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**COMMUNICATING SAFE MOTHERHOOD:  
USING COMMUNICATION TO IMPROVE  
MATERNAL HEALTH IN THE DEVELOPING WORLD**

**WORKING PAPER 14**

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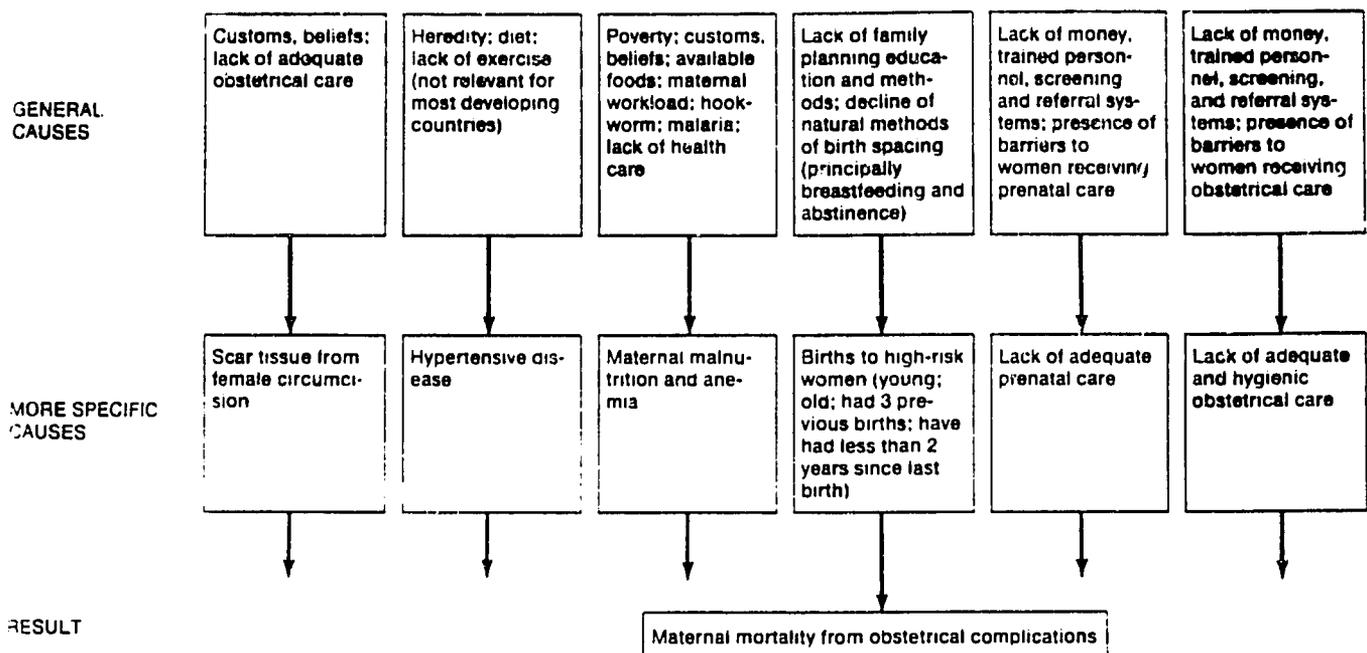
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## I. THE IMPORTANCE OF COMMUNICATION IN IMPROVING MATERNAL HEALTH

The major direct causes of maternal morbidity and mortality are remarkably similar throughout the developing world -- hemorrhage, obstructed labor, sepsis, and eclampsia (AbouZahr and Royston 1991). As illustrated in Figure 1 below (Favin et al. 1984), however, the general and contributing causes are many and complex. Program planners must decide which of the many general, specific, and direct causes to address in order to prevent problems from occurring, detect problems or high-risk conditions early, or treat high-risk or life-threatening situations. Communication activities can increase awareness, inform, teach, or motivate in ways that directly improve maternal health or that support other interventions, but the potential impact of communication is only as good as the quality of the analysis, planning, and implementation of the overall interventions.

Figure 1: Causes of Maternal Mortality



A chart in Appendix I (Favin et al. 1984) summarizes major maternal health problems, the impact of each problem on maternal health, and general program interventions that address each problem. Selected problems, along with some of the important behavioral changes associated with their prevention or solution, are discussed in more detail in this section.

**Anemia** and **maternal undernutrition** are not distinct, time-limited events. Rather, they are chronic conditions which only sustained behavioral change can alleviate. In many cases, nutritional deficits which contribute to poor pregnancy outcome occur where adequate amounts and variety of food for pregnant women are available but where lifelong nutritional practices and deeply rooted cultural attitudes and practices influence intrahousehold food distribution and the amount and types of foods which pregnant women can eat.

Some women, families, and communities are unaware of important conditions causing maternal illness, disability, and death. Awareness of anemia and undernutrition are often particularly low, as they are "silent" problems, usually without the dramatic signs and symptoms of other maternal problems, such as the seizures of eclampsia or severe blood loss of postpartum hemorrhage. In many cultures, although special postpartum dietary practices are prescribed, there is limited recognition of the need for improved diet during pregnancy. Weakness, dizziness and lack of energy are commonly attributed to the condition of pregnancy itself, rather than to anemia. In both Indonesia and Bangladesh, however, even paresthesia (tingling and numbness of the extremities), a symptom of severe anemia, is not recognized as a sign of illness (Moore 1990; Blanchet 1991). Rather than wanting to increase food consumption during pregnancy, women in many cultures limit their weight gain in order to have an easier delivery or to leave sufficient room for the fetus to grow, contributing to maternal malnutrition and low birth weights (Brems and Berg 1990; Blanchet 1991; Nichter and Nichter 1983). In many countries household food distribution practices which negatively affect the nutrition of pregnant women, such as feeding women last and least, must be changed.

Dietary change and compliance with long-term medication (such as a regimen of iron tablets, taken daily for at least several months) are two of the most difficult behavior changes to achieve and sustain, in developed and developing countries alike. Needed foods or micronutrients may not be available or affordable, particularly at certain times of the year. Even if the foods or iron tablets are available, motivating pregnant women to consume additional calories or take a tablet on a daily basis involves changing not only the attitudes and practices of the women themselves but also those of family members.

**Eclampsia**, in some settings the most common cause of maternal mortality among young women pregnant for the first time, results from untreated **preeclampsia**, an earlier form of the disease. Like anemia, the early symptoms of preeclampsia (high blood pressure and protein in the urine) go unrecognized and therefore do not cause alarm among pregnant women or their families. Headache and weight gain, symptoms related to increased blood pressure, are also considered normal by many pregnant women. Swelling of the extremities, the only physical sign easily detectable without diagnostic equipment, may become severe only in later stages of the disease. As is the case with many maternal health problems, many women consider the symptoms normal or not a cause for action, two attitudes that communication can address.

**Maternal infection** (e.g., septic abortion, sexually transmitted diseases, including AIDS, and puerperal sepsis), a major cause of maternal mortality and morbidity, can burden women with lifelong sequelae of chronic pain, disability, and infertility. Maternal infections often result from complications following termination of an unwanted pregnancy, sexual contact with an infected partner, traditional practices such as female circumcision and vaginal application of herbal preparations, or in the case of puerperal sepsis, unhygienic childbirth techniques (Dixon-Mueller and Wasserheit 1991).

Again, deeply ingrained cultural norms for sexual, marital and reproductive behavior influence the detection, treatment, and education for prevention of these infections. Behavior-change efforts must influence not only the woman herself but also her sexual contact(s) and the provider who assists with pregnancy termination, childbirth, or other procedures linked to maternal sepsis.

Sexually transmitted diseases (STDs) present special challenges. Some STDs (syphilis or chlamydia, for example) are initially asymptomatic, and symptoms are transient or difficult to

detect in women. Without partner tracing and treatment, reinfection of successfully treated women commonly occurs. Modesty, embarrassment, fear, shame, and denial are often associated with open discussion of STDs and related sexual practice. Women in traditional cultures may be virtually powerless to discuss the sexual activity of their partner or to demand his participation in prevention (e.g., use of a condom) or in a treatment program. The difficult behavior changes required in prenatal STD control are exemplified in a project in Zambia, where, in spite of educating women about STDs, only half of the pregnant women who tested positive for syphilis at the study site received treatment (Hira 1990).

The major obstetrical emergencies -- **hemorrhage** and **obstructed labor**--assume particular importance because of how rapidly they lead to serious maternal morbidities and, often, death. Although some risk factors--small maternal stature, fetal malposition, severe anemia--can be detected during pregnancy, the actual occurrence of hemorrhage and obstruction at birth cannot be reliably predicted. Unlike most of the conditions in pregnancy described above, rapid action is required, as delays of even a few hours can be fatal. A recent ethnographic study in a small Bangladeshi village presents a clear example of delays caused by inappropriate local treatment (Blanchet 1991). Typically, an attending TBA will sequentially recruit the assistance of the pregnant woman's mother-in-law, a spiritual healer, and an untrained village "daktar" before finally bringing the woman for modern medical assistance.

Obstetrical emergencies are particularly deadly in developing countries because:

- many women, families, and even local health providers do not recognize signs and symptoms as dangerous or as needing immediate attention from trained health workers;
- there are delays in care seeking because women, families, and local health providers try to treat the problem locally;
- there are delays in transporting the woman to a facility;
- there are delays in her receiving needed care once she arrives; and
- the facility may lack adequately trained health workers and needed equipment and supplies (Thaddeus and Maine 1990).

With postpartum hemorrhage, as with anemia, traditional ideas of blood, blood loss, and the relationship between hemorrhage and maternal health may be radically different from modern medical concepts. In Java, for example, postpartum bleeding severe enough to soak through up to two sarongs is considered normal by both women and TBAs (Moore et al. 1991). Attitudes toward blood and blood loss among Quechua/Aymara women in Bolivia emanate from folk beliefs. In some situations, retained blood is perceived as a greater threat than blood loss; women attribute uterine pain and tumors to the accumulation of excess blood. Thus, after childbirth, it is desirable to lose enough blood to cleanse the "dirty blood" associated with the process of pregnancy and birth. However, excessive blood loss at that time, which could include loss of blood that is not dirty, would be undesirable and would be perceived as a potentially dangerous hemorrhage. Quechua/Aymara women also associate certain foods with accumulation or depletion/elimination of blood (Brems 1991).

The entire arena of **recognition** and **response** to maternal health problems is in the shadow of traditional beliefs and behaviors. It is often difficult to pass along concepts of risk and

outcome because they are so different from traditional health thinking. This extends beyond families to care providers. For example, comadronas (TBAs) in the Guatemalan highlands did not associate previous poor pregnancy outcome (a known risk factor) with increased likelihood of poor outcome of current pregnancy. In Indonesia, health center-based midwives did not perceive maternal anemia as an important problem, and their understanding of signs and symptoms of anemia was not significantly different than that of local TBAs (Moore et al. 1992).

Many dangerous practices of traditional providers occur because they do not share "modern" medicine's conception of risk. In Guatemala, comadronas do not understand the relationship between multiple vaginal examinations with unwashed hands during labor and the resulting puerperal infections among women they deliver (Bartlett and de Bocaletti in press). Likewise, in Bangladesh TBAs do not wash their hands because they only touch the "dirty" substances of childbirth (Blanchet 1991).

Underlying traditional health beliefs can also influence women's **compliance with referral** for additional care for maternal health problems. If the referral system itself is functioning, lack of understanding among women and families of the need for and benefits of additional care may be the greatest barrier to compliance with treatment or referral. But even if a woman decides to seek formal medical care, she may face dangerous delays in obtaining transport to the source of care and in receiving treatment after arrival at the facility.

All of these factors have communication implications. Pregnant women in developing countries are likely to consult their kin and social network on decisions about care seeking. Communication efforts must identify and target influential family members and **all** potential birth attendants. The capability of all levels of the "treatment chain" must be understood to allow development and promotion of realistic recommendations for community action. For example, in rural Bolivia, motivating family birth attendants to seek the help of trained midwives for obstetric complications would be inappropriate, as this cadre of health worker is not readily available. Promoting referral to the district health center in the event of obstructed labor would not be appropriate if that center did not have the capability to perform caesarian sections.

Likewise, the potential effectiveness of communications to improve recognition and response to reduce barriers that contribute to maternal mortality is clear. An understanding of prevailing local cultural "triggers" -- the precise combination of symptom recognition and perceived severity which result in care seeking for maternal health problems -- is essential before feasible actions can be promoted (Thaddeus and Maine 1990). Convincing women, TBAs, and families about the dangers of maternal illnesses and obstetric emergencies which are not perceived as serious (or in some cases not perceived at all) requires innovative communication approaches. In addition, activities that reach beyond the woman, the family and the health system should be tried. For example, in Ghana there is a campaign to raise awareness among members of transportation unions of the transport needs of women with delivery complications (Ward pers. comm. 1991).

## II. THE NEED TO TAILOR COMMUNICATION APPROACHES BY SETTING

Rani is 19 years old, and it is past the expected time for the birth of her first child. She lives in an isolated village, where she works daily in the paddy fields. Since she felt well throughout her pregnancy, her husband told her she did not need to go to the government clinic in the next village for checkups. She was afraid of the injections some of her friends had received when they went there. In the middle of the night, Rani begins to feel labor pains. Her membranes rupture, and although the contractions continue for more than two days, the baby will not come down, and she feels weaker and weaker. Her mother-in-law sends for an older, experienced woman from the next village, but the bitter tea she gives Rani to drink does not help her.

Marva, who is 27 years old, unmarried and pregnant with her fourth child, lives in the capital city, only a few miles away from a large maternity hospital. She knows the father of the child she is expecting has many girlfriends, but he gives her money to buy food, so she does not argue. She attended the prenatal clinic once, in the middle of her pregnancy, because friends told her it was the only way to get the registration card required for hospital delivery. It was hard to find time, as she had other children to care for. The clinic nurse tells her it looks as if she has an infection and advises her to return a week later for test results. Since she expects to give birth in a month or so, she does not return to the clinic, even though she develops fever.

Gabriela gave birth uneventfully to her first child when she was 16 years old. Her husband stayed with her throughout her labor and cut their newborn's umbilical cord. This is her sixth birth, and although she has felt increasingly tired with each successive pregnancy, there are no clinics, doctors, or even traditional birth attendants nearby to give her medicines to make her stronger. This labor lasts longer than the others, and the bleeding is more than ever before. Eight hours after the birth of their daughter, she is still bleeding heavily. Her husband does not know what to do and must leave her alone to walk miles to the nearest neighbor for advice.

Fatima, who moved from the village to a crowded area outside the city with her family several months ago, is ready to give birth to her first child. She visited the clinics in the village at the beginning of her pregnancy, and her mother took her once to a private doctor in town, but it was expensive and she could not afford to return. She felt well for most of her pregnancy, except for weakness and dizziness, which her mother told her was a normal part of being pregnant. Toward the end of her pregnancy, she begins to have frequent headaches, and she notices that her extremities are swelling. Not liking to complain, she does not mention her symptoms to anyone.

These four women from developing countries share the common experience of a problem during pregnancy or childbirth which could result in illness or death for themselves or their newborn children. However, that is where the commonality ends. Each woman and her family must respond to maternal health problems within the specific and widely divergent context of their household and the broader sociocultural, economic, and geographic environment.

An understanding of the many interrelated factors which contribute to maternal illness and death in a given setting is essential for the design of successful program strategies. For example, reaching women with basic information about common maternal health problems is difficult enough in countries where use of formal maternal health care services is high and the

majority of women are exposed to clinic-based health messages and activities. Reaching women and families in settings where use of formal maternal health care is universally low is a greater challenge, demanding creative, community-based approaches. The large variations in formal maternal health care availability and utilization within individual countries means that a combination of approaches is necessary.

The multiple settings into which maternal health communication strategies must fit have recently been classified into four categories (MotherCare). This section of the paper describes the communication environment in each of these four categories of maternal health care delivery and suggests the most appropriate communication approaches for each setting.

### **Setting A**

In rural **Type A** settings, the majority of women are poor and only marginally literate. Women are isolated by the combination of long distances, poor transport, and cultural restrictions on their mobility outside of the home. Women are expected to perform their normal workload, often including heavy labor, throughout their pregnancy, with no perceived need for special care such as rest, better diet, or formal prenatal care. Most attention to health during pregnancy is given at home by family members or traditional practitioners. Occasionally, the expectant woman may visit a local healer if problems occur or if traditional medicines or tonics are desired.

Women have little role in decision making about their health care needs during pregnancy, birth, and the postpartum period. There is no perceived need for formal prenatal or postpartum care, by either women themselves or their families. Births take place at home attended by the husband or untrained female family members. There is not a strong tradition of regular use of informal maternal care either during pregnancy or birth. Pregnant women or women in labor are brought to modern medical attention only in extreme emergencies, usually after considerable delay and unsuccessful treatments tried at home by family members or traditional care providers.

When a woman and her family do decide that she should seek modern care, services are extremely limited and of poor quality. Doctors, midwives, and nurses are scarce and must work with inadequate medications, supplies, and equipment to provide even routine, preventive maternal care. Local capabilities to treat pregnancy-related problems and respond to obstetric emergencies are even more limited. Referral to more sophisticated levels of maternal care is hampered by weak referral systems, cost of care and transport, distance, and cultural barriers. There is often a wide gap between the ethnomedical belief systems of women and of formal maternal health care providers. There are few pharmacies or other local supply sources for modern pharmaceuticals (such as iron tablets or oral contraceptives) or manufactured drugs.

The primary source of information about pregnancy and childbirth is elder female family members and friends. Advice from these sources usually reinforces traditional beliefs and practices which are often not compatible with modern western medical thought. The family and community have little awareness of common maternal health problems and danger signs or felt need for preventive prenatal or postpartum care or attended, hygienic childbirth. Talking about problems of pregnancy or even the pregnancy itself is unusual, and "complaining" is discouraged. There is little contact with clinic-based sources of maternal health education or even advice from trained traditional birth attendants.

Women have very low access and exposure to mass media. Television ownership is rare. Radio ownership can be higher, but women are often working outside the home and have limited time to listen and hear only those programs selected by men. Newspapers are available, but virtually never read by low-literate women. Opportunities for women to congregate are limited, and women's movement outside the home may be restricted. In some places, men attend the larger markets and bring sick children to clinics for care. Women meet only occasionally at small local marketplaces and perhaps at sessions sponsored by political or religious oriented women's groups.

Communication strategies appropriate for this setting should consider the unavailability of maternal health services and avoid the dilemma of promoting and creating a demand among women for poor quality or nonexistent services. Minimal exposure to health facilities or many media suggest reliance on community-based approaches. Strategies could include:

- promoting healthy behaviors by pregnant women and families during pregnancy and postpartum, including improved diet and immediate and exclusive initiation of breastfeeding;
- improving early recognition of danger signs, problems, and emergencies among families and communities, with emphasis on reducing delays in care seeking;
- motivating communities to organize and mobilize available resources and develop organized responses when maternal health problems and emergencies occur;
- increasing awareness of the need for and use of the limited formal maternal care available, both for preventive and curative services; including tetanus toxoid immunization;
- promoting awareness and use of safe, local community based alternatives to formal care, when these exist;
- motivating untrained family birth attendants to increase use of safe birth and postpartum practices and timely referral when problems occur and to decrease harmful traditional practices.

### **Setting B**

In **Type B** rural settings, the socioeconomic conditions and cultural boundaries affecting women are essentially the same as those described above, except that female literacy levels and social mobility are higher. In addition to self-care and other care at home, there is widespread use of traditional birth attendants (TBAs), both trained and untrained. Women consult these traditional maternal care providers primarily for childbirth attendance in their homes. In some areas, women also make prenatal visits to TBAs, usually to confirm the pregnancy or fetal position, and occasionally for herbal or massage treatment of pregnancy-related problems.

Although a network for provision of community- and district-level public maternal health care exists, less than half of pregnant women seek modern prenatal or postnatal care. Most public maternal care users initiate care late in pregnancy, do not visit frequently enough to receive the full benefit of preventive services, and delay seeking care if a problem or complication

occurs. Women express little confidence in the quality of public maternal health services or providers.

In fact, available maternal health care is of poor quality. Services are capable of providing routine preventive prenatal and postpartum care and management of normal childbirth but are deficient in recognition, treatment and timely referral of problems and emergencies. Although women prefer to deliver at home, there is a negative attitude among clinic-based maternal care providers toward referrals of problem cases from TBAs. Clinic-based health workers are often males who are not aware of or concerned with women's strong sense of modesty or traditional health beliefs. Compliance with recommended treatment regimens or referral for additional care is rare. Availability of iron tablets, tetanus immunization, and contraceptives is sporadic and unpredictable. Other drugs and supplies are inadequate, but there are small private pharmacies where some medicines are available. Husbands and family members of pregnant women often purchase patent medicines and remedies at these small pharmacies before seeking formal care.

Pregnancy-related problems and concerns are not freely discussed, either within the family or community. In addition to information and advice obtained from family members, limited contact with health care facilities provides pregnant women with the opportunity for at least minimal exposure to maternal health education. This is primarily through conventional methods such as posters, lectures, nutrition demonstrations, and, very occasionally, individual counselling. Most health workers, and even fewer TBAs, have received special instruction in counselling techniques or refresher courses to update maternal health care knowledge or skills.

There is more family and community exposure to mass media, especially radio. The movement of women within the community is not restricted, and women gather regularly at markets, places of worship, women's group meetings, and cultural events. Women are occasional readers of newspapers and magazines, even if only to look at the pictures.

Communication strategies appropriate for this setting are the same as in setting A but consider the expanded presence and use of TBAs, the relatively better availability of basic public maternal care, and higher exposure to health facilities and mass media. Strategies could include:

- promoting healthy behaviors by women and families during pregnancy and the postpartum period, including improved diet and immediate and exclusive initiation of breastfeeding;
- improving early recognition of danger signs, problems, and emergencies among families and communities, with emphasis on reducing delays in care seeking;
- motivating communities to mobilize available resources and develop organized responses when maternal health problems and emergencies occur;
- increasing awareness of the need for and increased use of the limited formal maternal care available, both for preventive and curative services; including tetanus toxoid immunization, iron supplements and family planning to avoid high-risk births;
- promoting awareness and use of safe, local community based alternatives to formal care, when these exist;

- motivating both TBAs and untrained family birth attendants to increase use of safe birth and postpartum practices and timely referral when problems occur and to decrease harmful traditional practices;
- promoting awareness and use of alternative birth locations (maternity huts, etc.), when these exist; and
- training government maternal health care providers to improve detection, treatment, and referral of maternal health problems and to counsel women more effectively.

### **Setting C**

Women in periurban **Type C** settings are literate, mobile and employed outside the home to a greater extent than those women in setting B who work outside the home but not necessarily for wages. Pregnant women and their families are exposed to modern maternal health ideas and practices but also retain traditional beliefs. Proximity to both public and private maternal health care facilities diminishes the importance of distance as a barrier to care use, but cost is still a problem. Women play a larger role in decision making about their own use of reproductive health care. In fact in this setting women often suffer from lack of a supportive network or of a family environment.

During pregnancy and postpartum, women use self-care and household care as well as care from both public and private providers. Still, less than two-thirds of women regularly attend modern prenatal care, regardless of source. Women often do not complete treatment regimens or comply with referral for additional care, although medications and facilities are available. Most women continue to deliver at home attended by TBAs. In some countries, trained midwives are available and willing to attend home births. There is a slowly increasing demand for physician-assisted, hospital births and growing use of postpartum maternal care, primarily motivated by a desire for family planning services.

The capability of the health system to provide routine maternal care is somewhat improved by the presence of private practitioners. However, content of care is uneven, and comprehensive, quality care from any source is uncertain. Treatment of problems and obstetric emergencies is impaired by lack of standardized treatment norms and protocols and by poor coordination of referral networks among public and private providers. There are many small private pharmacies, and iron tablets, tetanus immunization, and contraceptives are available.

Pregnant women have wider access to maternal health information, both from mass media and through increased contact with public and private health care providers. Family members and friends continue to provide advice and social support and to influence patterns of maternal health care use. Women may regularly attend modern entertainment, such as cinema, in addition to traditional cultural events, religious services, and women's group meetings.

Communication strategies appropriate for this setting take advantage of the increased availability of and reliance on maternal health care and information from both public and private sources. Additional emphasis can be placed on motivating women to use the modern maternal care system and on improving appropriate and timely use of care. The roles and capabilities of maternal health care providers become increasingly important. Strategies could include:

- promoting healthy behaviors by women and families during pregnancy and the postpartum period, including improved diet and immediate and exclusive initiation of breastfeeding;
- improving early recognition of danger signs, problems, and emergencies among families and communities, with an emphasis on reducing delays in care seeking;
- increasing awareness of the need for and increased use of formal public or private maternal care, both for preventive and curative services, including tetanus toxoid immunization, iron supplements and family planning to avoid high-risk births (to women who recently gave birth, are too young or too old, or who already have many children);
- promoting awareness and use of safe, local community based alternatives to formal care;
- motivating TBAs to increase use of safe birth and postpartum practices and timely referral when problems occur and to decrease harmful traditional practices;
- promoting awareness and use of alternative birth locations (maternity huts, etc.), when these exist;
- modifying services to be more appealing and acceptable to women; and
- training modern maternal health care providers in the public and private sectors to improve detection,
- treatment, and referral of maternal health problems and to counsel women more effectively.

### **Setting D**

In urban **Type D** settings, many low income women complete public education, are employed and mobile, and have adopted a modern approach to maternal health care. Most women seek prenatal care several times during pregnancy, although many wait until the last trimester or until problems occur. Many do not adequately comply with recommended treatment regimens or referral for additional care. Pregnant women "shop" for care, often consulting private providers for laboratory diagnosis of early pregnancy (not available at most public clinics) but attending public, community clinics for routine prenatal care. Most women prefer "modern" hospital childbirth, but cannot afford private care.

There is an infrastructure for adequate provision of components of routine prenatal care. Laboratory diagnostic facilities (for STDs and other screening procedures) are lacking. Maternal care providers can detect complications (preeclampsia, for example) and recognize obstetric emergencies but often do not initiate timely, appropriate action or adequate follow-up. Poor working conditions contribute to low staff morale and poor attitudes which are a significant barrier to pregnant women's use of services. Overcrowding and reduced quality of care at public hospitals results from high demand and inappropriate use of tertiary care facilities for normal deliveries. A system for postpartum care exists but is underutilized. There are many well stocked, modern pharmacies, and iron tablets, tetanus immunization,

and contraceptive supplies are available.

Exposure to all mass media is high, and women have some access to and belief in modern maternal health information and concepts. Relatively good attendance for modern prenatal and childbirth care provides the potential opportunity for exposure to clinic-based education. Some maternal health education campaigns or activities may have been developed, although usually employing conventional methods. Many women read, and there may be special-interest local magazines targeted to female audiences. Women are mobile, and therefore exposed to billboards, posters, bus advertising, etc.

Communication strategies appropriate for this setting focus on redirecting women who are already users of maternal care to improve patterns of care use and on changing attitudes and practices of maternal care providers. There are few limitations on potential channels for message dissemination or media use. Communication could aim at:

- promoting healthy behaviors by women and families during pregnancy and the postpartum period, including improved diet and immediate and exclusive initiation of breastfeeding;
- improving early recognition of danger signs, problems, and emergencies among families and communities, with emphasis on reducing delays in care seeking;
- increasing early initiation and regular use of formal public or private maternal care, both for preventive and curative services, including tetanus toxoid immunization, iron supplements and family planning to avoid high-risk births (to women who recently gave birth, are too young or too old, or who already have many children);
- promoting awareness and use of alternative birth locations (maternity waiting homes, midwife-assisted home deliveries) if these exist;
- modifying services to be more appealing to women; and
- training modern maternal health care providers in the public and private sectors to improve detection, treatment, and referral of maternal health problems and to counsel women more effectively.

Although this typology (Settings A-D) is useful for categorizing pilot projects, and for analyzing what works under what conditions, it is important to note that in most developing countries, a national or even regional communication strategy to improve maternal health would require activities designed to simultaneously address several of these settings. For example, in Jamaica, where three quarters of all births take place in overcrowded, urban public hospitals (as in a Type D setting), most maternal mortality occurs in rural areas, among multiparous women who give birth at home despite the availability of public hospitals and midwife attendance for home births (as in Type B or C settings). In Jamaica, then, strategies are needed for two quite different settings. For the communications planner, it may be more useful to work with a checklist of important characteristics of women and the maternal health system rather than to work with the four categories. The checklist would include the major causes of maternal morbidity and mortality, the type and quality of prenatal, delivery and postpartum care available, the extensiveness of community networks, and the formal media and commercial infrastructures. Finally, because many of the communication approaches are similar among settings, the refinement of the approaches should be determined for each locale.

The important point is that the communication program must be tailored to the life style context of its beneficiaries. The problems, perceptions, and barriers articulated by women such as Rani, Mawa, Fatimah, and Gabriela, described at the outset, must be addressed.

### III. EXAMPLES OF THE ROLE OF COMMUNICATION IN MATERNAL HEALTH PROGRAMS

Well-designed and implemented communication can play many direct and supportive roles in improving health. It can:

- promote programs, policies, and services to policy makers, health personnel, and the public;
- facilitate coordination within and between institutions;
- help programs consider the user perspective in order to make services more convenient, acceptable, and satisfying;
- make people more aware of health problems and their severity; motivate people to adopt more healthful behaviors;
- give people essential information they need to improve health; and
- teach essential skills required for improving health.

The roles of communication in public health programs may be grouped under four general headings:

**advocacy,  
institution strengthening,  
program support, and  
motivating/teaching health-promoting behaviors.**

This section discusses these different communication roles and offers many project examples of attempts to implement them in a wide variety of settings.

Despite growing recognition at the policy level of the need for more comprehensive maternal health communication activities to promote "strategic information dissemination" to reduce maternal mortality (Law et al. 1991), there are few "model" projects or programs to put forward as examples of precisely how this should be done. As the emphasis on safe motherhood programs is relatively recent, few communication projects concerned with maternal health have reached the stage of evaluating effectiveness or cost.

The programs, projects, and activities summarized in this section represent recent and current efforts to transmit information and change practices affecting maternal mortality and morbidity. It is not possible to identify all such projects; projects described here are obviously those for which information is most readily accessible.

#### Advocacy

Television, newspapers, seminars, meetings, and other media can make policy makers (political, medical, media, and even religious) more aware of the magnitude of health problems, of the need to create a more favorable policy environment, of the potential for legislation to

reduce discrimination against women or otherwise support health, and of the many immediate and secondary benefits -- not the least of which are economic -- of improving public health.

Communication activities can increase:

- awareness of the need for and benefits of improved maternal health care policy and programs to policy makers, health and media professionals, and public interest groups;
- the priority and funding for program activities aimed at improving maternal health;
- networking and disseminate state-of-the-art information about maternal health care activities;
- intersectoral coordination and increase awareness of specific maternal care issues (components, quality, and coordination of maternal care); and
- awareness of the need for and effectiveness of incorporating the stated preferences of women when designing and promoting maternal health services.

Below are examples of projects that used communication to work toward these objectives.

In **Bolivia** the National Family Planning Communications Campaign promoted family planning among influential national leaders through mass media and seminars. The campaign evaluation showed that following the project's seminars and conferences, 83 percent of participants agreed that support for family planning ought to become the official policy of the Bolivian government.

Following a presentation of the AIDS Impact Model that explains various scenarios of the likely course of the AIDS epidemiology in a country, the president of **Uganda** changed his government's AIDS control policy to include mass condom distribution.

In rural areas of **Kenya**, attempts to introduce family planning education were resisted by community members. Discussions with village leaders and other influentials determined that family planning messages would be more locally acceptable if incorporated into a wider range of family health messages, including messages aimed at men's health problems. The project successfully "repositioned" family planning education by making it a part of comprehensive set of family health messages and educational materials, redesigned to include modules on prenatal care and men's health (Mandaleo ya Wanawake, Kenya/Pathfinder).

In **Nigeria**, where the practice of female circumcision is widespread, the National Association of Nigerian Nurses and Midwives (NANNM) developed and launched a communication campaign to increase awareness at all levels of the problems associated with the practice. Nurses, midwives, and TBAs received training in communication and interview techniques, and materials development.

Based on information from national and local awareness creation workshops and focus groups, messages were drafted for print and video materials were designed, then pretested and revised. The participation of traditional healers in strategy formulation resulted in several innovative ideas, such as the design and use of traditional cloth with a motif similar to tattoos and other scarification, to replace actual performance of such practices during womanhood

initiation rituals. At gatherings of market sellers unions, women's groups and professional societies, dramas, poems, and stories were developed that disseminated through community groups, health clinics, and mass media.

Awareness and public discussion of the dangers of female circumcision have increased since the campaign began in 1987. Community support is seen in the funding of small projects by local organizations. Additional focus groups are underway to guide the design of strategies to increase the involvement of mid- and community-level workers outside of the health professions. (Communications Campaign for Eradication of Female Circumcision, National Association of Nigerian Nurses and Midwives/ Population Crisis Committee, 1990)

In **Somalia**, Italian and Somali professional women collaborated in the design and implementation of a national multimedia campaign to increase public awareness of the negative effects of female circumcision on women's reproductive health. National conferences for political leaders sensitized policy makers to the issue. The project created a resource center to house and produce materials on female circumcision and designed and produced a learning package of text, tapes, slides, and videos. A series of workshops brought together many diverse groups, from community storytellers to gynecologists, to review and adapt the learning materials in the resource kit. Traditional communication channels such as poetry and oral histories were utilized to disseminate messages, and flip charts of the slide shows were made for villages without electricity. Messages were also aired by radio, television, and in the cinema.

Following an international conference on female circumcision held in Somalia in 1988, four other African nations -- Nigeria, Sudan, Gambia and Ethiopia -- began projects based on the Somali model (Information Campaign to Eradicate Female Circumcision, Somali Women's Democratic Organization/Italian Association for Women in Development, 1990).

In conjunction with the Safe Motherhood Initiative, Family Care International (FCI) is organizing and implementing regional Safe Motherhood Conferences. These conferences foster information sharing and communication about maternal health issues among policy makers and maternal health workers in each region. Conferences have been held in Southern Africa and South Asia and are planned for Latin America and the Caribbean in early 1992.

In addition, FCI has prepared a series of information packets, Safe Motherhood in Action, which provides summaries of key concepts, interventions, projects, and information on prenatal care, obstetric care, family planning, communication, and transportation. These are designed to stimulate the development and implementation of creative, low-cost, effective responses to the problem of maternal morbidity and mortality at both community and policy level. FCI has also produced several video documentaries about the status of women's health care in different parts of the world. ("Information, Education and Communication" 1991)

### **Institution Strengthening**

The process of planning a communication project or project component, conducting qualitative research, formulating a project strategy and work plan, and managing, monitoring, and evaluating communication activities should result in long-term improvements in communication-related capabilities in the institutions involved. Specialized training can enhance these skills.

Often helpful in these cases are private-public alliances, with the private sector contracted to provide training or other specialized assistance until the government develops sufficient capabilities. As part of Ecuador's child survival program, for example, private sector assistance was provided to the Ministry of Health's health research institute to improve its capabilities to undertake qualitative, program-oriented research. The institute in turn conducted much of the program's research in communication.

District or community-level capabilities in planning, interpersonal communication (counselling, leading group discussions, etc.) and community mobilization can also be improved. The keys to facilitating this are encouragement and support of local communication planning, allocator of resources for local activities, and good training, supervision, and support to local workers in their communication tasks during program implementation. Time after time projects that have enhanced the communications skills of their community workers, have shown an increase in the utilization of their services.

Also, communication can promote coordination within and between institutions, because it cuts across all technical areas and because its success depends on message harmony. Communication planning and implementation can bring together staff from different programs of one ministry as well as staff from various agencies. This enhances coordination and overall effectiveness, while reducing the likelihood of duplication of effort. All of this can carry over to other areas beyond communication. Often, communication is the "glue" that holds multisectoral efforts together, precisely because messages and activities must be satisfactory and useful to all members.

Communication activities can strengthen the health system's ability to improve:

- skills in formative research planning and analysis, communication planning, implementation, monitoring and evaluation;
- recognition of risk/treatment of problems and appropriate referral for additional care;
- awareness of and attitude toward traditional client beliefs and practices; and
- acceptance of referrals from traditional practitioners.

In the rural Gadchiroli District of **India** (type A setting), research was conducted to investigate actual and perceived reproductive health problems of women residing in the area and to develop a plan of action based on study results. Clinical examinations demonstrated a high incidence of actual clinical problems (over 80% of women examined had at least one gynecological infection or problem), but interviews indicated that few women, even those with symptoms, had ever sought examination or treatment.

The project organized a "jatra" (carnival) to present study results to the villagers and encourage community action to address the problems. Photos, slides, drama, and songs were used to illustrate the situation of women in the area. The presentations generated demand among villagers for more information on women's health issues.

Workshops, organized to further discuss reproductive health topics, resulted in the formation of women's and youth groups in many villages. Men's increased awareness of STDs resulted in demand for a study of STDs in men similar to the original women's clinical study. Based on

research results indicating that many women would not seek care from male health care providers, a new cadre of female, mid-level women's health specialists was created. Nurses received additional training in routine gynecological care, and now provide primary care to women in fifty villages (Bang and Bang 1989; Bang and Bang 1991).

Village level MCH/FP workers in three hundred counties in **China** (mostly type A & B settings) will be trained in six priority primary health topics, including maternal health. At the national level, training for VHW trainers includes communication and interpersonal counselling skills, participatory training techniques, and methodology for developing health education materials. Topics for health education materials being developed for use at the village level include maternal health and safe delivery (Government of China, UNFPA/UNICEF/PATH, pers. comm. 1991).

In rural **Guatemala**, a Type B setting, where over 75% of all births are attended by TBAs, maternal mortality is high. An innovative "Guatemalan solution" to improve maternal and newborn health is being tested in rural Quetzaltenango. Major focus areas are improving technical and counselling skills of TBAs through use of a participatory, experiential training approach; increasing capability of district-level health staff to identify and manage obstetric problems; improving communication and referral between TBAs and modern maternal health care providers; and increasing knowledge of risk, danger signs, and obstetric emergencies at the community level.

INCAP has conducted several studies in the project area which provide baseline information on priority maternal health problems, document community and health worker response to "events" which led to maternal mortality, and identify relevant knowledge, attitudes, and practices of TBAs, women, and families. Lack of recognition and response to high-risk pregnancies and births by TBAs, injection of oxytocics to "enhance" labor, and lack of confidence in government health services for referral of complications were documented as major contributing factors to poor pregnancy outcome.

The project is using this information to develop innovative, participatory methods of training TBAs, based on documented local knowledge and practices. Informal training methods and materials are being developed to improve TBA recognition, management, and referral of prenatal and obstetric risk. Workshops for district-level health workers will improve counselling skills and increase awareness of traditional maternal health beliefs, practices, and perceptions which influence compliance with referral for treatment of obstetric emergencies (Scheiber et al. 1990).

Because many births in rural and periurban areas of **Ghana** are attended by TBAs, activities to train TBAs in safe birth techniques have been included in many maternal health and family planning projects during the past decade. As an initial research activity to guide the development of a national TBA training strategy, the Ministry of Health compiled information on actual and perceived effectiveness of prior TBA training efforts. As part of this program review, researchers interviewed TBAs, women, and community members to elicit their opinions on which aspects of TBA training had been most beneficial to the community. Following the review of projects, a pilot effort was developed to incorporate family planning into TBA training.

"Mini-surveys" conducted during and after completion of the project documented increased knowledge and use of family planning among contacts of TBAs and increased TBA referrals to the health post. However, although the project expected that trained TBAs would teach their newly acquired skills to women other than their clients, few TBAs actually did so, primarily

due to lack of confidence in their counselling skills. To address this, the TBA training program was modified to include communication skills and counselling techniques (Twumasi 1987; Ministry of Health, Ghana/Center for Population and Family Health, Columbia University, 1990).

Improving the capability of TBAs to identify pregnant women at risk of developing complications and refer to the appropriate source for additional care is an important facet of TBA training. In **Nicaragua** (type B setting), the national TBA training program developed a set of pictorial "risk cards" for TBAs. Images represent the most common preventive maternal care needs (e.g., tetanus immunization) and complications (e.g., bleeding) during pregnancy, delivery, and the postpartum period (TBA Training Program, Ministry of Health, Nicaragua/UNICEF, pers. comm. 1991).

## Program Support

Communication can support programs by generating public demand for health services. Too often programs neglect to promote what they have to offer. A program offering services should "advertise" its product, particularly if it can be shown to be "improved." Programs should let people know where and when services are available, how to use them, what to expect, what the benefit of the services is, and how the services have been improved. In Nigeria, messages woven into a television entertainment series successfully promoted the utilization of family planning services and increased the monthly number of new clients from fewer than 50 to 120.

No well implemented demand creation, however, can overcome services that the public perceives to be too inconvenient, unreliable, unpleasant, expensive, or of poor quality. Among many common obstacles to utilization of services are:

- People may not perceive high-risk conditions or even illness to require medical attention;
- People may lack information about available services;
- Hours of service may conflict with essential daily activities, including employment, water and fuel supply, food preparation, and child care;
- Service fees may be considered expensive;
- Transportation may be difficult or expensive or women's travel outside the home may be restricted;
- Different services may be scheduled inconveniently, e.g., the separation of related activities such as family planning and child health;
- Insensitive clinic staff may not treat women with sympathy and respect;
- Treatment may be of poor quality, due either to deficient staff capabilities or lack of equipment, drugs, and other support;
- Standard procedures in health facilities may run counter to strongly-held folk beliefs; and

- Health education messages may run counter to women's attitudes and beliefs.

Communication activities can contribute to the resolution of many of these problems. Formative research (research to design communication programs) can elucidate the clients' perspective and thus provide a basis for devising strategies to overcome barriers to appropriate utilization. Strategies invariably encompass both modifying/improving services and promoting them effectively through appropriate communication.

Formative research can answer such questions as: What do target groups themselves expect from health services? Which components of care are most acceptable and how should they be made available? What locations, hours, types of provider are most acceptable? Is the fact that local health workers are male a major impediment to women's utilization of health services? This research can also provide the basis for making health workers aware of the social conditions and knowledge, beliefs, and attitudes that underlie health problems, and of how they should communicate with women and other clients to maximize their satisfaction and continued use of services.

Objectives for promoting appropriate use of maternal health services include:

- promoting timely, regular use of recommended source of preventive prenatal and postpartum care;
- promoting use of a trained birth attendant and/or hygienic birth practices;
- promoting timely use of recommended source of treatment for prenatal, intrapartum, or postpartum problems and conditions;
- promoting use of recommended birth locations (including maternity waiting homes);
- designing and promoting an "improved product" such as a new form and source of iron supplementation, alternative birth location/ birth attendant, redesigned maternal care locations, schedules, practices, and a safe birth kit or other innovative community-level technologies;
- developing community emergency transportation schemes and other means to increase women's ability to access needed care;
- promoting acceptance of alternative service provision (e.g., maternity huts, TBA distribution of iron tablets);
- increasing participation of women in maternal health care decision-making; and
- improving acceptance of fee for service or co-payment.

Qualitative research to explore pregnancy-related behaviors and maternal health service utilization of urban Asian women in five countries has just begun. Research in **Seoul, Kuala Lumpur, Bangkok, Jakarta, and Manila** will be the basis for culturally appropriate maternal health promotion programs for each country. The plan encourages a participatory approach not only to the research itself, but in the formulation of strategies to develop realistic solutions to maternal health problems. Results of interviews with pregnant women and traditional and

modern maternal health care providers will be presented at multidisciplinary national strategy formulation workshops. The objective is that maternal health education programs be developed and implemented jointly by women and health service providers (Developing Culturally Appropriate Maternal Health Education Programs, The Institute of South Asian Studies/IDRC, pers. comm. 1991).

In Faisalabad, **Pakistan** (type C setting), where postpartum hemorrhage is a major cause of maternal mortality, over 80% of births are attended by TBAs. An emergency ambulance service was created to bring lifesaving treatment to women with postpartum complications. Despite the high incidence of maternal deaths, the service was poorly utilized. An intensive campaign to increase awareness of the ambulance service was undertaken which targeted female community health visitors (LHVs), TBAs, doctors, and influential community members. On the advice of TBAs, expectant mothers were included in the second phase of the campaign; expectant mothers requested that elder female family members be educated, as they often discouraged compliance with hospital referral. The campaign disseminated information through television, radio, newspaper, billboard and posters and at Mohalla meetings (street camps). Although no requests for service occurred during the first year of its existence, within a year of the communication campaign, 73 requests were received (Bashir 1991).

A pilot operations research project, based at the teaching hospital affiliated with the national medical school in **Ghana** (type C setting) has developed several strategies to reduce maternal mortality in the project area. The capability of the district hospital to provide quality maternal care will be strengthened, and a building provided by community members for use as a health center will be staffed and equipped.

Baseline qualitative research documented the widespread difficulties that pregnant women in the project area experience in obtaining transportation to hospital during obstetric emergencies. In this and other rural areas outside of Accra, commercial vehicle owners are often unwilling to transport women with obstetric complications to hospital, or they charge substantially higher fees for such services. To address this, the Accra project team is planning communication activities targeted at commercial transport workers. The proposed campaign will target members of the transport workers union to increase drivers' awareness of maternal health problems, the role of transportation delays in maternal mortality, and their potential role in the Safe Motherhood campaign (Ward, pers. comm. 1991).

The Cochabamba Reproductive Health Project aims to improve maternal health in an urban area of 400,000 people in **Bolivia** (type C setting). Although public and private maternal health services are extensive and convenient, their utilization is low, and maternal and neonatal morbidity and mortality rates are high. The project is using a multi-pronged approach that includes service improvement (through new norms and procedures, supplies and equipment, and training), promotion of appropriate utilization of health services, and promotion of improved practices in the home.

On the basis of several months of qualitative formative research, the project staff and collaborating organizations formulated their project plan at a strategy development workshop in August 1991. On the basis of the research, the workshop participants prioritized the important practices of the population that are rejected by the health system and the important practices of the health system that are rejected by mothers and other community members. As part of this task, consideration was given to the ease of modifying a particular behavior, given the resistances to change and their underlying reasons. The priority practices identified from those of the community/family are:

- the low level of family planning practice;
- unhygienic cutting and tying of the umbilical cord;
- lack of recognition of edema during pregnancy as a problem and, consequently, failure to seek care when it occurs;
- utilization of potentially dangerous labor augmenters (ergometrine, oxytocin, and others);
- lack of attention to the newborn following delivery and failure to seek medical attention for the newborn with problems; and
- delayed initiation of breastfeeding and discarding of colostrum.

The priority health service practices identified that discourage utilization were:

- abusive treatment by providers during prenatal and delivery care;
- failure to give the placenta to the family after a birth for ritual disposal;
- maintaining a cold and ventilated environment in the birthing areas of hospitals and health centers, which women believe make normal labor and delivery difficult;
- lack of privacy and the presence of many "students" and other staff during prenatal consultations and in the delivery room;
- failure to give information to women during prenatal care about their weight gain, the condition of the fetus, etc. -- information women say they want and expect; and
- the horizontal delivery position favored by health providers.

Participants identified basic elements in an intervention strategy to address 12 priority problems. The strategy includes activities in training, communication, and modification in health services (Restrepo 1991).

Pregnant women in Tijuana and other nearby U.S./Mexico (type D setting) border regions commonly underutilize prenatal care. Researchers from both sides of the border undertook a project to increase the awareness of need for and use of prenatal care among these women and to improve self-care and recognition of danger signs during pregnancy. Qualitative research among pregnant women provided information about factors influencing food consumption and use of health care during pregnancy and sources of pregnancy-related information.

Research results documented low awareness of the importance of adequate maternal weight gain and of most common complications of pregnancy. Resistance from husbands was a major disincentive to adequate weight gain during pregnancy. Focus groups demonstrated that women themselves did not use or understand the term "risk" as applied to pregnancy or conceptualize pregnancy according to the commonly used medical terminology of "trimesters." Materials were thus designed using simpler, more acceptable language and concepts, and men were also targeted.

The project designed, pretested, and produced prototype educational materials promoting prenatal care and recommended mass communication and education strategies. Women's preferences were incorporated into both the design of the communication materials and strategy. Materials included a poster, a calendar with basic prenatal care messages, and two songs with messages about maternal nutrition and the role of the baby's father. Prototype materials were not mass produced due to funding constraints (Scrimshaw and Zambrana 1990).

In urban **Tunisia**, the existing infrastructure for provision of both maternal and infant postpartum care is underutilized. To improve utilization, the Sfax University Teaching Hospital "repositioned" its postpartum services. Formerly, women who gave birth were informed of the availability of postpartum care upon discharge from hospital, but no specific return date was suggested. The new program promoted a fixed date of return for postpartum examination and contraceptive counselling on the fortieth postpartum day. This date marks the end of the traditional period of postpartum convalescence which is still widely observed. In addition, maternal and infant postpartum services were redesigned, integrating the two types of service provision in one location.

The fortieth-day consultation visit was promoted through use of audio cassettes containing popular traditional music and some maternal health messages, routinely played in the maternity ward. Within one year of implementation, the percentage of women returning for postpartum care increased from 60 to 83% (Coeytaux 1989).

In **Bangladesh** (type B setting), TBAs' unhygienic birth practices result in high rates of deaths from neonatal tetanus. Extensive research over a three-year period to design and pretest a safe birth kit for TBAs which is "user-approved" resulted in recommendation of a specific form and content prior to large scale production and distribution of the kits nationwide.

The research pretested acceptability of all aspects of the kit with pregnant women, family members, and TBAs. This pretesting solicited input from potential users and beneficiaries on design and colors of the prototype box and logo, specific quantities for contents of the kit, comprehension of pictorial use instructions, and price. Shopkeepers, pharmacists, and men's groups were interviewed about methods of kit production, promotion, and distribution. Trials of prototype kits and promotional materials resulted in modifications to meet user preferences and expectations.

The research resulted in use of blue and red as the predominant kit colors, inclusion of an additional razor blade at request of TBAs (so they would not have to use the same blade to cut the umbilical cord and their fingernails), a healthy mother/healthy baby logo, and the price preprinted on the kit to reduce anticipated discrepancies in eventual cost to consumers. During the trial period, most kits were purchased through women's groups. Most buyers heard about the kit at village meetings. Recommendations included expanded use of mass media communications for wider promotion of the kit (Christian Commission for Development in Bangladesh/PATH 1990).

In urban **Jamaica**, a Type D setting, rising demand for hospital childbirth has resulted in overcrowding and reduced quality of care. Pregnant women in rural areas, at greater risk due to high parity, underutilized the available option of hospital or midwife-attended home delivery. The Ministry of Health proposed the creation of an alternative birth location to divert anticipated normal childbirths closer to the community level in urban areas and to increase attended childbirth by high risk rural women. Qualitative research assessed the parameters of

choice of childbirth location and attendant, acceptability of the option of midwife-attended birth in a maternity room attached to a community clinic, and the specific conditions which would motivate pregnant women to change birth location. Focussed group discussions with urban and rural women who had recently given birth utilized market research methods such as projective interview techniques and pile sorts.

Although few women could identify specific intrapartum risks or dangers, perceived safety and availability of emergency care were the predominant reason for hospital birth preference. Provision of privacy, personal care, and social support were stated prerequisites for use of the proposed alternative birth location. Poor attitudes of maternal health care providers were identified as a source of dissatisfaction with hospital birth and a major barrier to antenatal care use.

Based on study results, the Ministry of Health has revised plans for the locations of several proposed pilot maternity rooms. A media campaign to address documented barriers to improved maternal health care use and in-service education of maternal health care providers to improve counselling skills are being considered (Wedderburn and Moore 1990).

In urban **Zimbabwe**, a Type C setting, STDs are a growing public health problem. City health department nurses were surveyed to obtain their opinions on the importance of and priorities for the development and implementation of improved STD detection and treatment programs. Depth interviews with nurses indicated a perceived use of traditional healers for STD treatment as a major barrier to effective treatment. There is high priority assigned to the need for better contact tracing and improved communication and cooperation between government and other providers of STD treatment. Nurses felt that they themselves should have responsibility for STD contact tracing in the community. Training of health personnel and media campaigns to increase public awareness were suggested as priority needs.

The participation of nurses in the design of national STD control programs and strategies is expected to increase their motivation to provide effective treatment of STDs (Munodawafa and Ahia 1991).

### **Motivating/Teaching Health-Promoting Behaviors**

A major role of communication is to foster behavior change -- actions in the home or community that will prevent problems or improve health status. The specific behaviors to be recommended should be determined in consultation with target groups, to assure their feasibility and acceptability.

The first step in motivating people to take action may well be to make women and communities aware of health problems or of high-risk conditions. The high prevalence of many illness or common high-risk conditions confers a type of normalcy. The World Health Organization estimates that two-thirds of pregnant women in developing countries are anemic. Malaria is particularly threatening during pregnancy because of decreased maternal immunity. Short stature, insufficient weight gain, scar tissue from previous births, and pelvic inflammatory disease are among many high-risk conditions that most women are probably completely unaware of or do not consider as causes for action.

Communication can promote healthy behaviors directly to women, families, and communities:

- early recognition of maternal health problems, danger signs, and risks; appropriate self-care (diet, rest);
- maternal tetanus immunization, iron tablets, and family planning; and
- compliance with iron supplementation, completion of treatment regimens or referral for additional care, and contact tracing (STDs).
- use of safe birth kits and/or safe, hygienic birth techniques;
- increased recognition of intrapartum, postpartum, and prenatal danger signs; and
- improved timeliness of referral to recommended source of additional care.

Communication can discourage unsafe birth practices and other practices which harm maternal health:

- harmful delivery practices;
- use of labor enhancing drugs;
- dangerous or ineffective local treatment of obstetrical emergencies; and
- unsafe abortion techniques by traditional practitioners.

**Awareness/Action.** The communication component of long-term efforts to improve the capability of district-level government health services to provide quality maternal health care in Tanjungsari, **Indonesia** (type B setting) aims to increase community awareness of obstetric risk and intrapartum danger signs and to promote the use of roadside birthing huts, particularly for high-risk pregnancies. In Tanjungsari, the majority of births take place at home attended by TBAs and government health facilities are available for referral of intrapartum complications. Transporting women with intrapartum complications is a major cause of fatal treatment delays. Focussed group discussion and depth interviews are currently in progress to document prevailing knowledge and attitudes of obstetric risk and acceptability of the proposed alternative birth location among women, family members, TBAs and trained midwives.

It is expected that communication interventions will target women, families, and TBAs. A previous study in the same area investigated the obstetric risk awareness of parajis, traditional birth attendants. Although hemorrhage has been documented as one of the most common postpartum complications in the project area, most TBAs did not feel that such bleeding was dangerous and knew only traditional treatment methods (Thouw and Sukarya 1991; Peeters et al. 1986).

In **Myanmar** (formerly Burma), a Type B setting, most rural births are attended by untrained TBAs. A comprehensive interim national primary health care plan recently developed by the new government of Myanmar focuses on reduction of maternal mortality. A major component is the development of a communication strategy to provide community-level education on maternal nutrition and early recognition of obstetric danger signs, among other topics.

Activities for informing and involving families through mass and print media will be developed (Government of Myanmar/UNICEF 1991).

A maternal health autodiagnostico was carried out by over 400 women in Flora Tristan, **Peru**. Information gathered from women by women provided background information on the felt needs and priorities of almost 60% of all women of reproductive age in the communities involved. Sixty percent had experienced and were concerned about repeated spontaneous abortions, and almost half of all women were concerned with menstrual or other types of bleeding problems.

An educational booklet with simple drawings and text presents the results of the autodiagnostico, interspersed with relevant facts about the most common maternal health problems and suggested actions. The survey information will also be used to facilitate design of health actions which specifically respond to the problems given highest priority by women themselves (Cambria 1991).

In the rural **Bolivian** altiplano, Save the Children programs have helped families improve child health for several years. Building on that community-based infrastructure, Project Warmi (the Women's Project) expands activities to include maternal and neonatal health promotion in 25 communities. The project is using three complementary methods to collect information on actual and perceived causes of maternal morbidity and mortality in the project area. Results of these studies--case control/verbal autopsy, process diagnosis (detailed recall of home treatment and care-seeking actions in cases of maternal and neonatal deaths), and autodiagnostico (community selfdiagnosis)--will guide the development of more effective intervention strategies.

Study results thus far have supported the need for increasing community awareness of maternal health problems and for promoting appropriate, timely response by women and families in the resource-poor project area. In addition to general awareness creation, communication activities will focus on changing several potentially harmful attitudes and practices documented by the studies. For example, during prolonged or problem labors, husbands assisting with childbirth often use "manteo," a sometimes harsh rocking of the laboring woman in a makeshift hammock, to change the fetal position and hasten birth.

An integral part of project activities is strengthening existing women's groups in the project area. The design of the autodiagnostico process maximizes women involvement not only in all aspects of the community assessment exercise itself but also in the design and implementation of strategies to improve maternal health in their communities. Based on women's perceptions of priority maternal health problems, the project will organize women themselves to design community maternal health education materials.

Other communication activities planned for the project include dissemination of maternal health messages through other channels, such as radio and print media; development of a maternal health training curriculum for community members, community health workers, and traditional maternal care providers; and design and development of a manual which documents project maternal health promotion activities for use by other NGOs in Bolivia (Save the Children/Bolivia, MotherCare 1991).

In Port Harcourt, **Nigeria** the incidence of women diagnosed at the district hospital with vesicovaginal fistulae (VVF), a common sequelae of prolonged labor, is alarmingly high. Tracing this problem back to its roots, a radio campaign was developed to alert women and

communities to the dangers of prolonged labor and of the need for prompt referral of any woman - in labor longer than 24 hours. During the several years following the radio campaign, the incidence of VVF decreased significantly at the hospital serving women within the catchment area of the radio messages. There was no corresponding decrease of VVF at hospitals outside the reach of the radio campaign (Harrison)

Compliance. In **Zambia**, maternal syphilis affects over 10% of prenatal clinic attenders. A demonstration project for a national maternal syphilis control program included health education efforts to increase early use of prenatal care during which early detection and prompt treatment of maternal syphilis could be undertaken. The study took place at three periurban government clinics in Lusaka (type C setting).

Health education materials, covering a broad range of health topics, including STDs, were developed with the assistance of local leaders. Reproductive-age women attending prenatal, family planning, and child health clinics, and men attending general medical clinics in the project area were targeted. Print material and interpersonal communication were the main methods employed. Evaluation of education effectiveness was measured by responses of clinic attenders to pre and post questionnaires. Pregnant women receiving treatment for syphilis were informed of the importance of partner treatment.

Early prenatal care use increased from less than 10% to 40%. After one year of health education, fewer than half of late prenatal care attenders were aware of the benefits of early prenatal care use. Twice as many partners were treated in the study area compared to controls, probably due to improved provider attention to educating women on the importance of partner treatment. Although adverse pregnancy outcomes related to maternal syphilis in the study area were reduced by two thirds, less than 60% of prenatal care attenders were screened for syphilis, and less than half of those who tested positive were treated. Cost per elimination of adverse pregnancy outcome was US\$12.

Although service system deficiencies are mentioned generally, the precise factors responsible for low rates of detection and treatment are not identified. Complementing health education efforts for clinic attenders with motivation and training of clinic health workers might have improved effectiveness (Hira 1990).

A study of the effectiveness of iron supplementation of pregnant women in reduction of maternal anemia in Northeast **Thailand** investigated the factors influencing women's acceptance of ferrous sulfate tablets. Education and motivation of health workers who distributed tablets was identified as an important factor in the success of their efforts to persuade women complaining of side effects to continue taking iron tablets. Investigators attribute success of treatment to persuasion from health workers and distribution of action-oriented household calendars containing well tested motivational messages. As side effects diminish after the first several weeks of supplementation, reassurance during early therapy is important and can reduce treatment dropouts. Reduction of maternal anemia was greater among women receiving longer courses of ferrous sulfate, but longer courses of treatment may negatively affect compliance (Charoenlarp et al. 1988).

The Center for Child Survival, University of **Indonesia** is undertaking an operations research study to determine the effectiveness of increased access to iron folate tablets on reduction of maternal anemia (type B setting). In addition to improving supply of iron tablets through normal prenatal care providers at district and community health facilities, the project will establish TBAs as new "depots" for distributing iron tablets to pregnant women. The additive

effects of enhanced communication activities on use of iron tablets also will be assessed.

Qualitative research among pregnant women, husbands, elder female family members, TBAs, midwives, and doctors provided information about behavioral and attitudinal factors influencing compliance with iron supplementation during pregnancy, acceptability of iron tablets, and community preferences for the mechanism of community distribution of iron tablets by TBAs, known locally as dukun bayi. In-depth interviews documented low levels of knowledge about and interest in maternal anemia as a maternal health problem, among both the community and health workers. In addition, some resistance to the proposed concept of distribution of iron tablets by dukun bayi was expressed, especially by elder women. Distribution of "modern" medicine like iron tablets fell outside of the perceived role of dukun bayi. As pregnant women were found to visit the home of TBAs several times during pregnancy for abdominal palpation and massage, iron tablet distribution based at the home of the TBA was preferred over TBA home visits to pregnant women. A small household trial of iron tablet use by pregnant women revealed that undesirable tablet characteristics (fishy smell and taste) and side effects (constipation, change in color of stools) were significant barriers to continuation of iron tablet use, as was fear that increased appetite would result in a larger baby. Increased strength and health for the pregnant women who took them were the primary stated benefits of tablet use.

Based on research results, the communication strategy addresses the specific motivators for and barriers to iron compliance and to the "dukun depot" model. Reassurance from family members and maternal health care providers about the time-limited nature of side effects and dietary advice to diminish them were identified as a possible means to increase compliance. A mythical warrior figure named Gatotkacha, known widely throughout Java, was selected as a symbol representing the strong, healthy baby which would result from use of iron tablets by pregnant women. According to Javanese mythology, as an infant, Gatotkacha was required to fight an evil giant. To empower him, the gods threw their weapons into a cauldron with the baby. He absorbed the iron and the power of the weapons, giving him the required strength.

Initially, messages were designed to associate the cauldron with the mother's womb and the weapons with the iron tablets. However, this model was felt to place too much emphasis on taking iron tablets to improve the health of the baby. Draft messages have been modified to use Gatotkacha as a product logo to represent the strength-giving properties of iron tablets, suggesting that their use will result in increased strength for the pregnant woman herself. The main project symbol has become a pregnant woman (Mrs. Health) who speaks about her experiences and reminds women to take an iron pill each day. The project is ready to launch after extensive pretesting of all materials (Moore et al. 1991).

In many parts of **India**, although severe anemia is common, iron supplementation available through PHC centers is underutilized by pregnant women. To improve women's ability to recognize the early signs and symptoms of anemia and motivate them to take appropriate action, CHETNA developed educational materials about anemia and women's health.

The materials development process began with an interdisciplinary workshop to raise awareness of the problem among health and social workers and to formulate concepts for nonformal education strategies to prevent maternal anemia at the village level. A second workshop was held to develop possible messages, materials, and media for village anemia education. A kit for use by community health workers included educational materials for women (posters, flashcards, and stories for pregnant women, songs for young girls, and dramas aimed at mothers-in-law). A trainers' manual for field workers provides factual

information and guidelines for use of the kit. The kit, mass produced in Hindi, Gujarati, and English, has been widely distributed (Capoor 1987).

Research which utilized qualitative and quantitative methods was conducted in **Malawi**, Central Africa, to investigate reasons for low use of chloroquine for malaria prophylaxis among antenatal clinic attenders. Initial clinical studies demonstrated a significant discrepancy between perceived symptoms of malaria and the presence of actual parasitemia. The traditional health belief system regarding "malungo" (the local translation of malaria) included many combinations of symptoms, severity, and etiology, all considered within the same disease category. Tablet characteristics associated with inexpensive, generic preparations of chloroquine used in government malarial prophylaxis programs, especially bitter taste and smell, presented a barrier to tablet use among pregnant women. Because chloroquine, a "powerful, white, bitter-tasting medicine," was associated with bitter-tasting traditional abortifacients, its use during pregnancy was not accepted.

Based on results of the initial clinical and ethnographic investigations, an operations research project was designed to test the relative effects of two interventions; (1) substitution of a form of chloroquine with "improved" tablet characteristics (non-bitter tasting) for prenatal malarial prophylaxis, and (2) use of health education messages designed to address documented barriers to tablet use. OR study results showed that although health education using specially developed messages improved chloroquine use, substitution of a sugar-coated chloroquine preparation had the greatest impact on compliance with prenatal chloroquine use. Combined use of the two interventions -- improved tablet plus improved health education -- did not result in significantly higher compliance than use of the improved tablet alone. A cost-effectiveness analysis demonstrated that the two interventions were equally cost effective (Helitzer-Allen 1989).

**Improve Practices.** In **Thailand**, a study investigated the effects of improving education and counselling of pregnant women regarding diet and weight gain during pregnancy in a controlled setting. A sample of 603 pregnant women in a Khmer refugee camp were assigned to an intervention group and 580 women to a control group. The control group received a pre-existing educational program, rations, and supplements. The education included non-interactive and non-judgmental feedback on weight gain. The intervention group received discriminating feedback about weight gain and counselling on how to increase weight gain and participated in discussions on how to improve pregnancy outcomes. Many of the weight gain feedback messages for the intervention group were developed from information gathered through focus group discussions. Data were collected through pre- and post-tests of women's attitudes toward weight gain and dietary practices and through questionnaires from August 1988 to July 1989.

Significant effects of the intervention included decreased incidence of low birthweight infants, improved weekly weight gain, and improved support for the women from their spouses. These effects were noted only for those women who attended classes for more than three months. Knowledge improved and attitudes toward weight gain changed as indicated through increased test scores.

The use of focus groups to define the content of and methods used for feedback proved successful. The use of information seen as credible and the support of spouses were found to be important factors in improving the nutritional status of the pregnant women (Roesel et al. 1990).

In **India**, the Integrated Child Development Services Program has as one of its goals to improve the health and nutritional status of pregnant and nursing women. As part of the USAID-assisted ICDS pilot project in two states, attention was given to strengthening the nutrition and health education component, in part its focus on the problems of pregnant and nursing women. A thorough qualitative research study was done by a local market research firm. It concentrated on maternal diet and the acceptance of iron-folate pills. The basic behavior change objectives of the project were for the women to:

- eat more of their normal diet at each meal;
- obtain food from the community center;
- obtain and take iron-folate tablets;
- obtain at least two tetanus toxoid injections.

Two radio spots, a pregnant woman's action sheet, a counselling card and a one-minute film spot were developed. The action sheet was devised to be given to women as soon as they recognized they were pregnant. The sheet reminds them of the basic actions they should take. The radio spots reinforce the three nutrition-related activities. One has the doctor as the authority and the second uses the mother-in-law. The film spot is aimed at motivating husbands to encourage their wives to eat properly. Again, the doctor is used as the authority figure. Also, a radio program for women of childbearing age and mothers-in-law was conceived. It had three objectives: to build the confidence of the mother, to build a more empathetic relationship between daughter-in-law and mother-in-law, and to strengthen the link between anganwadi worker and village women.

Within three to four months of the launch of the interpersonal communications component (the educational efforts of the AWWs), a monitoring study was done. The AWWs seemed well-versed in the messages and they were clear on their role as educators. However, they were not using the counselling cards. The counselling cards were well wrapped and placed in a safe and clean place in the house. One AWW expressed wonderment at the fact that she had been given such nice material. She was worried she would ruin it and have trouble with her supervisor. Clearly, the message that these were to be used had not gotten out in a meaningful way. The pregnant woman's action card was popular in some areas and in others, not at all. In the area where it was not popular, there was a problem with interpretation of the drawing. Some women perceived the graphic of a woman taking a pill and getting an injection as promotion of family planning. Husbands would not allow their wives to have the card. In some places, the card was seen as a ration card, entitling the woman to pills, food and immunizations. In this case, the card was demanded and guarded (Griffiths 1989; Griffiths et al. 1991).

In Aguascalientes, **Mexico**, a baseline survey indicated that 24% of targeted women fell into the project classification for reproductive risk. A significant impact resulted from a combination of increased commitment at policy and managerial levels to reach these women, training in risk detection and management for over 90% of medical and social service workers in the project area, and the design of educational materials and radio messages targeted to reproductive-age women. Project posters and pamphlets and discussion with hospital staff were the primary source of risk information. Training for health workers included the design and use of a "reproductive risk wheel" to simplify risk recognition. Indicators of success included a 20% increase in postpartum contraceptive prevalence, contraceptive use by over

half of at risk women, and knowledge of the concept of reproductive risk among 90% (compared to eight percent in the control group) (Delivery of Family Planning on the Basis of Reproductive Risk, Instituto Mexicano del Seguro Social [IMMS] and Population Council, pers. comm. 1991).

In **Brazil**, heterosexual transmission of AIDS is increasing, and the percentage of AIDS cases reported among women is rising. An operations research project will evaluate the effectiveness of AIDS prevention interventions targeted specifically at women residing in and around a BEMFAM family planning clinic in Rio de Janeiro, a type D setting.

Among a range of reproductive health services offered to men and women by the Clinica da Mulher, demand is greatest for family planning services. Qualitative research will be conducted among family planning clinic attenders to identify determinants of two hypothesized AIDS prevention behaviors -- use of condoms and talking to sexual partners and peers about AIDS. Results of initial focus groups among 40 women were used to identify issues and design a structured interview guide for the second phase of 200 interviews now in progress. Interview topics include perception of need for, satisfaction with, and effectiveness of condom use; acceptability of and barriers to discussing AIDS with peers and partners; knowledge of actual and perceived personal AIDS risk; and preferences for content, methods for development of, and strategies for dissemination of AIDS health education messages.

Using participatory methods successfully employed in popular Brazilian literacy programs, the project will use Phase II research results to help women themselves develop AIDS health education messages and materials which will promote increased use of condoms by women for AIDS prevention, and encourage dialogue about AIDS with partners and peers (Testing AIDS Prevention Interventions Targeted to Women in Brazil, BEMFAM/Academy for Educational Development, pers. comm. 1991).

One of the most comprehensive examples of promotion of increased use of prenatal care and to discourage specific unhealthy behaviors, with reduction of the incidence of low birth weight babies as the primary objective, is the national March of Dimes Foundation "Campaign for Healthier Babies: Perfectly Beautiful" in the **United States**. Although it takes place in an industrialized nation, the strategies used at the national and regional levels of the low birth weight reduction campaign demonstrates how all of the elements of such a strategy could be applied to similar problems in the developing world.

The national campaign utilizes a celebrity spokesperson to focus public attention on the overall goals of the program and increase awareness of the problem. The campaign uses major magazines and newspapers to describe policy-level and research activities and to present factual information, personalized case histories, and testimonials of low-income pregnant women, whose prenatal care use is low and whose incidence of low birth weight babies is high. It includes examples of creative, innovative regional and local programs and projects to reduce low birth weight. The media campaign also uses public service advertising to motivate pregnant women to use prenatal care regularly, to discourage such unhealthy behaviors during pregnancy as substance abuse, smoking, and poor diet, and to increase awareness of the relationship between those unhealthy behaviors and low birth weight.

Billboards, bus and subway advertising, and TV and radio promotion have reached millions of women in New York alone. Messages and materials, reflecting substantial qualitative research, were pretested among members of the many income levels and ethnic groups targeted. The promotional campaign includes a telephone hotline for pregnant women who need rapid care

or advice. As low birth weight is concentrated in poor, minority populations, sensitization to the special needs of and techniques for reaching these women is included with factual information about low birth weight.

An additional study identified the specific barriers which prevent pregnant drug addicts, at highest risk for low birth weight babies, from seeking prenatal care. Findings will guide the development of programs to address these barriers. The strategy will include sensitivity training for prenatal clinic staff, integrated health care, postpartum care for both mother and child, and counselling and motivation for pregnant addicts which concentrates on the strong maternal concern for the infant documented during interviews ("Perfectly Beautiful: Campaign for Healthier Babies" 1991).

In Mahankal, near Kathmandu, **Nepal**, a study was recently completed that evaluated educational interventions directed at mothers-in-law. This was the first completed field study supported by WHO's Maternal Health and Safe Motherhood Research Programme. In rural Nepal, mothers-in-law attend many births, provide postpartum care, and in general control the activities of family members. This study was designed to determine whether educational sessions with mothers-in-laws brought about change in their knowledge, attitudes, and practices related to maternal health and family planning.

In general, the educational sessions were highly successful in changing the knowledge and attitudes of mothers-in-law concerning the care and practices during pregnancy, labor and delivery, and the postnatal period. However, changes in actual practices were much more limited (Dali et al. 1991).

In summary, communication alone clearly cannot solve maternal health problems. But it can do much to generate support for programs at the policy, institutional, community, and client levels. It can engender important institutional skills. It can teach and motivate many positive behaviors, including appropriate service utilization. And it can help maternal health programs become much more effective -- and cost-effective -- by generating demand for services that are culturally and socially acceptable.

#### IV. CONCLUSIONS FROM AND LESSONS FOR APPLICATION IN MATERNAL HEALTH COMMUNICATION PROGRAMS

##### Conclusions from Maternal Health Communication Programs

It is difficult to extract firm lessons learned on communication from the maternal health projects because many projects are still being planned or implemented, because the effectiveness of completed projects has not been satisfactorily evaluated, and because few have given serious attention to communication. However, some broad conclusions can be drawn from the limited experience.

1. It is important to understand the overall sociocultural environment into which maternal health communication programs must fit. An understanding of the context of both maternal health needs and services, local patterns of use of those services, and decision making regarding self care will give communication projects a stronger foundation. Detailed documentation of the major local causes of maternal mortality and morbidity, such as that provided by use of case control and verbal autopsy methods in several current projects, facilitates the design of locally appropriate, problem-specific communication materials which respond to the distinctly different local conditions contributing to delay and death. Knowing what portion of the target population uses or fails to use existing maternal health resources -- under what conditions, from what sources, and for what reasons -- informs communication efforts aimed at improving women's use of care. Since the basic thrusts of maternal health communications remain relatively constant across settings A to D, planning should be done using local research, not a typology stereotype.
2. In addition to the investigations suggested above, well designed qualitative research must provide women's perspective on maternal health issues. Research of this type discussed in this paper is providing information which can more effectively narrow the gap between women and health care programs intended to meet their needs. It is research that allows women to participate in the design of their health care program. Frequently, however, formative research asks only standard KAP questions and fails to investigate barriers and motivating factors. Such research fails to really let women speak for themselves. Also, too often results are not applied effectively to developing communication interventions.

Using women's specific realities and felt needs as an entry point for maternal health programs requires a thorough understanding of what women themselves think those needs are (CIAES 1991; Brems 1991; Sanchez and Howard-Grabman, pers. comm. 1991; Cambria 1991). Sensitivity to using women's own health concepts and language in the design of messages and materials increases women's ability to understand and benefit from them (Scrimshaw and Zambrana 1990). "Localizing" broad, general facts and concepts in maternal health messages is essential. Providing women with exactly the information they require, precisely when they need it, is easier when women have participated to the greatest extent possible (Brems and Griffiths 1992). Improving women's overall self-esteem and sense of control over their lives and their health can enhance communication efforts (Griffiths 1990).

This research also can set the stage for broadening a program from a narrow health orientation to one that enables women to become more active in their own health care

and in other aspects of their lives. Putting into practice many of the ideal health-promoting behaviors requires that women have a certain sense of self-esteem and know that they are valued and therefore their health is valuable; or, they need self-confidence to ask for help or to ask their partner to take particular actions such as to use a condom. Investigating these psychological factors is an important addition to this type of research.

3. A comprehensive, systematic approach to program strategy development applies the qualitative research results, not only to the design of the communications component, but also to the reorganization of service provision (new clinic hours or procedures), to the design of training and to development of new products, such as safe birth kits.
4. Communication strategies must go beyond conventional health education approaches. First, in many cases, the woman herself should not be targeted but instead other family members or community leaders, as the solution lies more in their hands than hers. Second, women's organizations can be strengthened to allow women to speak and act collectively.
5. Involve maternal health care workers in the redesign of maternal health services based on women's preferences. Preexisting attitudes of health workers may be one of the most formidable barriers to achieving substantial change in the form or content of maternal care. Many current approaches to providing maternal health education revolve around clinic based health care providers. Often, education provided in this setting prescribes behaviors and practices which health care providers perceive are required, but which are unrealistic and inappropriate to the local culture. Efforts to improve the communication and counselling skills of health workers and to increase their understanding and respect for traditional health models and care preferences should routinely be included as part of maternal health communication programs.

### Lessons Learned from Other Health Communication Programs

Many lessons learned from other primary health care communication and social marketing experiences (Lynn et al. 1991) are relevant to maternal health programs. Some of these are summarized below.

1. For national and regional programs, and even in the case of some local programs, it is important to establish a clear mandate for communications and to clarify roles and responsibilities vis-a-vis other agencies with communication mandates and among the other components of a program. As maternal health may overlap family planning, nutrition and infectious disease control programs, it will be important to ensure good collaboration and coordination.
2. Base communication on the audience's attitudes, perceptions, and practices. This lesson is one already being applied in many maternal health programs, but one that must become universal.
3. Use well defined, measurable communication objectives. Communication programs too often fail to demonstrate adequately to decision makers as well as medical and service staff that they have had the planned impact on program targets. This may be due to the lack of specific communication objectives and targets established during the planning stage or to lack of good monitoring and evaluation.

4. The strategy should be built on what it will take to change practices. If this point of view is adopted, the program will be much more sharply targeted and will allow for a better definition of the communication objectives. Programs that begin from the point of view of information dissemination are often too diffuse to be evaluated.
5. Systematically select messages and media carefully and systematically. Decision makers often influence a communication program by preselecting one media, e.g., posters or print materials, over others or determining what the message should be without giving adequate thought to the clarity, ability to motivate, and feasibility of carrying out the messages or the relevance of the media. Effective communication requires that messages and media be tailored to the needs of the audience and to whatever media they will come in contact with frequently. Media planning must account for health personnel who are a medium for the program messages. They must be prepared to act as such.
6. Prepare the service delivery component. Program implementors may find that the success of health service demand creation activities, particularly those that direct the target audience to health services, rests largely on the cooperation and preparedness of the service-delivery structure. Health staff are likely to be more cooperative if they are informed and consulted on proposed communication activities and more importantly, if their contribution is recognized. Regular communication in both directions is necessary to resolve program implementation problems and issues which may arise. Communications plans also must be synchronized with the offering of services, particularly if they are new or improved. New services should not be promoted until they are ready.
7. Cost out communication activities. Budgets need to be prepared for all essential communication tasks, including formative research and evaluation, materials distribution, logistic support for program monitoring, and implementation. A common mistake is failing to appreciate the true financial costs of producing materials because false assumptions are made about the cost-absorptive capacity of various collaborating agencies. For instance, it is assumed that because a national broadcasting station is owned and operated by the government that the "government" project would not be charged broadcasting costs; also, that all materials production and print work would be done without charge through other public sector agencies. A number of governments now insist that agencies under their jurisdiction institute strong cost-recovery programs which mandate that charges be made for services, regardless of the requesting agency. Also, in many cases, in order to achieve the required reach and frequency of radio messages, it is advisable for a project to pay for commercial broadcast time even when free government time is available.

Communication planners fail to recognize that they can build cost-sharing as well as cost-recovery activities into their program plan. In Mexico, for example, pamphlets that were developed, tested, typeset, and printed the first time with international funds were reprinted at very low cost to be sold to other family planning clinics around Mexico. In Brazil, a family planning group sells materials to federation members at a subsidized price. Cost recovery can work if: a) materials are of good quality and commercially viable; b) buyers and sponsors for the materials are actively solicited; and c) a marketing strategy is developed for sale and distribution of materials.

8. Educate and communicate with program implementors as well as other institutions doing similar programs and key decision makers, i.e. run a public relations program.

Too often, programs forget to communicate with their own staff, and with their colleagues, or to inform key decision makers and the media about the program. Keeping program personnel aware of progress and achievements is good for morale. Keeping colleagues informed avoids unwanted rumors. Letting decision makers and the media know what to expect avoids a bad response at the policy level that could lead to a ban of all communication related to a particular topic.

9. Mix locally planned and run activities with a centrally controlled and managed program. Whether it is a nongovernmental program operating in setting A or a large, national program in a country with a majority of setting D sites, the principle of mixing and balancing central and local activities is the same. The challenge of this approach comes because there must be resource sharing -- communicators at project headquarters must allocate some of their budget to others for activities they may not control. However, it is this freedom that ensures that the program will address local needs and will build local capacity and interest. It is the central control that ensures that the overriding problems are addressed and that there is media back-up and authority for local activities.
10. Obtain a good communication manager. Management is an important and often underestimated factor in communication. Managing a communication intervention requires **decision making capability** at the level where important decisions can be taken and implemented, **organizational skills, knowledge of staffing and procurement of services**, capabilities in **strategic planning, communication, and directing** (leadership). A good communication manager does not have to be an expert in research, creative work, media placement, finance or the technical area being supported by the communication staff. These sophisticated skills can be obtained from other communication staff or contracted to outside experts or agencies. Too often communication staff attempt to act both as managers and implementors, with management being lost to the technical detail of implementation. The budget for the communication component should include resources to support program-management inputs such as staff, finances for program supervision, staff development, technical assistance, and subcontracts.

## REFERENCES

- AbouZahr, Carla and Erica Royston. Maternal Mortality: A Global Factbook. Geneva: World Health Organization, 1992.
- Bang, Rani and Abhay Bang. "Commentary on a Community-Based Approach to Reproductive Health Care," International Federation of Gynecology and Obstetrics Supplement 1989 (3): 125-9.
- Bang, Rani and Abhay Bang. "Reproductive Tract Infections: Rural Women's Point of View". Arlington, VA: Paper presented at the 18th Annual International Health Conference, 1991.
- Bartlett, Alfred. "The MotherCare Project/SAVE THE CHILDREN BANGLADESH," MotherCare Trip Report. Arlington, VA: John Snow Inc., July 1991.
- Bartlett, Alfred and M.E. Paz de Bocaletti. "Intrapartum and Neonatal Mortality in a Traditional Community in Rural Guatemala: A Case Control Study," Acta Paediatrica Scandinavia, in press.
- Bashir, Altaf. "Maternal Mortality in Pakistan: A Success Story of the Faisalabad District," IPPF Medical Bulletin April 1991 (25:2).
- Bergstrom, S. "Is There an M in Perinatal Medicine?" Journal of Tropical Pediatrics April 1991 (37:89).
- Blanchet, Therese. Draft Research Report, Save the Children Bangladesh/ MotherCare Maternal and Neonatal Health and Nutrition Project. September 1991.
- Brems, Susan, and Alan Berg. "'Eating Down' During Pregnancy." Washington, D.C.: The World Bank, 1990.
- Brems, Susan and Marcia Griffiths. "Health Women's Way: Learning to Listen," in M. Koblinsky, J. Gay and J. Timyan, eds. A Global View of Women's Health: The Action Agenda. Westview Press, 1992 (in press).
- Brems, Susan. "Cochabamba, Bolivia: Transition from Qualitative Research to Program Strategy." Arlington, VA: MotherCare Project, John Snow Inc., September 1991.
- "Communication Campaign for the Eradication of Female Circumcision and Other Harmful Traditional Practices in Nigeria," unpublished project summary, Arlington, VA: Clearinghouse on Development Communication, 1990.
- Cambria, C. Dughi, P. "Autodiagnostico: Las Mujeres y la Salud, Los Pinos, San Juan de Lurigancho." Centro de La Mujer Peruana Flora Tristan, 1991.
- Capoor, I. "Developing Kit on Anaemia and Women's Health," Ahmedabad: CHETNA, 1987.
- Center for Health Research, Consultation and Education (CIAES). "Qualitative Research on Knowledge, Attitudes, and Practices Related to Women's Reproductive Health." Arlington, VA: MotherCare, July 1991. Working Paper No. 9.

Charoenlarp, P. et al. "A WHO Collaborative Study on Iron Supplementation in Burma and in Thailand," American Journal of Clinical Nutrition 1988 (47): 280-297.

Chavkin, Wendy, and Denise Paone. "Treatment for Crack Using Women: A Study and Guidelines for Program Design," unpublished executive summary. New York: Beth Israel Medical Center, 1991.

Christian Commission for Development in Bangladesh/PATH. "Operations Research: Safe Birth Kit Development: Field Evaluation Report." Dhaka, August 1990.

Coeytaux, Francine. "Celebrating Mother and Child on the Fortieth Day: The Sfax, Tunisia Postpartum Program," Quality 1989 (1), Population Council, New York.

Courmire, L. "Development of Visual Aids: Methods, Forms and Lessons from the Women's Health Education Project," CARE/Bangladesh, November 1989.

Dali, Sanu Maiya, Munu Thapa, and Sarala Shrestha. "Study on 'Knowledge, Attitude and Practice of Mothers-in-law regarding the Intraconceptional Care of Their Daughters-in-law before and after Educational Sessions.'" Kathmandu: Institute of Medicine/World Health Organization, April 1991.

Dixon-Mueller, Ruth and Judith Wasserheit. "The Culture of Silence: Reproductive Tract Infections Among Women in the Third World." New York: International Women's Health Coalition, 1991.

Favin, Michael and Marcia Griffiths. "Social Marketing of Micronutrients in Developing Countries." Washington, D.C.: The Manoff Group for the World Bank, September 1991.

Favin, Michael, Bonnie Bradford, and Deborah Cebula. Improving Maternal Health in Developing Countries. Washington, D.C.: World Federation of Public Health Associations (for UNICEF), 1984.

Galloway, Rae. "Supplies, Side Effects or Psychology: Determinants of Compliance with Iron Supplementation in Pregnancy." Washington, D.C.: The World Bank, February 1991.

Gehshan, Shelly. Problems and Solutions: Background Papers for the Legislative Summit on Healthy Infants and Families. Washington, D.C.: Southern Regional Project on Infant Mortality, 1991.

George, Nicolette. "Interventions to Improve Maternal and Neonatal Health and Nutrition." Arlington, VA: MotherCare, November 1990. Working Paper No. 4.

Government of Myanmar/UNICEF. "Safe Motherhood in Myanmar: A Plan for Action." Draft. New York, May 1991.

Griffiths, Marcia. "How to Improve Child Well-Being? First, Increase Mothers' Self-Confidence", in Development Communication Report, no. 70, 1990/3.

Griffiths, Marcia. "Status of the NHED Component". Trip report to John Snow, Inc. USAID/New Delhi and GOI, May 1989.

- Griffiths, Marcia, Wilma Lynn, Susan Brems. "Improving Women's Health in India: Experiences and New Initiatives Through IE&C Programmes." Washington, D.C.: The Manoff Group for The World Bank, May 1991.
- Hariani, M.A.. "Report of a Study of Implementation and Delivery Strategy of Iron Tablets for Formulating Policy and Developing Program for Pregnant Women." Bogor, Indonesia: Nutrition Research Center, Directorate of Community Nutrition, Ministry of Health, November 1989.
- Helitzer-Allen, Deborah. Examination of the Factors Influencing Utilization of the Antenatal Malaria Chemoprophylaxis Program in Malawi, Africa, doctoral dissertation. Baltimore: Johns Hopkins University, July 1989.
- Hira, Subhash. "Syphilis Intervention in Pregnancy: Zambian Demonstration Project," Genitourinary Medicine 1990 (66): 159164.
- "Information, Education and Communication (IEC)," Section 5, Safe Motherhood in Action Kit. New York: Family Care International, September 1991.
- "Information Campaign to Eradicate Female Circumcision in Somalia," unpublished project summary. Arlington, VA: Clearinghouse on Development Communication, 1990.
- International Center for Research on Women. "Strengthening Women: Health Research Priorities for Women in Developing Countries," Report of Task Force, ICRW. Washington D.C., July 1989.
- Jacobson, Jodi. "Safe Motherhood in the SADCC Region: The Challenge of Survival." New York: Family Care International, 1991.
- Kanani, Shubhada. "Application of Rapid Assessment Procedures in the Context of Women's Morbidity: Experiences of a Non-Government Organization in India." Paper Presented at the International Conference on Rapid Assessment Methodologies Pan American Health Organization, Washington DC, November 1990.
- Lanasari, Rosalina and Zeil Rosenberg. "Tetanus Toxoid Immunization of Prospective Brides in Central Java, Indonesia." Jakarta: Ministry of Health, Indonesia, March 1989.
- Law, Maureen, Deborah Maine, and Marie Therese Feuerstein. "Safe Motherhood: Priorities and Next Steps: Forward Looking Assessment on the Reduction of Maternal Morbidity and Mortality Within the Framework of the Safe Motherhood Initiative." New York: UNDP, April 1991.
- Leroy, Odile and Michel Garenne. "Risk Factors of Neonatal Tetanus in Senegal," International Journal of Epidemiology 1991 (20-2): 521.
- Lynn, Wilma, Mike Favin, and Marcia Griffiths. Information, Education and Communication: Guidelines for Health and Family Planning Programs. Washington, DC: The World Bank, 1991.
- Marshall, Margaret and Sandy Buffington. Manual for Lifesaving Skills. Washington, D.C.: American College of Nurse Midwives, 1991.

Ministry of Health, Ghana and Center for Population and Family Health, Columbia University. "Family Planning and Primary Health Care by Traditional Birth Attendants: Final Report of an Operations Research Project." June 1990.

Moore, Mona. "Behavioral Determinants of Maternal Health Care Choices in Developing Countries." Arlington, VA: MotherCare, October 1990. Working Paper No. 2.

Moore, Mona, Mike Favin, Marcia Griffiths, and Richard Pollard. "Menu of Topic Areas for Qualitative Assessment of Behavioral and Attitudinal Factors Influencing Maternal And Neonatal Health and Nutrition." Draft presented at MotherCare Technical Advisory Group Meeting, Washington D.C., June 1991.

Moore, Mona, Pandu Riono, and Siti Pariani. "A Qualitative Investigation of Factors Influencing Use of Iron Folate Tablets by Pregnant Women in West Java: A Summary of Findings." Arlington, VA: MotherCare, May 1991. Working Paper No. 13.

Morrow, Odaybea. "Iron Supplementation during Pregnancy: Why Aren't Women Complying?" Geneva: World Health Organization, 1990.

Munodawafa, Davison and Ruth Ahia. "Planning a Programme to Trace Sexually Transmitted Disease Contacts in Zimbabwe: Input from Local Clinic Nurses," Hygie Mar 10(1):27-31, 1991.

Murali, I. and M. Kalaaria. "Perceptions regarding Need for Antenatal Care among Urban and Rural Women in Delhi," Indian Journal of Public Health (1980) 24(2): 68-75.

Nichter, Mark and Mimi Nichter. "The Ethnophysiology and Folk Dietetics of Pregnancy: A Case Study from South India," Human Organization (1983) 42-3: 235-246.

Oepen, Manfred. "Community Communication," Development Communication Report 1991/2 (73).

Oyebola, D.D.O. "Antenatal Care as Practiced by Yoruba Traditional Healers/Midwives of Nigeria," The East African Medical Journal 57(9): 615-625.

"Perfectly Beautiful: Campaign for Healthier Babies," New York Times Magazine April 7, 1991. March of Dimes Birth Defects Foundation, New York.

Peeters, R.F., S. Tanuwidjaja, and A.Z. Meheus. "Knowledge, Attitudes and Practices of Traditional Birth Attendants in Rural West Java," in The Risk Approach Strategy in Maternal and Child Health Care, Faculty of Medicine Padjadjaran University, Bandung, Indonesia, February 1986.

Pillsbury, Barbara, Ann Brownlee, and Judith Timyan. "Understanding and Evaluating Traditional Practices: A Guide for Improving Maternal Care." Washington, D.C.: International Center on Research for Women, 1990.

Restrepo Estrada, Sonia. "Cochabamba, Bolivia. Informe de Viaje No.1. 26 agosto - 6 septiembre 1991." Washington, D.C., MotherCare/The Manoff Group.

Robinson, Elizabeth. "Reaching Men: At Work and in Social Settings: An Intervention Model" Network June 1991 (12-1): 9-15.

- Roesel, C., T. Schaffter, S. Durongdej, and L. Tokmoh. "Effect of Weight Gain Feedback on Pregnancy Outcome." Washington, D.C.: International Center for Research on Women, 1990.
- Save the Children/MotherCare Bolivia. "Warmi" Program Fourth Quarterly Report, Westport, CT: May 1991.
- Scheiber, Barbara, Hernan Delgado, and Alfred Bartlett. "High Risk Management in the Rural Highlands." Guatemala City: INCAP, June 1990.
- Scrimshaw, Susan, R.E. Zambrana, S. Estupian. "Mass Communications/Education Strategies for Improvement of Prenatal Health Behaviors in Mexico." Washington, D.C.: International Center for Research on Women, 1990.
- Starrs, Ann. "Safe Motherhood in South Asia: Challenge for the Nineties." New York: Family Care International, 1990.
- Thaddeus, Sreen and Deborah Maine. Too Far To Walk: Maternal Mortality in Context. New York: Center for Population and Family Health Prevention of Maternal Mortality Program, Columbia University, 1990.
- Thouw, James and Wawang Sukarya. "Causes of Maternal Deaths in a Subdistrict of West Java Province: Are They Preventable?" unpublished manuscript, Research Unit, Medical School, Padjadjaran University, Bandung, Indonesia, May 1991.
- Townsend, Sara. "Social Marketing of Condoms: Selling Protection and Changing Behavior," Network June 1991 (12:1): 17 - 20.
- Twumasi, P.A. "Traditional Birth Attendant Review Program in Ghana." Accra: Ministry of Health, October 1987.
- UNICEF. Facts For Life. New York, 1989.
- Utomo, Budi and Christine Costello. "Knowledge of Breastfeeding and Family Planning among Men and Women in Indonesia." Paper presented at the Population Association of America Annual Meeting, Washington D.C., March 1991.
- Valyasevi, A. . "Delivery System for Iron Supplementation in Pregnant Women - Thailand Experience." Paper presented at the International Nutritional Anaemia Consultative Group Workshop on Maternal Nutritional Anaemia, Geneva, 1988.
- Ward, Victoria, Deborah Maine, James McCarthy, et al. "Indicators of Successful Programs Designed to Improve Maternal Morbidity and Mortality." New York: Center for Population and Family Health, Columbia University, April 1991.
- Wedderburn, Maxine and Mona Moore. "Qualitative Assessment of Attitudes Affecting Childbirth Choices of Jamaican Women." Arlington, VA: MotherCare. November 1990. Working Paper No. 5.
- Winikoff, Beverly. "Limitations of Maternal Care to Improve Maternal Health." Paper presented at the Berzelius Symposium, Stockholm, Sweden Population Council, May 1991.

World Health Organization. "Maternal Health and Safe Motherhood Programme - Progress Report 1987-1990," Geneva, 1991.

Zeitel, Lisa, Tamar Bauer, Phyllis Brooks. Infants at Risk: Solutions within Our Reach. New York: Greater New York Chapter March of Dimes and the United Hospital Fund of New York, 1990.

**Appendix I**

**Maternal Health Problems And  
Program Interventions Chart**

**Chart MATERNAL HEALTH PROBLEMS AND PROGRAM INTERVENTIONS**

<i>Maternal Health Problems</i>	<i>Results</i>	<i>Prevalence</i>	<i>Program Interventions</i>
Complications of childbirth: infections, eclampsia (convulsions), slow labor, malpresentation, multiple pregnancy, retained placenta, pre-eclamptic toxemia, ruptured uterus, placenta previa, etc.	<ul style="list-style-type: none"> <li>• Many complications can lead to maternal and/or infant death</li> </ul>	<ul style="list-style-type: none"> <li>• Complications arise in perhaps 10–20 percent of deliveries</li> </ul>	<ul style="list-style-type: none"> <li>• Give prenatal screening and preventive care</li> <li>• Train traditional birth attendants and other community-level workers to recognize and refer high-risk pregnancies (as defined by the program); to discontinue dangerous practices; to use good hygiene at birth; and to treat certain complications of pregnancy and delivery</li> <li>• Train health personnel and establish and/or improve facilities to give prenatal, delivery, and postnatal care</li> <li>• Educate the public and public officials about the health effects of female circumcision</li> </ul>
Hypertensive disorders of pregnancy (e.g., toxemia, high blood pressure)	<ul style="list-style-type: none"> <li>• Highly correlated with birth complications</li> <li>• Associated with fetal deaths and low birth-weight babies</li> <li>• Edema (swelling) and other symptoms cause discomfort</li> </ul>	<ul style="list-style-type: none"> <li>• Affects over 20 percent of pregnant women in developing countries</li> </ul>	<ul style="list-style-type: none"> <li>• Give health education to make dietary and other lifestyle changes</li> <li>• Screen and refer</li> <li>• Treat locally with drugs and education</li> </ul>
Maternal malnutrition	<ul style="list-style-type: none"> <li>• For mother, leads to fatigue and weakness and may lead to susceptibility to infections, insufficient lactation, and maternal mortality</li> </ul>	<ul style="list-style-type: none"> <li>• Affects the majority of women in many poor areas to some degree</li> </ul>	<ul style="list-style-type: none"> <li>• Give nutrition education</li> <li>• Organize food supplementation</li> <li>• Give birth-spacing education and assistance</li> <li>• Give vitamins to pregnant women</li> <li>• As part of prenatal care, treat hookworm and other infestations and infections that use up maternal calories</li> <li>• Organize or assist gardens and other projects to grow food for local consumption</li> <li>• Organize or assist income-generation projects for women to enable them to buy more food</li> </ul>

<i>Maternal Health Problems</i>	<i>Results</i>	<i>Prevalence</i>	<i>Program Interventions</i>
Anemia (mostly iron deficiency)	<ul style="list-style-type: none"> <li>• Causes fatigue and weakness</li> <li>• If severe, can predispose maternal death during childbirth from heavy bleeding or heart failure</li> </ul>	<ul style="list-style-type: none"> <li>• Affects an estimated 65% of pregnant women and 50% of nonpregnant women in developing countries</li> </ul>	<ul style="list-style-type: none"> <li>• Screen pregnant women to diagnose</li> <li>• Educate to prevent hookworm and treat existing cases</li> <li>• Give iron or iron/folate tablets to anemic women</li> <li>• Give malaria prophylaxis or treatment</li> <li>• Give birth-spacing education and assistance</li> <li>• Give nutrition education (for women to eat more iron-rich foods)</li> </ul>
Complications of abortions	<ul style="list-style-type: none"> <li>• Maternal death in many cases</li> </ul>	<ul style="list-style-type: none"> <li>• Cause of 30–50% of maternal deaths in Latin America; significant cause in other areas</li> </ul>	<ul style="list-style-type: none"> <li>• Provide safe abortion services</li> <li>• Provide family planning services</li> <li>• Educate women not to seek unsafe abortions</li> <li>• Provide mechanisms for adoption of unwanted children</li> </ul>
Ectopic pregnancy	<ul style="list-style-type: none"> <li>• Without surgery and blood transfusions, leads to maternal death</li> </ul>	<ul style="list-style-type: none"> <li>• This is an important cause of maternal deaths worldwide</li> <li>• It is 6–10 times more prevalent in women who have had pelvic inflammatory disease (PID)</li> </ul>	<ul style="list-style-type: none"> <li>• Detect gonorrhea and treat it and associated PID</li> <li>• Recommend birth control methods other than IUDs for women who have had PID</li> <li>• Detect early; refer or treat women</li> <li>• Teach health workers how to avoid rupturing the ectopic pregnancy</li> </ul>
Sequelae of female circumcision	<ul style="list-style-type: none"> <li>• Scar tissue may lead to obstructed labor and maternal and infant death</li> </ul>	<ul style="list-style-type: none"> <li>• This is a significant problem where female circumcision is prevalent</li> </ul>	<ul style="list-style-type: none"> <li>• Campaign to stop female circumcision</li> <li>• Screen and refer high-risk women for institutional births</li> <li>• Have well-trained and supported personnel attend births</li> </ul>
Malaria	<ul style="list-style-type: none"> <li>• Fevers, chills, aches for mother</li> <li>• May lead to maternal death</li> <li>• May lead to miscarriages and stillbirths</li> </ul>	<ul style="list-style-type: none"> <li>• Malaria remains widespread in many tropical areas</li> </ul>	<ul style="list-style-type: none"> <li>• Give prophylactic drugs to pregnant women</li> <li>• Treat suspected cases of malaria among pregnant women</li> <li>• Take vector (mosquito) control measures</li> </ul>

## Chart (cont.)

<i>Maternal Health Problems</i>	<i>Results</i>	<i>Prevalence</i>	<i>Program Interventions</i>
Goitre	<ul style="list-style-type: none"> <li>Besides discomfort to the mother, frequently leads to birth of children with severe abnormalities (cretinism and deaf-mutism)</li> </ul>	<ul style="list-style-type: none"> <li>Estimated 25 million cases worldwide</li> <li>Very prevalent in specific localities, especially in the mountains</li> </ul>	<ul style="list-style-type: none"> <li>Make sale of noniodized salt illegal</li> <li>Give nutrition education (to eat more foods with iodine, especially salt water fish, and to avoid foods that inhibit iodine absorption)</li> <li>Give iodized oil injections intramuscularly</li> </ul>
Diabetes	<ul style="list-style-type: none"> <li>Can lead to maternal death</li> <li>Infants born to diabetic mothers have an increased risk of congenital malformations and other problems</li> <li>Many chronic diseases, including diabetes, renal disease, and hypertension are aggravated by pregnancy</li> </ul>	<ul style="list-style-type: none"> <li>Varies greatly</li> <li>Many diabetics in developing countries die before reaching childbearing age</li> </ul>	<ul style="list-style-type: none"> <li>Encourage severely diabetic women to use contraception, especially nonhormonal methods</li> <li>Provide therapeutic abortions if mother has renal or vascular complications</li> <li>Give special pregnancy and labor care—double insulin, strict antenatal monitoring, vitamin and iron supplements, C-section in many cases</li> <li>Educate diabetic women to complete childbearing when they are young</li> </ul>
Discomforts of pregnancy such as nausea, fatigue, and swelling	<ul style="list-style-type: none"> <li>Varying discomfort among pregnant women</li> </ul>	Affects many pregnant women to some degree	<ul style="list-style-type: none"> <li>Give health education for women to rest, eat many small meals, etc.</li> <li>Give drugs such as aluminum sulfate or local remedies</li> </ul>
Sexually transmitted diseases (STDs)	<ul style="list-style-type: none"> <li>Gonorrhea can lead to infertility and concomitant psychological problems for women, especially where their childbearing role is highly valued</li> <li>Increased risk of cervical cancer, ectopic pregnancy, and PID</li> <li>For fetus or infant, gonorrhea can lead to blindness, syphilis to spontaneous abortions, stillbirths, perinatal deaths, deformations, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Infertility rates vary greatly: they are very high in parts of Africa but are mostly due to postpartum and postabortion infections rather than STDs</li> <li>STD prevalence unknown but of great concern in some areas; rates appear to be increasing worldwide</li> </ul>	<ul style="list-style-type: none"> <li>Give education to prevent sexually transmitted diseases (by limiting sexual partners and/or using condoms)</li> <li>Give education to recognize signs of STDs and to seek medical help</li> <li>Screen pregnant women for STDs (clinical diagnosis or laboratory exam)</li> <li>Treat persons with STD (particularly if pregnant) and their contacts</li> <li>Put silver nitrate or other solutions in infant's eyes at birth</li> </ul>