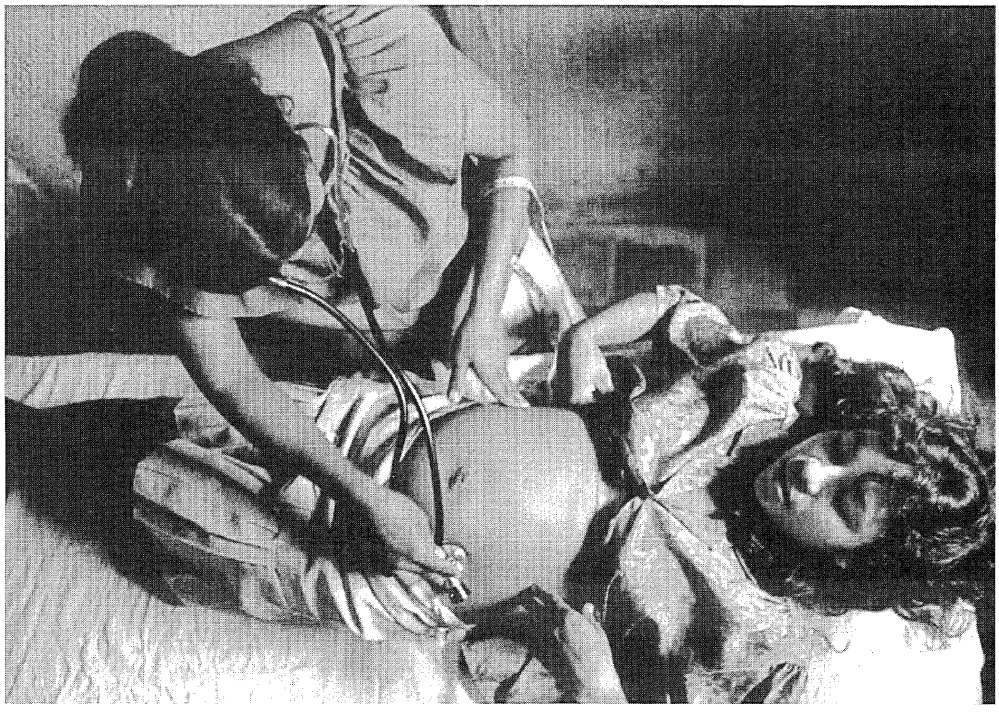
A project in northeast Brazil, sponsored by the Ministry of Health, is offering family planning as part of a comprehensive effort to improve basic health services for poor families in 10 states.

In Tunisia, a program developed by the Faculty of Medicine in Sousse incorporates family planning with postpartum care. The midwife or doctor who attends the birth schedules a visit for the mother and baby 40 days after birth, which marks the end of the traditional period of seclusion for mother and infant.

The Niger Population Project, begun in 1992 with assistance from the World Bank and UNICEF, hopes to increase contraceptive prevalence and improve maternal health by strengthening delivery of family planning and maternal health services.

The success of the Matlab project in reducing fertility was due, in part, to the decision to integrate family planning with maternal and child health services, says Dr. de Francisco of ICDDRB. "At the beginning of the project, it was completely impossible to talk about reproduction." Women who observe the custom of purdah, or seclusion, did not freely discuss family planning. Between 1975 and 1977, the project saw only modest increases in contraceptive prevalence.

In 1977, the ICDDRB began training local women to work as providers of health care, not just providers of contraception. Family planning was offered in conjunction with other basic health services, including tetanus shots and rehydration therapy for children. In addition, community health workers learned to manage contraceptive side effects or to refer women to health care sub-centers. "The image of the community health worker was enhanced once it was seen she wasn't just a contraceptive provider," Dr. de Francisco says.



Piet van Lier/Impact Visuals

A pregnant woman receives a checkup at a clinic in German Pomares, Nicaragua.

Whether offered independently or as part of a larger reproductive health program, family planning can play an important role in reducing maternal deaths. However, many researchers emphasize it should not be viewed as the only vehicle for reducing maternal deaths. Prenatal care, access to care during delivery, the proximity of medical facilities, and the skills of providers all play a role in reducing maternal deaths.

Family planning can be a practical, cost-effective strategy in curbing maternal mortality. A World Bank report contains estimates that place the annual cost of delivery of family planning services at U.S. $1 per capita, with the cost per couple-year of protection ranging from U.S. $10 to U.S. $100. "Family planning choices are often the first element of primary health care that can be made available in a resource-poor setting," the report says. "Provision of basic non-clinical contraceptives requires minimal skill and can be handled by community-based providers with appropriate training."[7]

In efforts to reduce maternal death, Dr. James McCarthy of the Center for Population and Family Health at Columbia University in New York says that providers should consider all the factors that affect women's health. However, limited financial and human resources may force providers to prioritize the services they offer clients.

"Family planning services are an essential component" of efforts to reduce maternal mortality, Dr. McCarthy says. "They play a key role in allowing women to make some of the fundamental decisions about their life and health."

— *Barbara Barnett*

Footnotes

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2. Tinker A, Koblinsky M, Daly P, et al. Making Motherhood Safe. *World Bank Discussion Papers* 1993, #202.
3. Fauveau V, Koenig MA, Wojtyniak B, et al. Impact of a family planning and health services programme on adult female mortality. *Health Policy Planning* 1988; 3(4):271-79.
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5. Tinker 66.
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7. Tinker 46.

Maternal Morbidities Affect Tens of Millions

Research finds maternal morbidities, from life-threatening conditions to simple discomforts, are more common than previously believed.

Every year, tens of millions of women in developing countries experience a life-threatening, chronic or other significant health problem related to pregnancy or childbirth, a number far higher than previously thought. According to preliminary results from household surveys of 16,000 women in five developing countries, about seven of every 10 women report a health problem related to their last pregnancy, delivery or postpartum period, or to a chronic condition stemming from pregnancy or childbirth.[1] FHI is coordinating the five-country project.

These maternal morbidities include a wide range of conditions. Obstructed labor, complications from unsafe abortions, and bacterial infections cause the most significant injury. Anemia, hemorrhage and eclampsia are also common. All of these can and often do lead to death, but many women survive them and sometimes must live with the consequences for years to come. Whether these complications become life-threatening often depends upon the quality, availability and acceptability of prenatal services, trained attendants at delivery and emergency obstetric care.

Millions of women suffer morbidities that are incapacitating but not life-threatening, such as fatigue during pregnancy or back pain after giving birth. Aggravating these less serious morbidities are such cultural realities as poor nutrition or allowing pregnant women to perform hard physical labor. "Rural women believe that giving birth is the most natural thing, requiring no special medical care, and that any resulting inconvenience is not a problem requiring treatment," says Nagla el Nahal of the Egyptian Fertility Care Society, which conducted one of the five surveys.

Maternal morbidity is part of the broader subject of women's reproductive morbidity, which also includes sexually transmitted infections, conditions associated with the use of contraceptives and general

RICHARD LORD

WOMEN IN MANY CULTURES PERFORM HARD PHYSICAL LABOR DAILY, BUT PREGNANT WOMEN SHOULD AVOID SUCH WORK.

gynecological problems. The preliminary findings from the five studies indicate that women in the prime of their lives bear a tremendous burden.

Difficult to ignore

"Many policy-makers appear to think that maternal morbidity is a relatively small, unimportant problem," explains Jason Smith of FHI, who is directing the project. "Now this issue should be more difficult to ignore. The prevalence rates that we're finding indicate huge losses in productivity by women."

Preliminary results from Egypt, Ghana and Indonesia found that for each maternal death, there are some 240 to 330 maternal morbidities. This number includes all morbidities, not just those that are life-threatening. Results are expected this year from Bangladesh and India, where the other two surveys were done. Funding has come from the Ford Foundation, the U.S. Agency for International Development and the Rockefeller Foundation.

For many years, experts gauged the magnitude of the morbidity problem from a small study done in 1980 in one area of India that found 16 morbidities per maternal death.[2] Last year, experts increased the estimate to about 100 morbidities per death, based primarily on a small study conducted in China.[3] The number of morbidities per death varies significantly from country to country, depending upon many factors. An estimated 500,000 maternal deaths occur each year worldwide, nearly all of them in developing countries and nearly all preventable.

"The 15 to 20 morbidities per maternal death was a guesstimate," write Dr. D.K. Srinivasa and Dr. K.A. Narayan, who are directing one of the five studies through the Jawaharlal Institute of Postgraduate Medical Education and Research in Pondicherry, India. "These multi-center studies break this myth and will offer reliable estimates of maternal morbidity."

The results could set the stage for significant new attention to health services and attitudinal changes. "We know that mortality is only the tip of the iceberg," says Carla AbouZahr, Division of Family Health, World Health Organization (WHO). "To see the full public health implications, we need to see more clearly the burden of poor maternal health in general."

Maternal morbidities can be classified by when they occur: during the antepartum, intrapartum or postpartum period of pregnancy, or chronic conditions referred to as "long-term sequelae." Long-term sequelae may result from more than one pregnancy. Also, a woman may experience one or more morbidities at several points during the same pregnancy.

Two studies have been done in Africa on a chronic condition called fistula, which results in urinary or fecal incontinence. Vesicovaginal fistula occurs when a woman's vagina and bladder are injured during delivery; rectovaginal fistula is caused by injury to the rectum and vagina during delivery. A fistula is most common after prolonged, obstructed labor, especially with a young mother whose pelvis has not fully developed. The factors leading to fistula also contribute to many other serious, life-threatening problems.

A focus-group study in Nigeria concluded that both community norms and limited access to emergency care contribute to fistula. "Generally, the modern health workers blamed the community for the delays [in seeking help], while the people from the community... blamed costs, poor roads, and transportation and angrily highlighted growing deficiencies of the health institutions," the report found.[4] Even when hospitals were nearby and easy to reach, the study found that some women developed fistulas from prolonged obstructed labor because their husbands were away, delaying the decision to transfer them to the hospitals.

An Ethiopian study analyzed a random sample of women treated at the Addis Ababa Fistula Hospital for Poor Women with Childbirth Injuries between 1983 and 1988. At the hospital, operations to repair fistulas were done on about 600 women per year. Two of every five women who went to the hospital were under 20 years of age; the mean age was 22.4. Almost two-thirds of the fistulas occurred at the first delivery. Almost nine of 10 fistulas were successfully repaired.[5]

Experts have not studied less serious morbidities as much, especially those problems that women must report, such as painful intercourse, depression and genital itching. One obstacle in such research is that women often do not perceive a commonly experienced condition as a morbidity.

"For example, you ask pregnant women how they feel, and they're all tired," says AbouZahr of WHO. Being tired could be a symptom of anemia. "None of them see it as out of the ordinary. They are used to this constant fatigue." But hemorrhage during delivery poses a great danger to an anemic woman.

An interdisciplinary research team in Egypt has sought ways to incorporate women's views into research on reproductive morbidities. The team conducted an exploratory study in a family planning clinic in Cairo in 1988, then held a medical workshop to clarify language on symptoms, and finally tested the accuracy of surveys done with 509 women, aged 20 to 60, in two rural villages in the governorate of Giza. The team of anthropologists, sociologists, lab technicians and doctors found high morbidity levels. For example, nearly six of every 10 women had uterine prolapse, a condition where the pelvic ligaments supporting the uterus are stretched or injured and the uterus descends, sometimes protruding from the vagina. The team concluded that more such research was needed to learn about women's perceptions of morbidities.[6]

Listening to women

In the five-country project being coordinated by FHI and in a half-dozen similar projects under way in other countries, the surveys ask women — not clinicians — about their obstetric complications. This is a significant departure in methodology from most previous studies.

"Contrary to our expectations, women were very open and willing to discuss and share their experiences, in spite of the ex-

Maternal Morbidities (Preliminary Results)

Percent of Women Interviewed Experiencing Morbidity

Egypt	Ghana	Indonesia	India
76	80	70	74

Number of Morbidities for Each Mortality

Egypt	Ghana	Indonesia	India
240	333	307	NA

Source: FHI Maternal and Neonatal Health Center, unpublished data from surveys of 9,000 women. (Preliminary data for 7,000 women in Bangladesh were not yet available.)

Common Maternal Morbidities

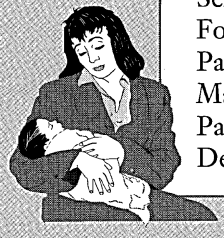
Antepartum
Problems arising during pregnancy, from conception until labor begins

Discharge/itching
Edema of hands or feet
Bleeding
Seizures
Fever longer than 3 days
Severe vomiting
Hypertension
Painful urination

Existing conditions that could be aggravated:
- Varicose veins
- Anemia
- Hepatitis
- Pulmonary TB
- Malaria/parasitic disease
- Rheumatic heart disease

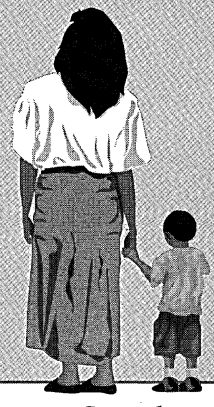
Intrapartum
Complications with labor and delivery

Seizures
Excessive bleeding
Ruptured uterus
Vaginal or cervical tear
Damage from obstructed/ prolonged labor



Postpartum
Difficulties during the first 42 days after delivery

Excessive bleeding
High fever
Shock
Seizures
Foul discharge
Pain below navel
Mastitis/cracked nipples
Painful urination
Depression



Long-term Sequelae
Chronic problems stemming from pregnancy or delivery

Uterine prolapse
Vesicovaginal fistula
Rectovaginal fistula
Dyspareunia
Back pain
Hemorrhoids
Incontinence
Infertility

tremely private nature of this problem," says Dr. Halida Akhter, executive director of the Bangladesh Institute of Research for Promotion of Essential and Reproductive Health and Technologies (BIRPERHT), which is conducting the Bangladeshi study.

The work in Giza influenced the subsequent morbidity studies in terms of the importance of incorporating women's perceptions into the research design. Before the five surveys coordinated by FHI began, women and others in the community discussed concepts and language through focus groups and through interviews to refine the wording of the questionnaires. Also, interviewers were trained in reproductive anatomy, medical terms and interviewing techniques.

"Both the qualitative research and the interviewer training were designed to result in survey information that accurately reflects women's perceptions in the local context," says FHI's Smith.

The five studies differ in design, survey questionnaires and coverage. For example, BIRPERHT in Bangladesh used a nationally representative sample, collecting data in four selected districts, through a retrospective approach. In contrast, the Egyptian study covered a single region, and the Indonesian survey was part of a prospective cohort study.

Most of the surveys did not attempt to validate women's responses with clinical diagnoses. Many morbidities included in the studies, such as dyspareunia (painful intercourse), cannot be confirmed clinically. The study in India, which did conduct a clinical diagnosis of one group of women, found a good correlation in a majority of the conditions.

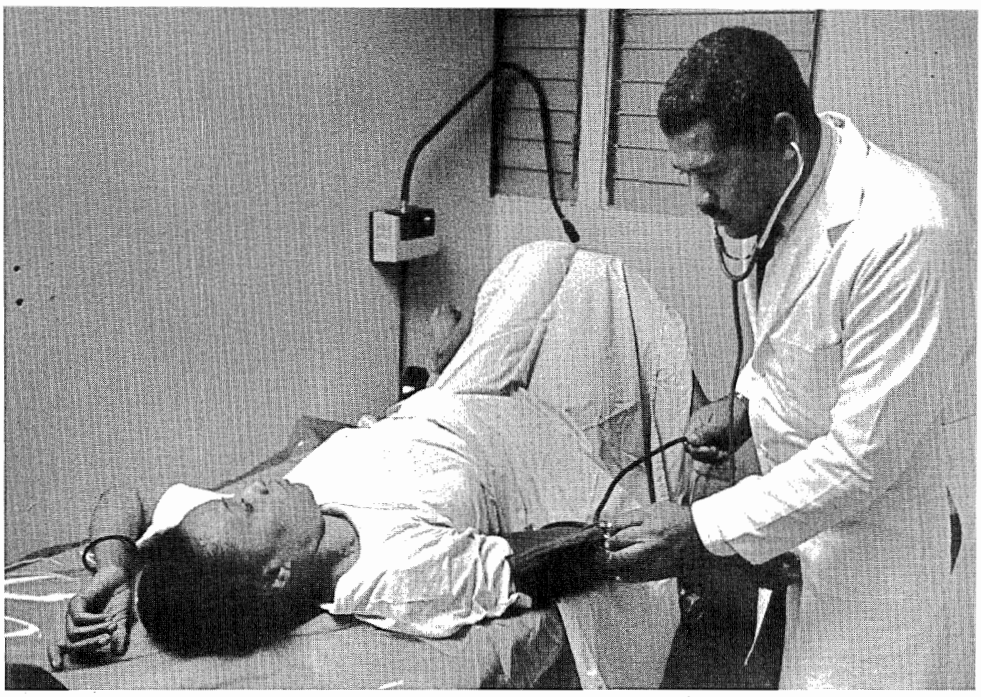
The results of other significant morbidity studies are also expected in 1994 and 1995. The Demographic and Health Surveys (DHS) program of the U.S.-based Macro International is conducting its first nationally representative Safe Motherhood Survey. Conducted in 1993 with the Philippines National Statistics Office, the survey reached about 9,000 Filipino women, part of a larger group interviewed earlier for a standard DHS survey. Results are expected this year.

The DHS consulted with world experts on the questionnaire design and conducted qualitative research to study women's language and perceptions about pregnancy. This led to changes in the survey so that words described symptoms rather than terms which might vary from one dialect to the next. For example, questions about eclampsia were revised to ask about "convulsions not caused by fever."

In El Salvador, the U.S. Centers for Disease Control and Prevention (CDC) and the Asociación Demográfica Salvadoreña interviewed almost 2,000 women on morbidity issues as part of a nationally representative survey on family planning and maternal and child health issues. The CDC hopes to use the morbidity questions in future demographic research.

The London School of Hygiene and Tropical Medicine, in collaboration with researchers in five developing countries, is coordinating a project on methods for measuring maternal health. A study in Turkey is comparing self-reported morbidities with medical or laboratory-based diagnoses. A project in Bangladesh is examining patterns of morbidities in a prospective study during the postpartum period, with the last examination at 12 weeks after birth, longer than the traditional puerperium period (42 days) but not including long-term conditions.

SEAN SPRAGUE/IMPACT VISUALS



A DOMINICAN REPUBLICAN WOMAN HAS HER BLOOD PRESSURE TAKEN. EARLY DETECTION OF HYPERTENSION IS A CRUCIAL ASPECT OF QUALITY CARE.

WOMEN'S RESPONSES VALID

Measuring morbidity is complicated, for both subjective and objective reasons. Providers, community leaders, husbands and women have different perceptions of health, depending on many demographic and geographic variables, including social status. These differences are a barrier for researchers, which in turn keeps policy-makers from knowing the full extent of the problem.

"By neglecting to find ways to measure morbidity, we had put ourselves in a trap," says Dr. Wendy Graham of the London School of Hygiene and Tropical Medicine, who has written and worked extensively on measurement issues. "We had avoided addressing certain issues about morbidity because we hadn't measured them."

But as the new round of studies began, certain advantages became clear in researching morbidity, compared with mortality. "The respondent is providing information about herself rather than proxy information about a deceased woman," write Dr. Oona Campbell and Dr. Graham from the London school. "There is also the possibility of using clinical examination and/or laboratory confirmation for some diagnoses."[7]

There are two primary ways to measure morbidity: using records from health centers — including hospitals, where diagnosis is made from a clinical examination — or using community-based surveys, where mothers, traditional birth attendants and others answer questions about their experiences.

Nationwide studies based on written records are virtually impossible to undertake in developing countries and not likely to yield an accurate picture anyway, since most deliveries take place outside hospitals or health centers where the statistics are gathered.

Community-based surveys present other problems. "The accuracy of such accounts is highly dependent on both problem recognition and recall," explains Dr. Kathryn Stewart of DHS. "There is a lot of skepticism about such data. Many doctors don't think women know what happened to them."

The DHS Safe Motherhood project in the Philippines tested this question with a pre-survey validation study. It compared women's memories of their pregnancy complications up to four years earlier with the description recorded at the hospital at the time of the pregnancy. The study interviewed 230 of the 632 women identified through hospital records. "The study verified that women's perceptions and descriptions of obstructed labor and hemorrhage correspond fairly well to the medical description of signs and symptoms," says Dr. Stewart.

The new information on morbidity from the Philippines, El Salvador, the five-country project coordinated by FHI and the London-coordinated studies is an important first step in changing the way policy-makers and others view the issue.

"These projects are bringing to the surface the enormity and seriousness of the problem," says Dr. Akhter of Bangladesh. "The final results will lend strength to the advocacy effort needed for providing trained delivery services and emergency obstetric care."

— *William R. Finger*

FOOTNOTES

1. The percent of women reporting morbidities and the ratio of morbidities to mortalities in the preliminary findings allow this general estimate of tens of millions. The final analysis of the data will yield a more precise estimate.

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Access to Care Saves Lives

Serious pregnancy complications can be treated, but a variety of barriers block timely access to help.

Making emergency obstetric care more accessible is crucial to saving the lives of women who suffer from the major complications of pregnancy — hemorrhage, infection, obstructed labor, hypertensive disorders and the effects of unsafe abortions. All women, even healthy ones, can develop serious pregnancy complications.

"You can't predict or prevent most complications; what you need to be able to do is treat them," says Dr. Deborah Maine of Columbia University, New York, USA, who established the Preventing Maternal Mortality (PMM) network, a group of expert teams working to reduce maternal mortality in Africa.

The means already exist for treating pregnancy complications. Antibiotics for treating infection, cesarean sections for obstructed labor and blood transfusions for hemorrhage have lowered maternal mortality ratios in industrialized countries to 26 deaths per 100,000 births.

But many women in developing countries do not have access to these life-saving treatments, and maternal mortality remains high. In one area of The Gambia, for example, about 2,200 women have been reported to die per 100,000 births.[1] Complications during pregnancy, delivery and the postpartum period, and those due to unsafe abortions, cause the majority of maternal deaths.[2]

Improving emergency care by making drugs, surgery, other treatments, and referral to health centers and hospitals available to communities could save many of these women's lives. Training doctors and midwives, upgrading services, providing transportation and educating communities about complications are some of the ways of improving access to care.

"The challenge is ensuring that complications are detected and referred as soon as they develop," says Anne Tinker, a senior health specialist with the World Bank, whose development efforts include worldwide projects in maternal health and family planning. Health systems should see "that women are referred to facilities they can reach, where the quality of care is appropriate, and where they are treated in a professional and supportive environment," she says.

Reducing maternal mortality requires commitment and a change in priorities, experts say. Political will and public pressure

TRAINING TRADITIONAL BIRTH ATTENDANTS (TBAS) TO REFER EMERGENCIES TO HOSPITALS QUICKLY IS ESSENTIAL. THESE TBAS IN EGYPT RECEIVE EQUIPMENT AS PART OF A UNICEF TRAINING PROJECT.

SEAN SPRAGUE/IMPACT VISUALS

are needed to upgrade services and help health professionals provide good quality maternal care.

Barriers to care

Women in many parts of the world may be prevented from receiving emergency obstetric care by physical, cultural, technical and economic barriers. Especially in rural areas, they may hesitate to seek care because of its cost or distance from their homes. Poor roads and bad weather make a long trip to a hospital hazardous, particularly for a woman who is hemorrhaging or having convulsions. Once she arrives at the hospital, there may be no staff available to care for her. In some countries, family members may be forced to search for and buy supplies before she can receive treatment.

Unsafe abortions often lead to infection, hemorrhage or uterine injury requiring hospital care. The risks of unsafe abortions are especially high for teenagers, who accounted for 72 percent of the patients hospitalized for abortion complications in one Nigerian hospital.[3]

Because pregnancy and childbearing are women's realms, and women have low status in many societies, maternal mortality is often overlooked by policy-makers. Women's lives and health must be given higher priority, if maternal deaths are to be averted. "We need to say 'If you want women in the village to live, then this is what you need to do in the district hospital,'" says Dr. Monica Sharma, a senior health advisor with UNICEF in New York. Improved management of obstetric services, blood supply, surgical facilities and clinical services are important areas to address, she says.

The road to help

Some organizations are working to get women to health care and health care to women. The World Health Organization (WHO) recommends upgrading community health centers, rather than building centralized hospitals, says Carla AbouZahr, with WHO's Maternal Health and Safe Motherhood Programme. "The issue is to get the services out to the countryside where people live and to have emergency referral systems to get them in," she says.

Staffing health centers with trained personnel who have adequate supervision and equipment is one way to upgrade services. Through the Life-Saving Skills program, midwives in Uganda learn advanced skills and use them at health centers in remote areas where doctors aren't available. The midwives administer oxytocics to evacuate the uterus and reduce bleeding; use antibiotics to treat infection; and surgically repair vaginal tears caused by childbirth, says Anne Otto, a Ugandan who coordinates the program. "When midwives are there to detect problems early, they are able to send mothers to the hospital in good time," Otto says.

Zairian nurses trained to do cesarean sections and other obstetric surgery saved lives by making treatment more accessible to rural women.[4] Posting trained midwives and providing them with supervision and supplies in a rural area of Bangladesh was associated with a lower maternal death rate compared to surrounding areas without midwives.[5]

Training rural doctors may save women's lives as well. The PMM network, which consists of 11 teams of obstetricians, midwives, community health specialists and social scientists, has encouraged the Sierra Leonean and the Nigerian ministries of health to assign skilled doctors to rural hospitals. Since 1988, the network has helped improve emergency obstetric care at the hospital, health center and community levels in Ghana, Nigeria and Sierra Leone.

Some communities arrange to bring women to care. In Sierra Leone, young men volunteer to carry pregnant women in difficult labor on stretchers on their shoulders to the nearest hospital. Health center staff radio the hospital about the impending arrival. Residents in Sokoto, Nigeria have arranged for local truck drivers to take women with obstetric difficulties to hospitals without charging the high fares common for emergency transport.

Maternity waiting homes, located near hospitals, also have been shown to save lives. In rural Ethiopia, villagers contributed labor and materials to build such a home for pregnant women at high risk of obstetric problems. None of the women who used the waiting home before entering the hospital died, compared with 13 deaths among the women who were admitted directly to the hospital. Such waiting homes also serve women in Tanzania, Colombia, Cuba and other countries.[6]

A man's permission

In addition to transportation problems, cultural barriers may prevent women from getting emergency medical care in time. Fatima, 27, who lived in a remote Yemeni village at the top of a steep hill, was at the end of her sixth pregnancy when her membranes ruptured. She bore a baby boy, but the placenta did not follow. An hour later, she was bleeding heavily. Her husband was away, and she could not go to the hospital without the permission of a male relative. By the time her uncle was found and Fatima was carried by stretcher 15 km to the nearest highway, she was dead.[7]

In India, older women who have safely delivered all their children at home may discourage hospital care for their daughters-in-law, especially if complications are unrecognized or not considered serious, says Alexandra Yuster, project officer with UNICEF's India office. Time, money and a woman's value in society all influence whether she gets the help she needs.

The seriousness of a woman's condition may not be clear to her or to other people making decisions about her care. In the case of hypertensive disorders, for example, early symptoms of trouble may not be obvious to untrained people. Certain health beliefs also distort the meaning of symptoms. In some areas of Africa, people see swollen feet as a prediction of twins, says Angela Kamara, who directs the West African regional office of PMM. In certain regions of West Africa, small amounts of spotting are not considered serious.[8] Actually, under certain conditions, spotting can precede hemorrhage, and swelling of the feet is an early symptom of eclampsia, a hypertensive disorder that can be fatal.

In many areas, difficult labor is believed to mean that a woman has been unfaithful to her husband, and many cultures blame supernatural intervention for complications of pregnancy. In Pakistan, death during delivery is often seen as "God's wish."[9] To combat misinformation about labor and delivery, PMM teams in West Africa educate communities about the symptoms of complications. In Sierra Leone, a team teaches community members who pass on information through drama groups, during initiation into women's secret societies and at village meetings.

Better hospital services

Many women recognize the seriousness of their pregnancy complications, but a lack of blood, supplies and trained hospital staff in much of the world means that they cannot get the quality medical care they need. Hospitals may be seen, often justifiably, as places where women die in childbirth. Such perceptions may postpone the decision to seek care in time. To enhance public confidence, hospital staff must find ways to remove barriers to care.

Major Complications of Labor and Delivery

Timely access to good medical care is essential. As this chart illustrates, treatment available outside of hospitals is limited, and the amount of time until death can be very short. Only a physician or other qualified health care provider should designate specific treatments.

Complication			Examples of Possible Treatments:		
Type	Signs & Symptoms	Time until death	In Communities (e.g. birth attendants)	At Health Centers	In Hospitals
Hemorrhage[1,2]	• excessive bleeding from vagina	<1-2 hours	transport to hospital→ • give uterine massage • empty bladder • begin breastfeeding	transport to hospital→ • treat shock • provide I.V. fluids • administer oxytocics • remove placenta • repair genital tears	• give blood replacement • perform surgical treatments
Eclampsia, other hypertensive disorders	• high blood pressure • convulsions	1-2 days	transport to health→ center or hospital • prevent injury • maintain open airway	transport to hospital→ • administer anticonvulsants	• manage seizures • induce labor • perform cesarean section
Obstructed labor	• labor longer than 12-18 hours, • abnormal lie	1-5 days	transport to health→ center or hospital • keep well-hydrated • empty bladder	transport to hospital→ if appropriate • perform vacuum extraction or forceps delivery	• perform cesarean section • perform surgical treatments
Sepsis[1] (Infection)	• fever, chills, • unusual vaginal discharge	4-6 days	transport to health→ center or hospital	transport to hospital→ if appropriate • provide I.V. fluids • give antibiotics • perform vacuum extraction	• perform surgical treatments • evacuate uterus • control fever

1. Both unsafe and spontaneous abortions ("miscarriages") may lead to hemorrhage or infection, which must be treated. For problems due to abortions, health centers or hospitals may need to perform vacuum aspirations and hospitals may need to do surgical treatments.

2. In cases of antepartum hemorrhage, patient should be treated for shock and referred to hospital. Other information listed is for postpartum hemorrhage.

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"The obstetric staff must learn to work as a team to solve quality of care problems and must be held accountable for their actions," says Dr. Judith Fortney, director of FHI's Maternal and Neonatal Health Center. "Staff must be on-site when on duty, and a more supportive teaching relationship must be fostered between junior and senior physicians to ensure quality service at any hour of the day or night."

Improving the quality of services saves lives. For example, a Mexico City study found that 85 percent of maternal deaths in four institutions could have been prevented, many of them by better clinical, surgical or therapeutic judgment.[10]

Many doctors aren't properly trained to do obstetric surgery or to give priority to emergencies, so a woman may hemorrhage to death while people in less danger receive care. "Providers must be more sensitive to emergency cases and give them higher priority," says Dr. Abdel-Hadi El-Tahir, assistant professor at Columbia University's Center for Population and Family Health, which coordinates the PMM network.

Providers' attitudes make a difference in the quality of care. In Latin America, for example, many health professionals cannot communicate with indigenous groups who do not speak Spanish. In addition, some providers' poor attitudes toward clients discourage women from returning to the health care system, says Dr. Germán Mora, regional advisor in maternal health and family planning with the Pan American Health Organization (PAHO). PAHO is working with FHI to improve the quality of reproductive health care in Latin American hospitals, clinics and outreach programs, in part by training and supervising staff.[11]

Health facilities must address all aspects of their operations to improve emergency care, says Dr. Barbara E. Kwast, women's health advisor with the MotherCare project of U.S.-based John Snow, Inc. "They all impact on each other: policy, training, logistics and supplies, monitoring and evaluation, management and supervision, and IEC [information, education and communication]," she says.

Paying for care

The cost of care may discourage or delay decisions to seek emergency obstetric services. PMM teams have helped several African villages develop revolving emergency loan funds to enable women to get help immediately, without having to borrow money from relatives.

Communities also need to take responsibility for reducing maternal deaths. In Bangladesh, UNICEF is encouraging Rotary Clubs to sponsor district hospitals. This would help improve standards of care because staff members would know someone is paying attention to what they're doing, says Dr. Maine of Columbia University.

Because emergency care generally comes from established health systems, governments must support maternal health policies in order to reduce maternal mortality. In India, where an estimated 400 women die per 100,000 births, the government plans to reduce maternal deaths by revamping subdistrict hospitals throughout the country.

Under its Child Survival and Safe Motherhood Programme, the Indian government plans to upgrade training and equipment, improve drug supply and ensure that essential obstetric services are available in 219 districts by 1997. The project, designed to integrate maternal and other health care, and improve transportation, referral and antenatal care, will cost U.S. $363 million over seven years, says Dr. Jotna Sokhey, deputy commissioner of Maternal and Child Health for India. "These interventions, besides reducing maternal mortality, will also have a positive impact on the general health status of women," she says.

— *Carol Lynn Blaney*

Footnotes

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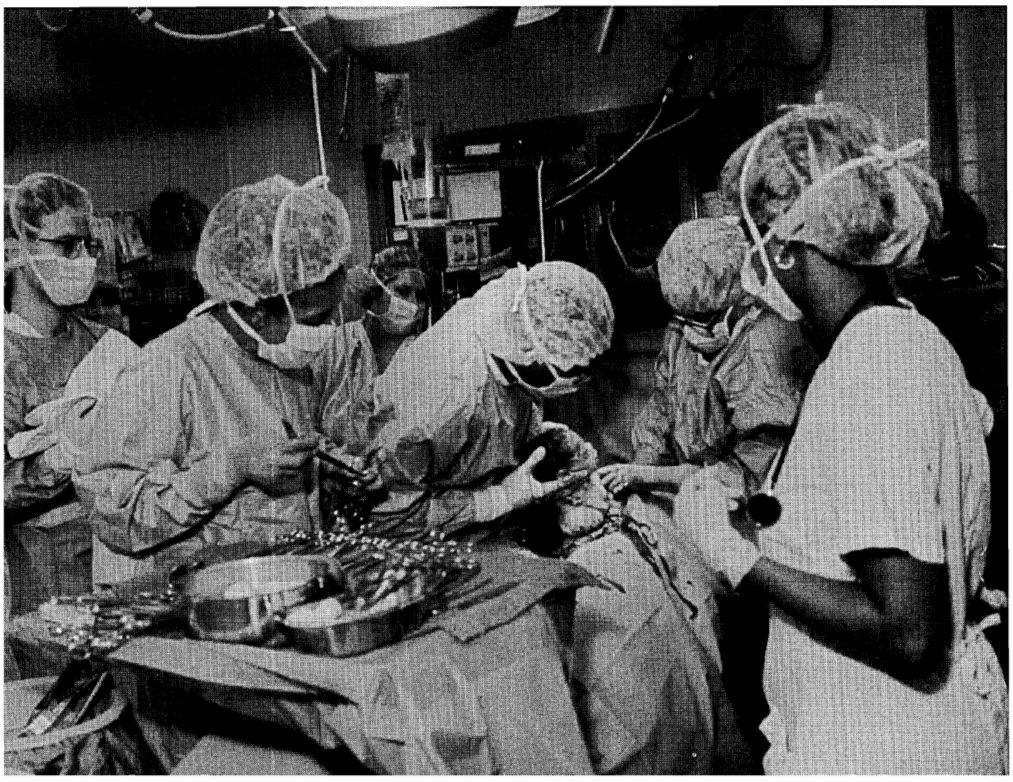
Ansell Horn/Impact Visuals



Serious pregnancy complications may require a cesarean delivery, as being performed by this medical team in New York.

DR. JUDITH FORTNEY

OPINION

Maternal Care Goals: Life and Good Health

By Dr. Judith Fortney
Family Health International

Maternity care has two closely related goals — improving maternal health and preventing maternal death. They require different interventions and different kinds of medical services. While there is obviously some overlap, making this conceptual distinction between the two goals helps to clarify which maternity services are needed and how to focus efforts to meet the goals.

Good "maternal health" means that pregnant women and mothers with new babies are well-nourished, free of infectious diseases, and under treatment for chronic, treatable diseases. Even with such care, pregnant women who are healthy may experience obstetric complications, which may be catastrophic if left untreated. Healthy women may be better able to withstand obstetric emergencies, but good health does not necessarily prevent complications.

Preventing maternal death means that those who have an obstetric emergency be appropriately managed. This requires that women who are pregnant or in labor have access to a medical facility that can provide emergency obstetric care. If such care is not accessible, death or disability may result. The World Health Organization has defined emergency obstetric functions as the ability to cross-match and transfuse blood for hemorrhage, to perform a cesarean section for obstructed labor and other indications, to provide appropriate antibiotics for postpartum or postabortion infections, and to treat eclampsia.[1]

Making quality family planning services readily available and accessible will also prevent maternal death. The prevention of unwanted and unplanned pregnancies results in fewer pregnancies and, hence, fewer maternal deaths due to obstetric complications. In addition, improved contraceptive use can help decrease the number of women who risk their lives seeking unsafe abortion, which leads to a large number of maternal deaths.

Antenatal care

Once pregnant, a woman should receive good antenatal care, for two separate and definable goals. First, antenatal care should improve the underlying health of pregnant women. Second, antenatal care should prepare women and their medical care providers to cope with emergencies.

To improve pregnant women's general health status, the following activities should be part of antenatal care:

- monitoring and, if necessary, improving nutritional levels through attention to hemoglobin, micronutrients such as iodine, and weight gain;
- screening for and treating parasites causing malaria and other diseases (if they are endemic, screening might not be cost-effective);
- awareness of maternal characteristics such as a first pregnancy that often lead to complications, although many presumably "low-risk" women have complications, so an undue emphasis on "risk assessment" may give a false sense of security; and
- screening and treating for sexually transmitted diseases (STDs). It may be sensible not to screen for STDs if they are very prevalent or can be identified by symptoms. Research is still needed to determine the level of prevalence at which routine treatment without screening is cost-effective, and to determine the impact of syndromal treatment.

Good prenatal care should also enable women and their providers to cope with emergencies. Some symptoms can be treated at the antenatal clinic, such as high blood pressure, but other symptoms such as antepartum hemorrhage require immediate attention at a higher level of care.

Preparations should be made for coping with an unexpected problem during the delivery. These include where to take the woman, what transport system to use, how much money is needed in various situations, whether a maternity waiting home should be used and whether permission from a husband (or someone else such as a mother-in-law) is needed to transport a woman.

Intrapartum care

Intrapartum care should also focus on the dual goals of maintaining health — i.e., preventing complications — and preventing death by responding rapidly and effectively to emergencies. Preventive measures include careful adherence to aseptic procedures and monitoring progress during labor.

Even healthy women who have received high quality antenatal care and intrapartum management can have unpredictable obstetric emergencies, especially obstructed labor or hemorrhage. Providers of intrapartum care must have the resources to deal with these — an operating room, anesthesia, blood and other IV fluids, and drugs. In addition to such resources, maternity services must respond with speed and competence; thousands of women have died because treatment was given too late or by someone without appropriate training.

Making care accessible

An analogy is sometimes drawn between maternal health in developing countries today and in developed countries 100 years ago. In fact, the analogy is not appropriate. In the 19th century in Europe and the United States, there were no antibiotics, no blood transfusions or intravenous fluids, limited anesthesia, limited use of aseptic procedures and only rudimentary ability to deliver by cesarean section. Because all these are essential to the prevention of maternal death, their absence meant that maternal mortality was as high as it is today in many developing countries. Today, even though all of these services are present in developing countries, maternal mortality is still high. The challenge is to make these services accessible to the women who need them.

There are several steps in designing interventions to improve maternal health and prevent maternal death. First, it is helpful to determine where the problems lie and whether addressing these problems is likely to be successful in the short-, medium- or long-term. An analysis of events leading to a maternal death can identify problems in the social structure, community, health system or hospital.[2]

Next, it is essential to define very clearly the goal of an intervention and how the intervention will achieve that goal. Focusing narrowly on the intended outcome and the specific means by which it can be influenced should help to develop priorities.

Estimating the probable impact of the intervention is also important. An effective intervention for a rare condition will have a limited impact. On the other hand, a less effective intervention may have a large impact if it addresses large numbers of women, such as treating anemia.

Increasing numbers of interventions are being launched as part of the global Safe Motherhood Initiative. Evaluating the potential impact of these programs is increasingly important. Much of the conventional wisdom in maternity care needs more careful scrutiny. A first step is to define clearly whether the goal is to provide health or prevent death. Then, logical discussions and choices can follow, leading to effective, sustainable interventions.

Sean Sprague/Impact Visuals

A midwife makes a home visit in Damanhur, Egypt. Midwives can play a vital role in providing quality delivery care.

Dr. Fortney is FHI's Corporate Director of Scientific Affairs and heads FHI's Maternal and Neonatal Health Center. In 1991-92, she was on leave from FHI to serve as a consultant for the World Health Organization's Maternal Health and Safe Motherhood Programme.

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Making Motherhood Safer in Bolivia

Improving access to family planning and hospital care is helping save many women's lives.

In Bolivia's high Andean villages, women usually give birth attended by their husbands at home. They bear their children sitting up as their mothers did and bury the placenta as tradition requires.

Although Bolivia has hospitals to serve its population, many women don't use them because of difficulties with access and services; an estimated 60 percent of women deliver at home.[1] "They don't receive rapid attention and the services aren't of good technical quality," says Dr. Roberto Kriskovich, a medical health consultant in the Pan American Health Organization's La Paz office.

Pregnant women perish in this country at a higher rate than almost anywhere else in Latin America, often due to obstetric complications during home births or the consequences of unsafe abortions. Many are unable to get medical treatment during the crucial hours of labor and delivery or contraceptives to prevent future unplanned pregnancies. In the rural area of Inquisivi, an estimated 1,400 women died for each 100,000 births in 1990.[2]

Bolivia's government and other organizations are working to reduce maternal deaths and improve maternal health. Some groups are upgrading hospitals and family planning services, others educate communities, and still others work at both levels. Such coordination is important, bringing women and services together effectively.

Because preference for traditional practices affects women's willingness to use health services, several projects are incorporating such practices into the health-care system. One effort involves men in improving women's access to emergency care.

All of these interventions mesh with Bolivia's Safe Motherhood Program, part of a global initiative to decrease maternal mortality worldwide. By 1997, the government hopes to make broad changes in health programs to cut the maternal death ratio nearly in half — from 480 per 100,000 births to 250.

The proposed changes include improving hospital and family planning services, increasing prenatal visits and training "parteras" (birth attendants). "We want to build the entire network of services," says Dr. Guillermo Seoane, Bolivia's undersecretary of health.

Individual attention

Many safe motherhood projects in Bolivia, a mountainous country of 8 million, emphasize that women have a right to good care. "We believe in technical quality, interpersonal quality and managerial quality," says Dr. Carlos Cuellar, executive director of Protección a la Salud (PROSALUD), a nonprofit health group based in Santa Cruz. "We believe that patients come first."

PROSALUD has built a 23-bed hospital and 24 primary health care clinics near cities. Geared to low-income people, the clinics were funded initially in 1985 by the U.S. Agency for International Development. All are staffed by doctors and offer family planning information, prenatal care and obstetric services.

"We have a referral system especially oriented to reduce maternal deaths," says Dr. Cuellar, who never knew his grandmother because she died in childbirth. At the

health centers, doctors are on call around the clock, so women in obstetric emergencies can get quick care and referrals to hospitals, an important way to reduce maternal deaths. The clinics also are equipped with ambulances.

At PROSALUD's centers, staff members receive training on various topics, including family planning counseling. Preventing unwanted pregnancies is a way to reduce the unsafe abortions that caused 27 percent of maternal deaths in parts of the country, according to one study.[3] An FHI study in Bolivia showed that almost half the women hospitalized for complications of induced abortion were not using contraception because they didn't know about it.[4]

The use rate for modern contraceptives in Bolivia is estimated at 12 percent, one of the lowest in Latin America.[5] In contrast, the use rate for modern contraceptives is estimated at 57 percent in Brazil and 55 percent in Colombia. Until recently, the Bolivian government had no involvement in family planning, and supplies were available only from the private sector. Contraceptives are still not available in many areas. "It makes me unhappy to have another baby," says one Cochabamba woman during an interview for a study by the U.S.-based MotherCare Project.[6] "We've already got enough."

Some women attempt to self-induce abortion by drinking oregano tea, walking long distances with heavy loads, or inserting foreign objects into the vagina. Others turn to untrained medical practitioners to perform abortions.[7] These practices can severely injure or kill the women.

Women who go to hospitals for treatment of incomplete abortions may be treated poorly by staff and may wait longer for treatment, according to a study by the U.S.-based International Projects Assistance Services (IPAS), which works to prevent unsafe abortions.[8] In addition these women may be "punished" by being charged higher fees than other patients, says Marian Abernathy, IPAS program associate for Latin America.

SAVE THE CHILDREN/BOLIVIA

SAFE MOTHERHOOD PROJECTS IN BOLIVIA ARE WORKING TO REDUCE THE HIGH RATE OF MATERNAL DEATHS.

WORKING WITH TRADITIONS

Women avoid hospitals, fearing such responses. They also worry that hospital staff may denigrate their traditional practices. Quechua and Aymara women, part of Bolivia's large indigenous population, prefer to give birth upright because they believe it makes for an easier delivery. They usually choose to give birth in a warm room surrounded by family.

Women and their attendants watch carefully for delivery of the placenta, seeing it as a body combining spirits of mother and infant. They want to give it a proper burial when it "dies" and consider improper delivery and disposal of the placenta a cause of serious spiritual difficulties.[9]

In hospitals, women must give birth lying down, often in cold delivery rooms where unfamiliar people examine them. The placenta is not returned to the family, and women complain of the treatment they receive. "In the hospital they send us away too quickly and make us walk," says one woman in the Cochabamba study. "They get bothered and angry with us."

Knowing traditional practices is important for designing interventions, says Lisa Howard-Grabman, co-director of Save the Children/Bolivia (SCB). The organization worked with MotherCare and local women's groups to address maternal health problems in Inquisivi Province. They planned solutions, put them into action and evaluated them as part of the Warmi project, named after the Aymara word for woman. "We worked within traditional practices and traditional beliefs rather than using a top-down approach," Howard-Grabman says.

The project worked with a La Paz hospital to allow family members to accompany women into the delivery room, which eased the unfamiliarity of giving birth away from home. SCB contracted with local organizations to provide family planning services in Inquisivi, in some cases increasing contraceptive acceptance to 60 percent among women of reproductive age.

Staff worked with women to reduce a harmful traditional practice. Because of their concern about delivering the placenta properly, some women tie one end of a string to their toe and one end to the umbilical cord to draw the placenta out. Staff members convinced women who insisted on continuing

Continued on page 27

TBA Training May Reduce Mortality

Better maternal and infant health are among the goals of training Ghana's traditional birth attendants.

TAKORADI, Ghana — Mercy Cann, 53, has been delivering babies for more than 10 years in this fishing village in west Ghana. "My house is neat and most women prefer to deliver in a home environment," says Cann. Taught by her mother, she delivers three to five babies each month in this community of mostly mud huts.

Cann has little contact with health-care centers, even though two hospitals are just 15 minutes away by car. But that may be changing. Just eight months ago, she received her first formal training in delivering babies as part of a nationwide program to train traditional birth attendants or TBAs.

"Now, I know I don't have to handle complicated cases," she says. "I can refer them to the nearest hospital. I met Dinah and Patricia [both trainers] during the course, and I know I can count on them in the event of referrals." The TBA trainers, who are public health nurses or midwives, are generally the people who deliver babies in Ghana's health centers and hospitals.

Cann is one of thousands of Ghanian TBAs who have been trained in the last four years. Virtually all are women, usually 50 years or older and often illiterate. They deliver many of the babies in rural areas and small communities.

TBA training programs are designed to reduce maternal mortality and, in some cases, to assist in family planning and child survival. In Ghana, with 15 million people, the latest available nationwide study estimates a maternal mortality ratio at between 500 and 1,500 per 100,000 live births.[1]

Since the 1970s, various TBA pilot programs have been undertaken in Ghana. In 1989, the Ministry of Health launched a nationwide program with technical assistance from the American College of Nurse-Midwives and the Center for Population and Family Health of Columbia University in New York, USA. Support came from the United Nations Children's Fund (UNICEF), the U.S. Agency for International Development (USAID) and the United Nations Population Fund (UNFPA).

Goals for this project, now beginning its second phase, remain ambitious. By developing a national curriculum, training has been standardized, and a national registry of graduates created. The training covers basic hygiene and first aid, basic prenatal care, simple delivery procedures and guidelines for referring potentially high-risk pregnancies. It also contains a segment on promoting immunization and family planning.

The training course generally involves 12 half-day sessions, with one or two sessions conducted each week. The instructors advise TBAs to refer women to a health post for delivery if they are in their first, fifth or later pregnancy, or if labor has lasted for 24 hours. Among hygiene lessons, TBAs learn to use alcohol to sterilize the thread used to tie the umbilical cord.

At graduation, a TBA receives a kit with a bottle of alcohol and other basic supplies, a certificate, oral rehydration salts for treating diarrhea and, in some districts, condoms and contraceptive foam. Infants are particularly susceptible to diarrheal infections, which can lead to dehydration and death. After training, TBAs become part of a district network

of health providers, ideally having regular support and supervision by a public health nurse or midwife.

Being able to distribute oral rehydration salts, condoms and foaming tablets has enhanced her status in the community, says Cann, because people can call on her for several functions now. Another trained TBA, 48-year-old Dora Mensah, has appreciated the opportunity to distribute contraceptives. Mensah has nine children and wishes she had heard the family planning message earlier. Teenage pregnancy is a problem in her village, where Mensah now distributes contraceptives to teenagers.

Behind the maternal mortality statistics lie staggering stories of how families are affected. Three years ago, a mother died during the delivery of her fifth child. "I remember her every day, all the time, in fact," says her widower, 43-year-old Kwame Osel, in his one-room house in Accra. "She used to sell cooked food, and her income helped sustain the family. In her absence, I was too strapped for cash to have the children with me."

The children went to live with various relatives and Osel settled into loneliness. After two years, he began to put his life back together. "I decided to accept the fact that my wife was gone," he says. "Otherwise, I would die before my time, leaving my children without either their mother or me."

Expanding TBA role

In recent years, the potential impact of TBA training programs has come under close scrutiny. Issues identified as particularly important include supervision, functioning as part of a larger system of services, and expecting too much from TBAs.

Dr. Sam Adjei, director of the Ministry of Health's Research Unit, says that the Ghanian TBA program has drawn more attention to the importance of prenatal care. The program also has stimulated better relations between TBAs and health-care providers, he says, while expanding the role of TBAs to include primary health care.

There are many challenges ahead, Dr. Adjei is quick to add. The program needs to develop more community support and supervision for TBAs, to improve the system of supplies and to help TBAs with record keeping. Finding new ways to strengthen the district and sub-district capabilities for delivering health care are also important, he says. A 1990 report of the Ghanian TBA program found that "both the TBAs and health-post workers felt that relations between them improved dramatically," but noted that there was only minimal activity by the TBAs in promoting family planning or distributing oral rehydration salts.[2]

In the 1970s, the World Health Organization (WHO) began encouraging countries to train TBAs as an extension of their maternal and child health programs. By the mid-1980s, some 50 countries had TBA training programs.[3] In 1992, United Nations agencies called for continued promotion of TBA training because of the shortage of professional midwives and institutions to provide prenatal care and safe deliveries.[4]

Evaluations of TBA training programs have found that TBAs can perform what they were trained to do, but the impact on maternal mortality is not clear. "Unfortunately, there are few studies that evaluate the impact of TBA training on infant mortality and none that have demonstrated an effect on maternal mortality," writes Dr. Deborah Maine, director of Columbia University's Prevention of Maternal Mortality project.[5] In an effort to measure the impact of TBA training, FHI will survey households in Ghana to compare the health of two groups of mothers — those who had their babies with the assistance of trained TBAs and those assisted by untrained TBAs. Results are expected in 1995.

"We made some mistakes in the early programs by funding TBA training as a discrete segment," says Dr. Margaret Marshall, director of special projects for the American College of Nurse-Midwives, including three projects in Ghana. "A TBA might have been doing a better job of referral but [services at] the first level of referral had not been improved. Only one small part of a system was being improved. We need to take a much broader systems approach and look at the skills of all health providers at all levels."

Dr. Maine of Columbia University goes a step further, saying that, except for training on such topics as improved hygiene, resources for reducing maternal deaths should be used first to improve emergency care facilities. "Once a functioning treatment and referral system was in place, then it would make sense to train TBAs to refer women for treatment of complications," writes Dr. Maine.

Another issue involves the expectations various groups have of TBA training. "We have loaded down the TBAs with a variety of tasks — child survival, family planning, primary health care," says Dr. Marshall. "We are giving our least-prepared worker all of these tasks. If you look at the job scope of some TBAs, you would think it was for a public health nurse-midwife."

In Accra, Dr. Adjei and other officials speak of bringing the health-care system into the 21st century, by integrating those working in traditional village settings with those functioning from modern health-care facilities. What can help this process along is the enthusiasm of people such as Mercy Cann.

"Only a short while ago, I never dreamt of undergoing formal training, but I have and the certificate there proves it," she says, pointing to the wall where she has hung her framed certificate. "I can hardly wait to attend the refresher course."

— Ama Yabrundi and William R. Finger

Yabrundi lives in Accra and works for the Ghana News Agency.

AMA YABRUNDI

MERCY CANN, A TBA IN GHANA FOR 10 YEARS, RECENTLY RECEIVED HER FIRST FORMAL TRAINING.

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Tanzanian Projects Seek "Safe Motherhood"

Multiple approaches to maternal care are helping experts to identify effective strategies.

For a death to be labeled a "maternal death," a woman must become pregnant, she must develop complications and those problems must lead to her death during pregnancy or within 42 days after the pregnancy ends. Interventions affecting any of these three factors can reduce the number of maternal deaths.

Better family planning services, for example, can reduce the number of unwanted pregnancies by providing appropriate contraceptives to women and men who want to use them. Fewer pregnancies can lead to fewer maternal deaths.

Reducing complications during pregnancy often means providing better community health programs, since most women in developing countries deliver at home and receive prenatal care close to home. Early detection of a complication may prevent progression to a more severe state.

Influencing the third factor, death itself due to a complication, often requires different approaches. Better access to emergency obstetric care is one of the most important ways to address this factor. Any pregnant woman can face life-threatening emergencies, regardless of the quality of her prenatal care and screening.

Since 1987, five United Nations agencies and scores of other international organizations have sought to improve maternal health through what is called the "Safe Motherhood Initiative."[1] More than 70 agencies in the African country of Tanzania have been involved with the initiative, seeking to make motherhood safer by improving district health facilities and by distributing family planning information, among scores of other approaches.

The World Health Organization (WHO) and United Nations Development Programme (UNDP) are evaluating the many approaches under way in Tanzania in an effort to find which are more effective and where priorities should be established. A WHO/UNDP team has found that safe motherhood activities generally were undertaken either in the community or in a health-services system. The majority involved community programs, working with nutrition, family planning, education and health.

"The range of programs in Tanzania shows how loosely the term 'safe motherhood' is now defined," says Dr. Judith Fortney of FHI, a member of the WHO/UNDP team. "It reflects progress in bringing the issue to many people's attention. But it also indicates a general lack of understanding that improving women's health and preventing maternal death are not identical goals — and the two require different interventions."

The programs in Tanzania have increased awareness of the value of seeking emergency care. "But if this awareness is not matched by increased quality and accessibility of services, it might create unsatisfied demand leading to frustration," says Dr. Robert Johnson of WHO, who headed the team.

The programs based in Tanzania's various health-services systems, likewise, have promoted early recognition of complications of pregnancy and childbirth, and the timely seeking of medical help, says Dr. Johnson. But access to quality care in Tanzania, as in many developing countries, is limited by

poor transportation to hospitals or other health care centers and inadequate care even when a woman reaches a hospital or clinic. In Tanzania, an estimated 400 women die for every 100,000 births, compared to about 12 in North America.

"Nearly all women in Tanzania who died of pregnancy or childbirth complications did not have access to acceptable, high-quality health care at the time they needed it," says Dr. Johnson. "The best ways to reduce maternal mortality in Tanzania are to make family planning universally available to all women and to improve the quality and availability of obstetric care."

About 10 percent of married women of reproductive age use contraceptives in Tanzania, counting traditional methods, compared to 43 percent in Zimbabwe and 40 percent in Bangladesh. Among women who want no more children, only about three of every 10 use modern contraception.

Allocating resources

Improving obstetric care involves a number of issues — training providers, developing alarm and transport systems, and maintaining adequate blood supplies and basic equipment at health facilities among them. "For interventions to be effective and sustainable, health-care providers and the community must work together," says Dr. Fortney. "Both have a vital role to play and an obligation to ensure that both systems function well."

Clear blueprints for how such collaborations can function are rare, however. World experts have not always agreed on how to proceed. Dr. Deborah Maine of the Center for Population and Family Health at Columbia University, New York, USA, has developed an intervention model that strongly emphasizes access to medical treatment for obstetric emergencies. It places lower priority on community-based strategies such as prenatal care, training of traditional birth attendants and maternity waiting homes.[2]

Others have taken issue with this viewpoint. "Although we agree that prenatal care and health education cannot prevent most complications, they are likely to have an enormous impact on the utilization of referral-level care," write Dr. Fred Sai, president of the International Planned Parenthood Federation, and Diana Measham of Family Care International. "If formal emergency care systems are to work, people must be informed, motivated and empowered to use them; women die even when such services are available."[3]

Both perspectives acknowledge the importance of community involvement and emergency care, but they have a clear difference in emphasis. Dr. Sai and Ms. Measham describe a three-tier program, including as "important first-tier components" prenatal care, trained attendance at delivery, accessible emergency services, family planning and abortion. Dr. Maine, in contrast, calls for "the courage to set priorities" with accessible emergency services at the top.

A national focus

The process of setting priorities and allocating limited resources will vary from country to country. The WHO/UNDP team recommends that Tanzanian officials focus on improving the quality of emergency obstetric services and routine maternity care, especially at the district level.

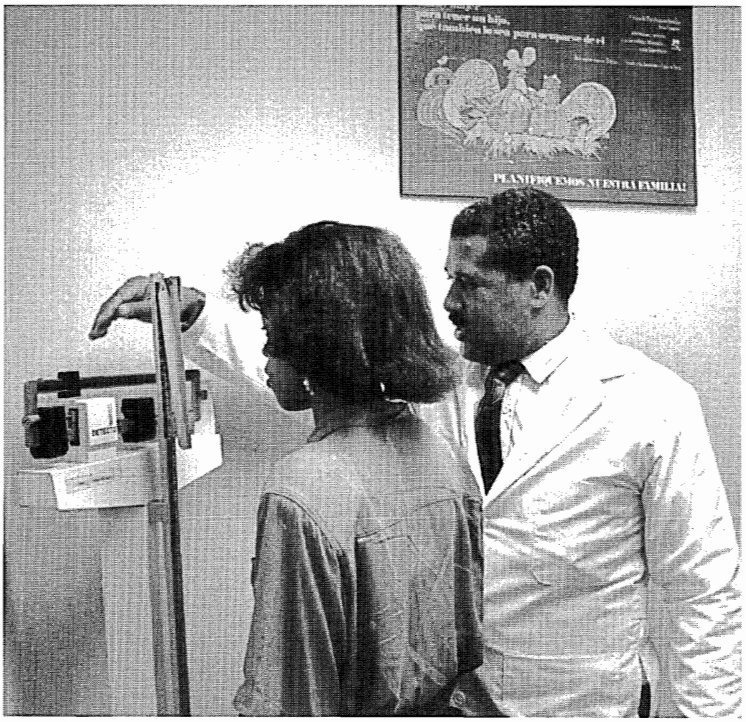
Setting priorities is also important because the term "safe motherhood" has expanded and become blurred since the initiative began. For example, "safe motherhood" is being applied to women's rights issues in general, such as education for girls and young women, higher age at marriage, and women's access to credit and employment opportunities.[4]

Regardless of priority actions selected, indicators are needed to assess their effectiveness. It is often too expensive to measure actual changes in maternal deaths each year. Hence, proxy indicators must be used, such as the number of health facilities providing essential obstetric care per 500,000 population and the number of cesarean sections per live births in the population. A group of experts convened by WHO has recently developed a standard set of indicators for use worldwide.

About 500,000 maternal deaths occur worldwide each year, almost one every minute. The Safe Motherhood Initiative seeks to reduce this figure by half by the year 2000. Only six years are left before this deadline, yet with every passing minute, a mother is still dying due to a complication of pregnancy. Updating the original estimate made in 1985, a new study has recently found the number of maternal deaths is still about 500,000 per year.[5]

"We won't reach the deadline," says Dr. Fortney of FHI. "We've made progress since 1985 but the number of pregnancies has also increased so the total number of maternal deaths has not declined."

— *William R. Finger*



Richard Lord

Prenatal care can help detect complications during pregnancy.

Footnotes

1. Partners in the Safe Motherhood Initiative are the United Nations Children's Fund, the United Nations Development Program, the United Nations Population Fund, the World Bank and the World Health Organization, which are UN agencies, and the International Planned Parenthood Federation of London and the Population Council of New York.

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Pregnancy and HIV

For pregnant women infected by the AIDS virus, good medical care and counseling are especially important.

An HIV-infected pregnant woman is faced with two terrible prospects: her own death and the possibility of passing on an incurable disease to her infant. In some urban centers in sub-Saharan Africa, HIV-infection rates among pregnant women attending antenatal clinics are as high as 30 percent, says Dr. Ben Nkowane, chief of the World Health Organization (WHO) epidemiology research and forecasting unit. "It's a growing problem," he says. By the end of the century, 10 million or more infants and children are likely to be HIV-infected, most as a result of viral transmission from their mothers.[1] More than one million children are infected now.

HIV is transmitted through sexual and other contact with blood products or bodily fluids, and it can be passed from mother to infant during pregnancy, delivery and breastfeeding. The most effective prevention for HIV infection in pregnancy is to practice safer sexual activity. "Preventing HIV in women would be the best way to prevent maternal-fetal transmission," says Dr. Neal Halsey, director of the division of disease control at the Johns Hopkins School of Public Health in Baltimore, MD, USA.

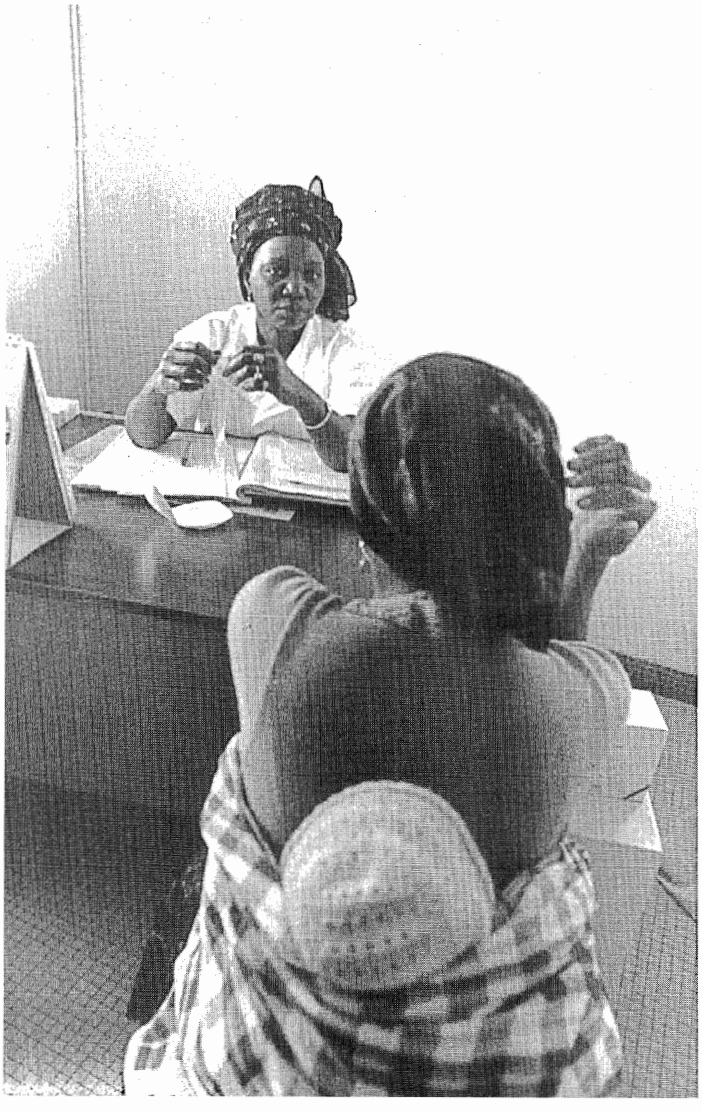
Maintaining a mutually monogamous sexual relationship with an uninfected partner and using condoms are two of the most effective ways to prevent HIV infection. For HIV-positive women who do not want to become pregnant, family planners can provide contraceptive options.

But for a woman who is already pregnant and infected by HIV, good medical care and counseling are particularly important. Counseling can help her understand the chances of having an infected infant and decide whether to continue the pregnancy. It can also help her prepare for the delivery and care of her child.

Good medical care before and after a birth can improve a woman's health and the chances for her child's survival. In addition, clean delivery practices decrease the risk of HIV's spread between the woman and her delivery attendant.

In the future, new treatments may become available to prevent transmission of HIV between mother and infant. Experimental AIDS vaccines, immunoglobulin and drug therapy may be used to boost a woman's immune system and lower the viral load in her body, thus reducing the chances of passing the virus to her child. Such treatments are being tested for their effectiveness, but cost and other factors may prevent their widespread use.

BERYL GOLDBERG



USING CONDOMS IS ONE OF THE MOST EFFECTIVE WAYS OF PREVENTING HIV INFECTION.

Counseling on risks

HIV-testing is not available in many parts of the world, so health care workers may depend on clinical signs to diagnose AIDS. If an HIV-positive woman's infection is advanced, she may have symptoms including unintentional loss of 10 percent or more of her body weight, fever or chronic diarrhea lasting for more than one month, and a persistent cough.[2]

A pregnant woman with such symptoms should receive counseling on HIV/AIDS. She also needs counseling on the risks of infecting her child, on telling her partner of her infection, and on deciding whether to continue the pregnancy, says Dr. Samuel Kalibala, who directs HIV/AIDS counseling for WHO. "We present all the knowledge we have about HIV and pregnancy and we discuss it with the woman," he says. "That's the best thing we can do for her."

Many women continue their pregnancies, and between 14 and 39 percent of their infants are likely to become infected, according to most studies. In Europe, the risk averages 15 percent, whereas in Africa, it is about twice as high. The rate of transmission for HIV-2, a strain of virus identified in West Africa, may be lower than 5 percent.[3]

Women in very early stages of HIV infection or the late stages of AIDS, when the viral concentration in their bodies is greatest, are more likely to transmit the virus. Other sexually transmitted diseases (STDs), malaria, infant prematurity and chorioamnionitis — inflammation of the sac surrounding the fetus — also may increase the risk of passing HIV to an infant.[4]

Health workers should advise HIV-positive pregnant women on the difficulties of caring for an infant while they are seriously ill and address the disease's potential harm to the child. Although not all children become sick immediately, many have difficulties. "Babies born infected generally live short, miserable lives," writes Dr. Robert Hurd Settlage of the University of Southern California School of Medicine in Los Angeles, USA.[5]

In Zimbabwe and Botswana, women who find out that they are HIV-positive early in pregnancy are counseled and offered the option to terminate the pregnancy, says Dr. Jonathan Kasule, an obstetrician-gynecologist who practices in both countries. In many countries, abortion is not an option, because it is legally restricted. But medical communities are debating whether to interpret current laws that allow induced abortion for health reasons to include HIV-infection, says Joan Healy, director of program management at International Projects Assistance Services (IPAS), a U.S.-based group that trains providers in safe abortion techniques.

Despite the value of AIDS counseling, it is not available in most maternal health programs, says Dr. Nancy Williamson, director of FHI's Women's Studies Division. Counseling is often weak or unavailable; in addition, most HIV-positive women in developing countries do not know they carry the virus, she says.

Providing care

Experts disagree about whether pregnancy affects the progression of HIV/AIDS and whether the infection affects the outcome of pregnancy. In some studies, HIV infection increased the woman's chances of delivering prematurely or dying and increased the baby's chances of dying; in other studies, pregnancy and HIV infection did not influence each other.[6]

Antenatal care can help reduce possible risks to both mother and infant. "I tell any HIV-infected woman 'The most important determinant of your child's health is your health,'" says Dr. Howard Minkoff, an obstetrics and gynecology professor at the State University of New York Health Science Center who specializes in caring for HIV-infected women.

HIV-positive women need the same antenatal care as other women.[7] This care may include screening and treatment for anemia, malaria and STDs, and immunization against tetanus. Adequate nutrition and iron and folic acid supplements for anemia help ensure a healthy pregnancy. Pregnant women should also receive immediate treatment for their HIV-related illnesses, including tuberculosis, says Dr. Sambe Duale, a research assistant professor at Tulane University in New Orleans, USA who has worked extensively in Africa.

Preventing and treating STDs is critically important, says Dr. John Lambert, assistant professor of international health at Johns Hopkins University. Maternal syphilis, for example, may increase a woman's risk of passing HIV to her child. Like the spread of AIDS, the spread of syphilis can be reduced by practicing safer sex. "Just because you're pregnant doesn't mean your partner shouldn't use a condom," Dr. Lambert says.

Safe deliveries

To protect themselves from HIV infection, physicians, midwives and traditional birth attendants delivering HIV-infected women should use protective clothing such as gloves, gowns, hats and other coverings, if possible. "In the villages," Dr. Duale says, "we promote that at least they wash their hands. If they have cuts or sores, we advise that they don't deliver."

Such precautions can reduce the spread of HIV and other infections. Health workers can also prevent the transmission of AIDS and other diseases by: washing linens and surfaces with soap; sterilizing instruments and equipment by boiling, autoclaving or using germicides; and burying or burning the placenta and other blood-containing tissues. Treating obstetric complications promptly can reduce the need for transfusions, further cutting the risk of disease spread to pregnant women via blood products.

Infants born to HIV-infected mothers should not be diagnosed with AIDS until other illnesses have been ruled out — a difficult task.[8] Testing for HIV antibodies may give false positive results until the infant is more than a year old because maternal antibodies may still be present. Clinical diagnoses for HIV infection are much less accurate for infants than for adults, because symptoms can be confused with other childhood illnesses.

Women may wonder whether to breastfeed their infants, because HIV can pass from mother to child through breastmilk. Experts recommend that women who have no safe feeding alternatives breastfeed their infants because breastmilk provides good nutrition and resistance to some diseases.[9]

"Where the primary causes of infant deaths are infectious diseases and malnutrition, infants who are not breastfed run a particularly high risk of dying from these conditions," reads a consensus statement from WHO and the United Nations Children's Fund (UNICEF). "In these settings, breastfeeding should remain the standard advice to pregnant women, including those who are known to be HIV-infected, because their baby's risk of becoming

MIRIAM ROMAIS/IMPACT VISUALS

A BLOOD BANK TECHNICIAN IN NEW BRUNSWICK, NJ, USA, SCREENS BLOOD DONATIONS. HEMORRHAGE IS A COMMON REASON TO NEED A TRANSFUSION.

infected through breastmilk is likely to be lower than its risk of dying of other causes if deprived of breastfeeding."

SEEKING NEW TREATMENTS

While practitioners care for pregnant HIV-positive women, researchers are looking for ways to prevent spread of the virus to infants through experimental AIDS vaccines, immunoglobulin and drug treatments. Some therapies may prove impractical for use in many areas of the world because of cost or other considerations.

Experimental AIDS vaccines made from viral coat proteins are being administered in the United States to HIV-positive pregnant women and to infants at birth and in the first months of life. In women, such treatments may boost the immune system, thus lowering the viral load in their bodies and reducing the likelihood of transmission to the fetus, says Dr. Lambert of Johns Hopkins. In infants, these treatments may prevent HIV infection. Vaccines have already been tested for safety in men and nonpregnant women and soon will move to large scale tests for effectiveness.

Another treatment involves giving mothers and infants anti-HIV immunoglobulin, which consists of antibodies from the plasma of asymptomatic HIV-infected donors. The plasma is then treated to kill the virus, and the antibodies in the plasma boost immunity and inactivate HIV in recipients' bodies. A similar method has been used successfully in infants to treat hepatitis B, another viral infection. Early tests with anti-HIV immunoglobulin, which is given intravenously, have begun in the United States and are scheduled to start in Uganda this year.

The third major area of research, which may have limited usefulness because of its cost, is treatment with zidovudine (also known as AZT) during pregnancy to prevent maternal-child transmission of HIV. In addition, researchers are examining whether cesarean sections reduce the transmission of HIV to infants, but such surgery is not readily available in many countries.

Vaccines, immunoglobulin and drug treatments may not be available for years. Another problem is that many women do not learn they are HIV-infected until well into their pregnancies, which may be too late for these interventions. "In many developing countries a significant portion of women do not receive prenatal care," says Dr. Halsey of Johns Hopkins. "An intervention would have to be one that could be applied to women who present [as HIV-positive] during labor."

Other strategies for preventing transmission may hold more promise. These include giving antibiotics late in pregnancy or washing a woman's vaginal canal with disinfectant during labor and delivery. "Even acidifying the vagina may work," Dr. Minkoff says. "We may be able to tell a woman to use a vinegar sitz bath."

Still, these treatments remain to be tested. And while AIDS continues to spread, women who contract the disease need good medical care, says Dr. Lambert of Johns Hopkins. "They need to have access to prenatal care and to have their options explained to them at the time they find out they are HIV-positive," he says. "All efforts must be made to optimize the woman's and the unborn child's health."

— *Carol Lynn Blaney*

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New FHI Publications

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the practice to use a clean string that is long enough not to forcibly remove the placenta and cause injury.

The United Nations Children's Fund (UNICEF), which works with the Bolivian government to improve maternal and child health, also has focused on combining modern and traditional practices. The organization is reviving the idea of a "birthing chair," which allows women to sit upright while delivering, says Dr. Guido Cornale, a UNICEF project officer. In Bolivia, UNICEF also trains hospital staff, supplies medical equipment, and helps improve obstetric care and family planning services.

Educating communities

In the Quintanilla area, near the city of Cochabamba, women are learning about labor and delivery from doctors who travel to local communities. The doctors give "charlas" or talks to groups about family planning, fetal development, prenatal care, signs of complications in pregnancy and other topics as part of the MADRE Project, a collaborative effort between the University of North Carolina (UNC) in Chapel Hill, USA, and the Universidad Mayor de San Simón in Cochabamba.

MADRE's organizers worked with local women to design a simple way to track their own health during pregnancy, with a pictorial maternal health diary. "Women in Quintanilla like the relationship between them and the health team," says Dr. Ana Santander, a professor at the Universidad Mayor de San Simón. "It is important for them to realize that there is a group of people interested in them."

One Quintanilla community is arranging to transport women to hospitals in obstetric emergencies. Men in the area who have vehicles agree to be "on call" for a few days at a time, using their cars to bring women to help. They were motivated by a maternal death. "A woman giving birth to her eighth child began to hemorrhage," says Dr. Deborah Bender of UNC, principal investigator for the MADRE project. "Her husband ran down the hill to the hospital to get help. By the time he returned with a vehicle, his wife had died."

—*Carol Lynn Blaney*

Footnotes

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Resources

FHI MANUAL FOR HEALTH JOURNALISTS

Developing Health Journalists: A Training Manual for Improving News Coverage of Reproductive Health has been published by FHI, based on experiences conducting journalism training in Africa and Asia. This step-by-step guide to planning, designing, facilitating and evaluating health journalism training workshops also includes resource listings and handouts. Designed for use by news media, health organizations, journalism and communications faculties and other groups, the 210-page manual is available in English. It is free to institutions in developing countries, with a written explanation of need, and it costs U.S. $14.95 elsewhere. To obtain the book, write: Publications Coordinator, FHI, P.O. Box 13950, Research Triangle Park, NC 27709, USA.

MOTHERCARE SERIES ADDRESSES COUNSELING

The MotherCare Project has published a series of materials on maternal health, including *Interpersonal Communication and Counseling Curriculum for Midwives.* The manual provides a plan for a six-day workshop on training nurses and midwives to help women make informed choices about their health. It can also be adapted to other health workers. The 1993 guide, available in English, covers barriers to care, counseling, problem-solving and other topics in a simple format with activities. Single copies of the document and a listing of other materials can be obtained free by writing: MotherCare, 1616 North Fort Myer Drive 11th floor, Arlington, VA 22209, USA.

INTRAH PUBLISHES MATERIALS LIST

The Program for International Training in Health (INTRAH) has published a 1993 supplement to its 1992 *List of Free Materials in Family Planning/Maternal and Child Health.* The 90-page supplement, entitled *List of Free Materials in Reproductive Health*, describes resources in maternal and child health, family planning, AIDS and other fields. It also provides information on databases, catalogs and periodicals lists. To request the 1993 supplement or the 1992 list, both available in English and French, write: INTRAH, UNC-Chapel Hill School of Medicine, 208 North Columbia Street, CB# 8100, Chapel Hill, NC 27514, USA.

MATERNAL AND CHILD HEALTH MANUAL

The World Health Organization (WHO) has produced *District Team Problem Solving Guidelines for Maternal and Child Health, Family Planning and other Public Health Services.* The 1993 manual describes the problem-solving process and provides information on how to establish and complete it. Designed primarily for workshop organizers, it is available in English and offers references and sample evaluation formats.

To obtain this free book or a catalog of other free WHO materials concerning maternal health, write: Division of Family Health, WHO, 1211 Geneva 27, Switzerland.

TALC MANUAL ADDRESSES MOTHERHOOD

Turning the Tide: A Safe Motherhood District Action Manual is a field manual for health professionals working to reduce maternal mortality. Distributed by Teaching-aids at Low Cost (TALC), the book explains safe motherhood and gives practical guidelines on how to plan for it. The 226-page book can also be used for informal adult education. Available in English, the book costs £5.50, plus £2 for shipping and handling. To order it, write: TALC, P.O. Box 49, St. Albans, Herts. AL1 4AX, United Kingdom.

RESOURCE LISTINGS PERIODICAL

The Kangaroo: Bibliographic Archives for Maternal and Child Health, a periodical published by the Health and Development Association, abstracts and annotates journals and other publications for health professionals. It looks at specific topics and resource listings and it is available in English and Portuguese. An annual subscription to the twice-yearly publication costs U.S. $20 for institutions and individuals in developing countries. Elsewhere, subscriptions are U.S. $30 for individuals and U.S. $50 for institutions. It can be requested by writing: The Kangaroo, Health and Development Association, Istituto per l'Infanzia, Via dell'Istria 65/1, 34137 Trieste, Italy.

POPULATION COUNCIL PUBLISHES BOOKLET

Introducing Norplant Implants in Developing Countries, published by the Population Council, is geared to women's health advocates, the media and non-governmental organizations. The 25-page booklet outlines service delivery, lists references and offers facts about Norplant. It also includes a section addressing misconceptions about the contraceptive. Available in English, the booklet is free and can be obtained by writing: The Population Council, One Dag Hammarskjold Plaza, New York, NY 10017, USA.

CARNEGIE QUARTERLY FOCUSES ON PREGNANCY

Making pregnancy and childbearing safer for women in West Africa is the topic of the Winter 1993 issue of the *Carnegie Quarterly*. The 20-page publication outlines difficulties women face in childbearing and discusses solutions being implemented by the Prevention of Maternal Mortality Network, based at Columbia University in New York. The free quarterly, available in English, can be ordered by writing: Publications Department, Carnegie Corporation of New York, 437 Madison Avenue, New York, NY 10022, USA. Fax: (212) 754-4073.

IN MEMORIUM

It is with great sadness that we report the death of Marcia Jaffe Potts, a former staff member. Marcia Jaffe served as FHI's program coordinator for Latin America until her marriage to Dr. Malcolm Potts, FHI's former president. Mrs. Potts courageously fought a long battle with von Recklinghausen's disease. She died December 30, 1993 at the age of 51.