

## Safe Motherhood 2000 programs: Objective, design, and evaluation<sup>1</sup>

Risk-free maternity is a fundamental objective of human development. While maternal deaths are relatively uncommon events, each one constitutes profound personal problems for survivors and complex social problems for their communities. In 1987, the United Nations 40th General Assembly emphasized the reduction of maternal mortality in a "Call to Action" that exhorted Member States to vigorously promote the conditions conducive to good health, and women's health in particular. Three years later, the Twelfth Meeting of the Pan American Health Conference adopted the explicit objective of reducing maternal mortality in the Region by half by the year 2000.

At the time of the Twelfth Meeting, maternal mortality ranged from 43 (in Barbados) to 1 000 (in Haiti) per 100 000 live births, with a regional average of 190. Despite significant reductions in overall mortality in the Region in previous decades, maternal mortality had remained static and had actually risen in some countries. This lack of progress was linked to a general deterioration of living standards, particularly among the poorest strata of society.

Activities to reduce maternal mortality were specified at the Twelfth Meeting, based on the known risk factors for death related to pregnancy or childbirth. PAHO has shown that the leading proximate causes of maternal mortality in the Region are:

*Complications of abortion*—in Argentina, Chile, Cuba, Guatemala, Panama, Paraguay, Peru, and Trinidad and Tobago;

*Hemorrhage*—in Bolivia, Costa Rica, El Salvador, Honduras, Mexico, and Nicaragua;

*Toxemia*—in Brazil, Colombia, Dominican Republic, Ecuador, Haiti, and Venezuela.

At highest risk of fatal pregnancy complications are women who are poor, illiterate, or living in rural or marginal areas—particularly indigenous women and adolescents. These groups conceive the majority of the 3.2 million unplanned pregnancies that occur annually in the Region; undergo most of the 3.4 million deliveries that take place annually outside of health institutions; and account for the 3.0 million deliveries that take place in the absence of a medically qualified attendant.

In view of these data, the Twelfth Meeting recommended improvements in health service coverage and quality, with special attention to better childbirth care, together with mobilization of communities (particularly women's groups) to identify pregnant

<sup>1</sup> This article is synthesized from: Campbell O: Measuring Process in Safe Motherhood Programmes, a paper prepared for the WHO Technical Consultation on Safe Motherhood, held in Colombo, Sri Lanka, October 18–23, 1997; together with other PAHO documents.

women and encourage them to seek appropriate care. Subsequently, in 1993, a review of the Regional Plan for Reducing Maternal Mortality recommended, in addition, strengthening family planning programs and expanding coverage of prenatal care.

### **Three pillars of safe motherhood: Prenatal, childbirth, and postpartum care**

In the countries of the Region with the highest maternal survival rates—including Anguilla, Chile, Cuba, the Netherlands Antilles, Saint Lucia, Saint Vincent and the Grenadines, and the Virgin Islands—nearly 100% of pregnant women receive prenatal care. Extending timely, effective prenatal care universally throughout the Region can prevent 50% of maternal deaths.

Approximately 30% of women in the Region do not receive prenatal care despite timely recognition of their pregnant condition. Many forego care because they regard pregnancy as a normal process and not a medical situation. Informational outreach programs concerning the natural processes and common potential risks of pregnancy can motivate some of these women to seek care. Mass media are an important tool for such campaigns. The manner of presentation must be straightforward and geared to the women's linguistic and cultural setting. Care should be taken to ensure that when women go to clinics, they encounter respectful and considerate personnel in well-equipped facilities, with appropriate allowance for privacy—both in the awareness of personnel and the architectural design. Only in this way will women return to the clinic and convey positive impressions to their acquaintances.

Three of every four births in the Region are attended by a qualified caregiver, such as a physician, obstetric nurse, or general nurse trained to recognize and respond with initial treatment and referral in case of a complication. In rural and marginal urban areas, however, more than half of all births may be attended only by traditional birth attendants. These women's high standing in the community and their access to mothers and delivery sites represent a valuable opportunity. Safe motherhood programs that can successfully build alliances with traditional birth attendants, teach them appropriate standards of cleanliness, and train them to refer high-risk cases may markedly improve maternal mortality.

Slightly more than one third of the world's new mothers receive postpartum care. Without postpartum observation, complications such as retention of placenta and puerperal fever are more likely to threaten women's lives. In addition to vigilance against these problems, postpartum follow-

up should encourage women to breastfeed for at least 6 months, make decisions concerning future fertility options, and enroll their children in a growth and development program.

A woman's risks in pregnancy and childbirth, her understanding and ability and inclination to respond to them, and the manner of her response are all affected by her familial, cultural, economic, and political circumstances. For this reason, the goal of safe motherhood for all is attainable only through the combined efforts of governments, civil society, the scientific and economic sectors, health workers, families, and mothers themselves.

### **Evaluating progress in safe motherhood**

In 1995, the Biennial Evaluation of Progress Against Maternal Mortality found that 17 of 37 countries in the Region had national programs for reducing maternal mortality, 7 of them involving innovative strategies. Recommendations of this meeting were:

- that systems be implemented to completely evaluate all countries' progress toward the goal of halving maternal mortality;
- that all goals and objectives be keyed to indicators of impact, quality, and access;
- that the evaluations include adolescent reproductive health, family planning, and the status of research.

To evaluate the success of a Safe Motherhood program, changes in maternal mortality must be documented and then convincingly attributed to the program. Both steps present technical challenges.

**Documenting changes in maternal mortality.** No single study can adequately assess progress with respect to maternal mortality, and a number of techniques should be evaluated, each for the light it sheds on the complete picture. For technical reasons, maternal mortality measures are inconvenient ways to quantify program success over the short term. The most straightforward way to measure maternal mortality is through a vital registration system, but problems of under-registration and misclassification are common. Demographers thus turn to indirect methods, the most frequently used being:

- the sisterhood method, based on women's reports of sisters' deaths, which are routinely collected in DHS surveys;

- the WHO/UNICEF model, which utilizes data-based models linking the general fertility rate and the proportion of babies that are delivered by a trained attendant.

Neither the sisterhood nor the WHO/UNICEF method is well suited for measuring program impact over the short term. The sisterhood method documents change only over 10–12 years and produces estimates with wide confidence intervals. The WHO/UNICEF procedure reflects only changes related to the increase in general fertility rate and the use of qualified attendants. Changes due to other factors, such as increased use of prenatal care or better nutrition, will not be registered. Nevertheless, both methods can provide information about trends for use in making plausible arguments about program effectiveness.

Maternal morbidity—for example, the number of cases of potentially lethal pregnancy complications occurring—is a slippery predictor of maternal mortality. The assumption that a fixed proportion of cases progress from potential to actual lethality cannot hold up. In Safe Motherhood programs, prenatal care, trained birth attendants, and postpartum follow-up focus less on preventing complications than on recognizing them and preventing them from producing fatalities.

Facility-based or provider-based records have higher potential to yield data that are useful for inferring maternal morbidity and mortality than population-based surveys. They can provide in-depth information about actual diagnosed (although sometimes misdiagnosed) maternal morbidity and mortality. To extrapolate from such limited data to entire populations, astute inferences are necessary concerning the similarity of the clinic population to the rest of the population.

The volume of program inputs is another useful means of estimating maternal mortality. The limitation of this approach is that Safe Motherhood program inputs are not as direct and efficacious with respect to preventing maternal mortality as are, for example, units of tetanus toxoid vaccine with respect to deaths from neonatal tetanus.

**Attributing maternal mortality declines to Safe Motherhood programs.** When experimental trials are feasible, they provide the most definitive evidence linking Safe Motherhood initiatives to changes in maternal mortality. A community randomized trial (CRT) is usually most suitable for assessing the impact of a community-wide, multi-

dimensional intervention such as a Safe Motherhood program. However, CRTs are appropriate only when interventions are newly introduced, and they are very expensive.

Because of the limitations of experimental designs, descriptive studies are generally preferable for evaluating Safe Motherhood programs. These efforts should use quantitative and qualitative data to construct a plausible argument that the program—or intervention that is part of a program—is having a positive effect. Typically, relevant information will include data about maternal mortality derived through both direct and indirect methods; factors known to affect maternal health, such as fertility levels, nutrition, incidence of anemia, clients' attitudes toward health services; service coverage and process indicators, such as the proportions of women receiving antenatal care, births attended by qualified personnel, and adults knowledgeable about maternal complications; as well as health facilities' admission-to-treatment time interval for women with complications, etc. A key criterion for a meaningful study is that the information gathered should be sufficient to refute, as well as confirm, a hypothesis of program effectiveness.

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## SINOPSIS

### **Programas para lograr una maternidad segura para el año 2000: objetivo, diseño y evaluación**

*Según la OPS, las principales causas de mortalidad materna en la Región son las complicaciones del aborto, la hemorragia y la toxemia del embarazo. Estos trastornos se presentan con mayor frecuencia en mujeres pobres y de baja escolaridad que viven en zonas marginadas, y en ciertos grupos de alto riesgo, principalmente las mujeres indígenas y adolescentes, en parte por tratarse de los grupos con las mayores tasas de embarazos no deseados. Ante la situación, los participantes de la Duodécima Reunión de la Conferencia Sanitaria Panamericana, que se celebró en 1990, adoptaron la meta de reducir a la mitad la mortalidad materna en la Región para el año 2000. Entre las medidas destinadas a lograrlo se recomendó mejorar la cobertura y calidad de los servicios de salud, en particular la atención prenatal y perinatal, y movilizar recursos dentro de la comunidad para detectar a las mujeres embarazadas y proporcionarles una atención adecuada. En 1993, tras una revisión del plan para reducir la mortalidad materna, se recomendó como medida adicional reforzar los programas de planificación familiar y ampliar la cobertura de la atención prenatal.*

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