

VIII. Improving Maternal Health



VIII. IMPROVING MATERNAL HEALTH¹

1. BACKGROUND AND DIAGNOSIS

Description of the Goal and How to Reach the Target

The Millennium Development Goals (MDGs) cannot be understood in isolation, because they are part of an integrated set of targets, with intertwined purposes, whose priority is to halve world poverty by 2015.²

The goal of improving maternal health, whose target is the reduction of maternal mortality by three-fourths between 1990 and 2015, depends directly or indirectly on the other MDGs, such as improving education (especially for mothers and girls, but also for men) and access to drinking water; combating communicable diseases; and improving nutrition, gender equity and access to essential drugs. Additionally, improving maternal health indicators is also crucial for attaining the other MDGs, such as promoting gender equity, reducing child mortality and preventing communicable diseases, particularly AIDS.

Decades of experience in developed and developing countries with initiatives for improving public health as well as maternal and child health have yielded many lessons that can be brought to bear in order to reach the target of improving maternal health. The most important lesson is the need for improved focusing of public resources on the poorest populations and on groups that are socially excluded by reasons of gender, age, or ethnicity. Accomplishing these ends requires changes in the structure and organization of health policy. In addition, it is necessary to create a culture of measuring, monitoring, and of ongoing evaluation of maternal health services, focused on results and on the implementation of cost-effective actions based on evidence. In other words, improvement in maternal health must be made part of a process for creating a culture of social and economic development.

High rates of maternal mortality are avoidable and the fact that these rates remain high is evidence of failures in national development processes. Despite the efforts begun in 1987 with the global initiative for safe motherhood launched by the World Health Organization (WHO), maternal mortality indicators have not improved over the last 16 years and have even worsened in some countries. Currently, obstetric complications continue to be the main cause of mortality among women of fertile age. It is estimated that there were half a million maternal deaths in 2002, which means that every minute a woman dies from obstetric complications somewhere in the world.

1. This document was prepared by André Medici. The author is grateful for the comments of Ernest Massiah, Claudia Piras, and Elisa Fernández.

2. The UN International Conference on Financing for Development held in Monterrey (Mexico) on March 18-22, 2002, ratified the targets proposed at the Millennium Summit in September 2000, thereby linking all the goals for the reduction of poverty and calling for an international commitment to attain those goals.

Moreover, the maternal mortality indicator underscores the most extreme inequalities throughout the world. The child mortality rates of the poor countries are up to twenty times greater than those of rich countries, while maternal mortality rates in the former are up to one hundred times greater than those of the latter.³ The reason for this is that in the last 20 years the countries of the world mobilized strategies, policies and financial resources to reduce child mortality, while the consensus and mobilization efforts to reduce maternal mortality have been recent and are still more the subject of rhetoric than of action. In many countries, high rates of maternal mortality are the principal health problem and the greatest gender inequity to be resolved.

Similarly, it should be pointed out that maternal health and child health are closely correlated and that the link that binds them is reproductive health services. Factors such as the number of children, the spacing of pregnancies, prevention and treatment of sexually transmitted diseases and other reproductive health issues are essential for social well-being and the eradication of poverty. Therefore, they must be taken into consideration in efforts to attain the MDG of improving maternal health.

It is also important to point out that reaching the target of improving maternal health is inextricably linked to improving primary health care services. Maternal health cannot be improved unless prenatal and postnatal services, as well as specialized obstetric care during childbirth, are made available. Thus, increasing coverage and improving equity in health services, although essential, may not alone be sufficient for improving maternal health. It is within this broad context that reaching the target of improving maternal health, and specifically, of reducing maternal mortality by three-fourths between 1990 and 2015, must be understood.

The Indicators Associated with the Target to Improve Maternal Health

Two indicators are associated with this target: the *maternal mortality rate (MMR)* and the *percentage of births attended by specialized health personnel (BASHP)*. The MMR is defined by the number of deaths of mothers due to complications associated with childbirth or pregnancy per 100,000 live births. It is a way of measuring the safety of pregnancy and of childbirth for mothers in each region, country, or locality. BASHP is an administrative record of health services. Its validity as an indicator depends on the quality of the registration data on care at childbirth in the public and private health sectors and on the capacity of national health statistics systems to carry out an adequate review and tabulation of the information.

Database Problems

Maternal deaths are difficult to identify with precision. The Tenth International Classification of Diseases (ICD10) considers as maternal mortality the causes of death resulting from obstetric complications during pregnancy and childbirth. But the data from the civil registries, even in developed countries, do not adequately report the cause of death.

3. Freedman, L. et al., 2003.

BOX 1.
QUALITY OF INFORMATION ON MATERNAL MORTALITY BY TYPE OF COUNTRY

High-Income Countries – The civil registries are complete and the quality of information on the cause of death is good. Even so, the maternal mortality data may be poorly classified owing to a number of problems, with errors estimated at up to 50 percent.

Medium-High Income Countries – May have relatively complete civil registries, but the quality of information on the cause of death is not good, resulting in the underregistration of maternal deaths.

Medium and Medium-Low Income Countries – In general, the civil registries are very unreliable and the majority of vital events are either not reported or are reported quite late.

In developing countries, such as those of Latin American and the Caribbean, the most serious problems are the high levels of underregistration or late registration of births and deaths as well as the poor quality of information on causes of death.⁴ In such cases, full confidence cannot be placed in the existing registration entries. Methodologies must be established in order to permit maternal mortality data to be based on partial observations, household surveys, and methods for historic observation of clinical events, thus enabling extrapolations for geographic areas with the same epidemiological, socioeconomic and institutional characteristics.

BOX 2.
METHODS FOR OBTAINING DIRECT DATA OR ESTIMATING THE MAGNITUDE OF MATERNAL MORTALITY

1. Vital Statistics from Civil Registries.
2. Household Surveys.
3. Indirect Sisterhood Reporting Method.
4. Direct Sisterhood Reporting Method used in Demographic and Health Surveys.
5. Reproductive Age Mortality Studies (RAMOS).
6. Verbal Autopsy based on Interviews.
7. Demographic Censuses.

A number of methods exist to obtain statistics or to estimate the magnitude of maternal mortality. Box 2 lists the most commonly used methods. The existing data on maternal mortality, estimated for 2000 by the World Health Organization (WHO), with the collaboration of UNICEF and of the UN Population Fund (UNFPA), were based on information from different sources, as presented in table 1 for some countries in Latin America and the Caribbean.

4. For more detailed information on the difficulties of measuring maternal mortality, see AbouZahr, C., 2001.

TABLE 1.
MATERNAL MORTALITY RATES (PER 100,000 LIVE BIRTHS)
IN LATIN AMERICA AND THE CARIBBEAN BASED ON INFORMATION SOURCES (2000)

Class	Status of existing information and method used for estimating maternal mortality	Country	Official MMR	Adjusted MMR	Estimate Interval
A	Complete vital statistics with good information on the cause of death	Argentina	43	82	54-110
		Barbados	64	95	64-130
		Chile	21	31	21-42
		Costa Rica	36	43	28-57
		Mexico	60	83	56-110
		Panama	108	160	110-220
		Puerto Rico	16	25	16-33
		Trinidad & Tobago	103	160	100-210
		Uruguay	18	27	18-35
		Venezuela	64	96	64-130
B	Complete vital statistics, but with poor information on the cause of death	Colombia (b)	105	130	83-180
		Ecuador (b)	97	130	93-200
		Guyana (c)	-	150	50-430
		Paraguay (b)	161	170	65-390
C	Demography and Health Surveys – Direct Sisterhood Reporting Method	Brazil	161	260	160-370
		Guatemala	190	240	140-350
		Haiti	523	680	400-970
		Peru	185	410	230-590
D	Reproductive Age Mortality Studies (RAMOS)	Belize (d)	-	140	70-280
		Cuba (b)	42	33	16-66
		Honduras (b)	108	110	54-220
		Jamaica (b)	106	87	44-170
		Suriname (e)	-	110	56-220
E	No information or previous estimates on maternal mortality, in addition to vital statistics with low levels of registration (estimate based on adjustment model).	Bahamas (a)	-	60	25-98
		Bolivia (b)	390	420	110-790
		Dominican Rep. (b)	82	150	37-280
		El Salvador (b)	120	150	37-270
		Nicaragua (b)	97	230	58-420

Note: The adjusted data are based on the estimates of A to E presented in the countries, using a robust regression model to eliminate the greatest outliers and improperly weighted observations. For Group E, the estimates were based on the indirect sisterhood reporting method adjusted on the basis of a regression model. The methodology is the one officially used by the WHO, UNICEF, and UNFPA studies. Details on the MMR adjustment methodology used for each one of the categories from A to E may be consulted in AbouZahr and Wardlaw, 2003. (a) Four (4) maternal deaths were registered in The Bahamas in 2000. (b) The official maternal mortality rates are those presented in PAHO, 2003b. (c) In 2000, sixteen (16) maternal deaths were registered; (d) In 2000, five (5) maternal deaths were registered. (e) In 2000, fifteen (15) maternal deaths were registered.

Although different methodologies and adjustment processes exist, the scarcity of reliable, systematic, and good quality information continues to be one of the major problems for the mapping and searching of appropriate strategies and policies to improve maternal health in Latin America and the Caribbean. The magnitude of the estimate intervals associated with the

maternal mortality rates for 2000 (table 1) shows that there is still ample room to increase the degree of reliability of the existing information.⁵

The data on births attended by specialized health personnel bear a direct relation to the degree of coverage of health services. In Latin America and the Caribbean, the official national data for 2000 (figure 1), published through the Pan American Health Organization (PAHO), indicate an institutional birth coverage between 24 percent (Haiti) and 100 percent (Uruguay, Cuba, Barbados, Puerto Rico, Belize, Chile). The deficiency of the vital statistic records mentioned above suggests that the information officially presented could be out of sync with the reality of the countries of the region. Thus, improvement of the coverage and updating of birth and maternal death records may, in the future, show that the number of births attended by specialized health personnel may be far fewer than the number of registered births, contrary to what the official national data show. Even so, data from other sources (AbouZahr, 2001) indicate that the percentage of births attended by specialized health personnel increased, on average, from 74 to 81 percent between 1980 and 2000 for the countries in the region.

FIGURE 1. PERCENTAGE OF BIRTHS ASSISTED BY SPECIALIZED PERSONNEL (CIRCA 2000)

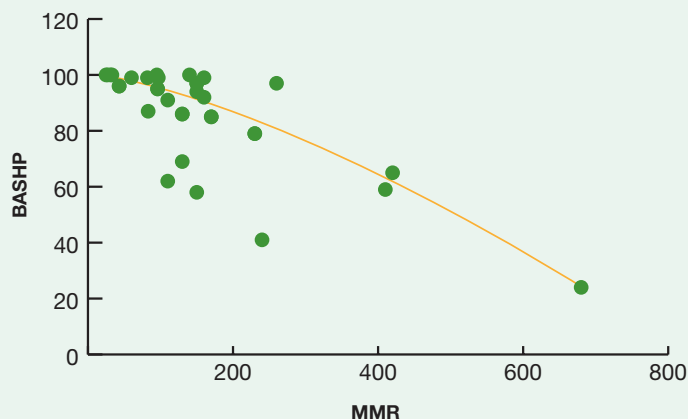


Source: PAHO, Basic Indicators, 2003. PAHO/WHO, 2003

Even on the basis of the deficient existing information, it is possible to show that greater degrees of coverage of specialized care at birth lead to lower maternal mortality rates, as can be inferred from the trend seen in figure 2.

Thus, investments in the improvement of coverage and quality of care during childbirth through the use of specialized and emergency obstetric care personnel may lead to future reductions in the maternal mortality rates, thereby contributing to reaching the millennium target.

5. Between 1995 and 2000 the following countries went from Group B to Group A: Panama, Chile, Barbados, Trinidad and Tobago, Uruguay, and Venezuela.

FIGURE 2. CORRELATION BETWEEN MMR AND SPECIALIZED CARE AT BIRTH IN LATIN AMERICA AND THE CARIBBEAN (CIRCA 2000)

Source: AbouZahr and Wardlaw, 2003 and PAHO, 2003.

A substantial number of maternal deaths occur during childbirth and the existence of these services, together with a good system of prenatal care, has been shown to save lives.

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MMR Levels and Changes in the Behavior of the Indicator in the Region

The data calculated jointly by WHO, UNICEF and UNFPA indicate that maternal mortality rates in Latin America and the Caribbean are around 190 per 100,000 for the year 2000. In global terms, as shown in table 2, this rate is lower than that for other continents such as

TABLE 2.
MATERNAL MORTALITY (MMR) TRENDS
WORLD REGIONS 1990 – 2000

World Regions	MMR 1990 (per 100,000 l.b.)	MMR 1995 (per 100,000 l.b.)	MMR 2000 (per 100,000 l.b.)	Change 1990-2000 (%)	MMR target for 2015 (per 100,000 l.b.)	Annual reduction effort 2000-2015 (%)
Africa	870	1000	830	-4.6	217.5	-8.5
Asia	390	280	330	-15.4	97.5	-7.8
Europe	36	28	28	-22.2	9.0	-7.3
Latin America and the Caribbean(*)	190	190	190	-	47.5	-8.8
North America	11	11	-	-	2.8	-
Oceania	680	260	240	-64.7	170.0	-2.3
WORLD	430	400	400	-7.0	107.5	-8.4

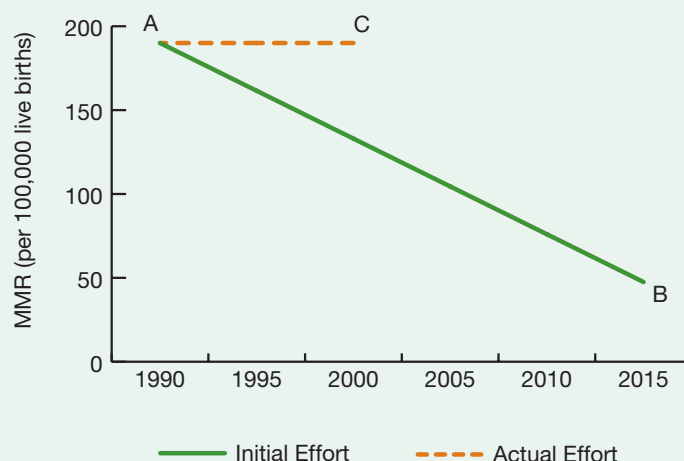
(*) Includes Mexico

Source: AbouZahr and Wardlaw, 2003.

Africa, Asia, and Oceania, although it is far from reaching the European and North American rates. Meanwhile, past behavior of this indicator reveals two important facts. First, that maternal mortality rates in the region did not improve during the 1990s (this means that the effort required to reach the 2015 target is even greater than it would otherwise have been). And, second, that mortality rates point to great regional inequalities among and within countries.

Regarding the first point, compared with other continents, Latin America will need to make the greatest effort to reach this target. In other words, in order to attain this MDG, the average maternal mortality in the region between 2000 and 2015 would have to be reduced by 8.8 percent per year, compared to the world average of 8.4 percent and to 8.5 percent, 7.8 percent, and 2.3 percent in Africa, Asia, and Oceania, respectively.

FIGURE 3. TRENDS FOR REACHING THE MMR REDUCTION TARGET BETWEEN 1990 AND 2015 AND BEHAVIOR OF THE MMR BETWEEN 1990 AND 2000



Compiled by the author based on data from AbouZahr and Wardlaw, 2003.

Figure 3 shows that, because the existing estimates for the region indicate that maternal mortality remained constant between 1990 and 2000 (around 190 per 100,000), the effort to reach the target set for 2015 will be much greater than the initial effort. Therefore, the slope of CB is greater than that of AB, thus demonstrating the need for a much greater effort.⁶

The internal heterogeneity of Latin American and Caribbean countries also creates great intraregional inequalities with respect to the behavior of the maternal mortality rate. As

6. Because the quality of maternal mortality data is unreliable, this trend must be taken with considerable reservation, as there is always the possibility that the actual national data may fall in other points of the long intervals of the estimates.

TABLE 3.
MATERNAL MORTALITY (MMR) TRENDS
COUNTRIES AND REGIONS OF LATIN AMERICA AND THE CARIBBEAN 1990-2000

Countries	MMR 1990 (per 100,000 l.b.)	MMR 2000 (per 100,000 l.b.)	Change 1990-2000 (%)	MMR goal for 2015 (per 100,000 l.b.)	Annual reduction effort 2000-2015 (%)
Caribbean					
Bahamas	100	60	-40.0	33.3	-3.8
Barbados	43	95	+120.9	10.8	-13.5
Cuba	95	33	-65.2	23.8	-2.2
Dominican Rep.	110	150	+36.4	27.5	-10.7
Haiti	1000	680	-32.0	250.0	-6.5
Jamaica	120	87	-27.5	30.0	-6.9
Trinidad & Tobago	90	160	+77.8	22.5	-12.3
Central America					
Costa Rica	55	43	-21.8	13.8	-7.3
El Salvador	300	150	-50.0	75.0	-4.5
Guatemala	200	240	+20.0	50.0	-9.9
Honduras	220	110	-50.0	55.0	-4.5
Mexico	110	83	-24.5	27.5	-7.1
Nicaragua	160	230	+43.8	40.0	-11.0
Panama	55	160	+190.9	13.8	-15.1
South America					
Argentina	100	82	-18.0	25.0	-7.6
Bolivia	650	420	-35.4	162.5	-6.1
Brazil	220	260	+18.2	55.0	-9.8
Chile	65	31	-43.6	16.3	-4.2
Colombia	100	130	+30.0	25.0	-10.4
Ecuador	150	130	-13.3	37.5	-8.0
Paraguay	160	170	+6.3	40.0	-9.2
Peru	280	410	+46.4	70.0	-11.1
Uruguay	85	27	-68.2	21.3	-1.6
Venezuela	120	96	-20.0	30.0	-7.5

Source: Primary data from WHO. The data on effort to reach the target were calculated by the author.

can be seen in table 1, maternal mortality rates may vary from 27 per 100,000 live births in Uruguay to 680 in Haiti. Table 3 shows an estimate of the effort made by country to reduce maternal mortality throughout the 1990s and the future annual MMR reduction effort needed to reach the millennium target.

Based on the foregoing, the countries of Latin America and the Caribbean can be divided into two groups:

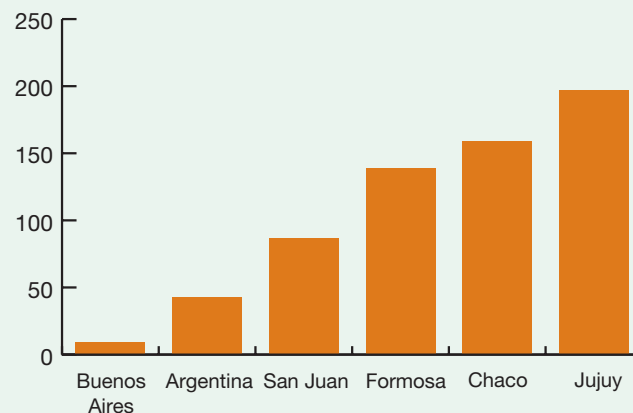
1. *Countries where the MMR declined between 1990 and 2000.* These countries will have to exert lesser effort (below the regional average of 8.8 percent per year) to reach the target of reducing maternal mortality between 2000 and 2015. They are: The Bahamas, Cuba, Haiti, Jamaica, Costa Rica, El Salvador, Honduras, Mexico, Argentina, Bolivia, Chile, Ecuador, Uruguay, and Venezuela.

2. *Countries where the MMR increased between 1990 and 2000:* These countries will have to exert a substantial annual effort to reduce maternal mortality (greater than 8.8 percent per year) in order to reach the millennium target between 2000 and 2015). They are: Barbados, the Dominican Republic, Trinidad and Tobago, Guatemala, Nicaragua, Panama, Brazil, Colombia, and Peru.

However, the effort indicator must be viewed in relative terms because it also depends on the quality of the information⁷ on the maternal mortality rate, the size of the population of the country and on its territorial dispersion and socioeconomic disparities. Countries with relatively small populations (such as those of the Caribbean, for example), in addition to being subject to wide differences in the MMR, will have to exert less effort, even if their MMR is high. On the other hand, countries with a large population that is unevenly dispersed over a national territory that is asymmetrically developed will require greater efforts to reach the targets, even if they already have a lower MMR.

In addition, in most countries maternal mortality presents strong internal differences. Taking as an example the case of Argentina, on the basis of indicators of the Ministry of Health for 2002 (figure 4), the maternal mortality rates may vary from 197 per 100,000 live births in poor provinces such as Jujuy, to 9 per 100,000 live births in the Metropolitan Area of Buenos Aires.

FIGURE 4. MATERNAL MORTALITY RATE IN ARGENTINA, SELECTED PROVINCES AND THE METROPOLITAN AREA OF BUENOS AIRES (MMR PER 100,000 LIVE BIRTHS, 2002)



Source: Ministry of Health, Argentina, 2002 in CEDES (2003)

7. In many countries, an improvement in the information may lead to an increase in maternal mortality rates.

That is, the national maternal mortality averages do not reflect internal inequalities in the rate among the provinces. These inequalities are associated with socioeconomic and demographic variables such as income distribution, and the spatial distribution of the social and health infrastructure for reproductive health care.

2. CHALLENGES

Causality Between Maternal Mortality and Other Indicators

High rates of maternal mortality are caused by a sequence of socioeconomic and epidemiological events as well as by the lack of access to health programs and services affecting chiefly lower-income and socially excluded groups. They depend, therefore, on a system of direct, indirect and background determinants.

Direct determinants are access to health care programs and services during pregnancy, birth and the puerperium. These services determine the quality of care for women during pregnancy through prenatal medical check-ups, obstetric care, and care at birth by specialized personnel, as well as routine check-ups during the puerperium in order to prevent post pregnancy complications.

Indirect determinants are associated with the general conditions of access to health services, especially for reproductive health and family planning. Adequate access to services for promotion of sexual and reproductive health and prevention of illnesses, through the active participation of interest groups and women's associations, is essential to increase the information and access of families and couples to the means for preventing unwanted pregnancies and maintaining sexual and reproductive health. Reproductive health, in a broad sense, must result in a safe and enjoyable sex life for both men and women.

Background determinants are related to socioeconomic factors such as income levels and distributive equity, social infrastructure (water and sewer), social conditions, proximity of health services, home and work environment, educational levels, access to food and adequate nutrition, ethnic and cultural background, gender equity and other aspects that determine the social environment that affects sexual and reproductive health.

The target for improving maternal health is, therefore, directly related to actions that promote better conditions in all these direct, indirect, and background determinants of sexual and reproductive health.

Direct Determinants: The Structure of Care During Pregnancy and Childbirth

Direct determinants may be classified into direct and indirect interventions. The former are directly related to birth labor and delivery and are reflected in the rates of care by specialized personnel and in emergency obstetric care. The latter interventions are indirectly related and include prenatal and postnatal care.

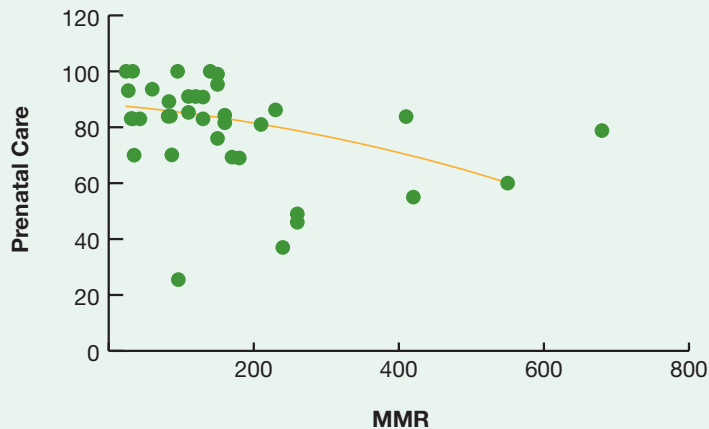
The importance of directly related services was discussed above by means of the analysis in figure 2, which shows that despite the shortcomings of the existing data, there is an inverse correlation between maternal mortality rates and specialized care during labor and delivery.

While not necessarily reflecting the same phenomenon, there is some relationship between the number of persons who are attended by specialized professionals during childbirth and the number of institutional births (births that take place in health institutions). Based on data from the Health and Demographic Surveys (HDS) and from the Living Conditions Surveys (MECOVI in Spanish), table 4 shows that, in the case of Bolivia, the increase in coverage achieved by programs such as Basic Health Insurance has led to a progressive convergence in the value of these two indicators. In other words, greater coverage leads to a greater likelihood that specialized care during childbirth will be provided at health institutions and not at home.

TABLE 4.
PERCENTAGE OF INSTITUTIONAL BIRTHS AND BIRTHS ATTENDED BY SPECIALIZED PERSONNEL IN BOLIVIA (1994-2000)

Source	Institutional Births (%)	Births Attended by Specialized Personnel (%)
EDS 1994	42.5	47.1
EDS 1998	55.9	59.2
MECOVI 00	61.2	62.8

Regarding those services that are indirectly related to childbirth, it should be mentioned that although there are no defined parameters, it is understood that adequate prenatal care means an average of 4 to 6 check-ups, possibly even more if there are complications during pregnancy. The data from the Health and Demographic Surveys normally gathers information on women who had prenatal check-ups, but this data fails to reveal information on the number of these check-ups. Consequently, the information in the Health and Demographic Surveys is unreliable, because it does not indicate whether prenatal care was complete or not. These surveys should determine whether prenatal care included a minimum of 4 medical check-ups in order to classify that information and subsequently correlate it with complications during labor and delivery or with maternal mortality data.

FIGURE 5. CORRELATION BETWEEN MMR AND PREGNANCIES ACCOMPANIED BY PRENATAL CHECK-UPS (2000)

Source: Argentine Ministry of Health, 2002 in CEDES.

Taking the above into account, figure 5 shows that given the poor quality of existing information⁸ there is no apparent correlation between prenatal care and the maternal mortality rate. Accordingly, the efficacy of prenatal care in Latin America cannot be measured. It could, however, be assumed to be low.

In addition, postnatal care needs to be associated with reference and counter-reference systems tracking women after delivery and monitoring the risk of any complications that may require emergency obstetric care.

Therefore, the main challenges regarding the direct determinants of maternal mortality are to increase the rates of care by specialized personnel during labor and delivery, as well as emergency obstetric services, and access to prenatal and postnatal care. The increase in the available information related to coverage of these services and its use for planning purposes by the governments, is another subject of fundamental importance to achieve better organization of sexual and reproductive health services in the countries of the region.

Indirect Determinants of Maternal Mortality: Sexual and Reproductive Health

In order to understand the indirect determinants of reproductive health, we must, above all, ascertain the trend and magnitude of fertility rates in the countries of Latin America and the Caribbean. The data in table 5 shows that between the 1950s and 1990s, total fertility rates (TFR) in Latin America declined by more than half. Nevertheless, the decline

8. The household surveys and the information from the ministries normally include prenatal care as a binary variable (she had or did not have prenatal check-ups). The relevant information for this is the number of prenatal check-ups, since the existence of fewer than 4 prenatal check-ups per pregnancy does not minimize the risks that may arise during pregnancy.

TABLE 5.
FERTILITY RATES 1950/55 – 1995/2000

Countries	1950-1955	1995-2000	% Decline
Latin America	5.9	2.7	54
Low-income countries			
Bolivia	6.8	4.4	35
Guatemala	7.1	4.9	31
Haiti	6.3	4.4	30
Honduras	7.5	4.3	43
Nicaragua	7.3	4.3	41
Low average income countries			
Colombia	6.8	2.8	59
Dominican Republic	7.4	2.9	61
Ecuador	6.7	3.1	54
El Salvador	6.5	3.2	51
Paraguay	6.5	4.2	35
Peru	6.9	3.0	57
High average income countries			
Argentina	3.2	2.6	19
Brazil	6.2	2.3	63
Chile	5.0	2.4	52
Costa Rica	6.7	2.8	58
Mexico	6.9	2.8	59
Panama	5.7	2.6	54
Uruguay	2.7	2.4	11
Venezuela	6.5	3.0	54

Source: CELADE

was not uniform across the region. Fertility declined at a slower rate in the low-income countries (Bolivia, Guatemala, Haiti, Honduras and Nicaragua), somewhere between 30 and 40 percent. While the average TFR for the region is 2.2 children per woman of fertile age, the total fertility rate for these countries was between 4.3 and 4.9.

In the low average income countries (Colombia, the Dominican Republic, Ecuador, El Salvador and Paraguay), the reduction in total fertility was between 50 and 60 percent. The total fertility rate for this group of countries was between 2.8 and 4.2 children per woman.

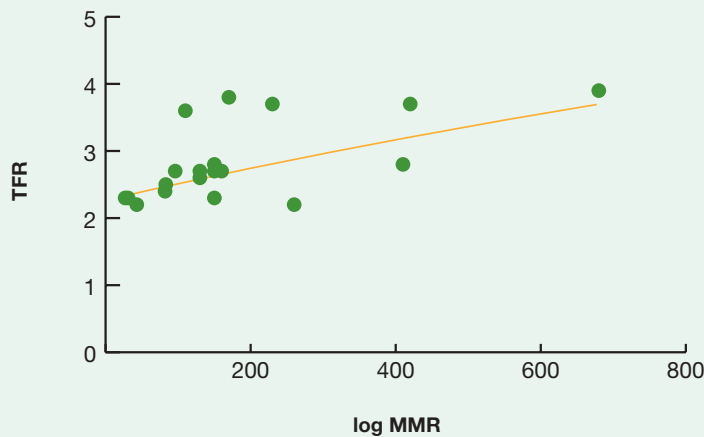
The countries with relatively higher income can be divided into two groups: the first is comprised of countries where reductions in fertility occurred mainly in the first half of the twentieth century (Uruguay and Argentina). The second group is made up of countries where fertility fell sharply in the last decades of the millennium (Brazil, Chile, Costa Rica, Mexico, Panama and Venezuela). By the end of the 1990s the total fertility rates for this group were

between 2.3 and 3.0 children per woman of fertile age. Brazil, which experienced a sharp decline in fertility between the 1950s and 1990s (63 percent), currently has the lowest TFR of this group of countries.

Fertility rates within each country are not homogenous because they depend on the cultural and socioeconomic characteristics of each group. By looking, for example, at data from Peru's Health and Demographic Survey for 1996, it appears that despite an average fertility rate of 3.5, it may vary between 6.6 for population groups without any schooling and 2.1 for those with higher education. It is known that fertility rates are higher among the poorest population not only because of the lack of information on sexual and reproductive health but also because of limited access to contraceptive means.

Table 5 is important for determining the relevancy of sexual and reproductive health programs. The positive correlation between maternal mortality and fertility rates (shown in figure 6), implies that the poorest countries with high fertility rates would need integrated programs to reduce maternal mortality. But the high magnitude of the residuals of this correlation is associated with the fact that some countries with low fertility (such as Brazil) continue to have high maternal mortality rates that are attributable to other socioeconomic characteristics and to issues surrounding access to health services.

**FIGURE 6. CORRELATION BETWEEN TFR AND MMR
LATIN AMERICA AND THE CARIBBEAN, 2000**



Source: WHO (2003) and AbouZahr and Wardlaw, 2003.

High fertility rates, in addition to their indirect influence on maternal mortality levels, are associated with other negative behaviors, such as high rates of adolescent pregnancy (girls under 19 who have already had at least one child). Data from the Health and Demographic Surveys (from around the years 1994-96) show

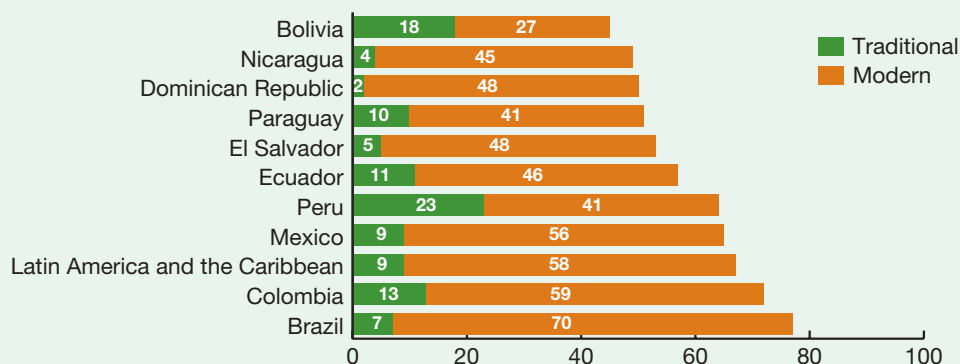
adolescent pregnancy rates at 39 percent, 41 percent, and 44 percent in Colombia, Paraguay, and Bolivia, respectively.

Both, maternal mortality rates and total fertility rates, as well as adolescent pregnancy rates, are higher among indigenous groups, who, in addition to their precarious socioeconomic situation, have fewer opportunities to access health services, especially sexual and reproductive health services. For example, the HDS data for Guatemala (1995) shows that the total fertility rate of indigenous women was 6.8 children compared to 4.3 children for non-indigenous women.

There is also a noticeable lack of information on family planning methods and use of contraception in the region. Nonetheless, there is some data on the use of both traditional and modern family planning methods.⁹

As figure 7 shows, even though access to family planning in the region in 1998 was estimated at an average of 67 percent for women of fertile age, around 9 percent used traditional methods. Modern contraceptive methods are available to little more than half of the women in the region (the range varied between 70 percent in countries such as Brazil and 27 percent in countries such as Bolivia).

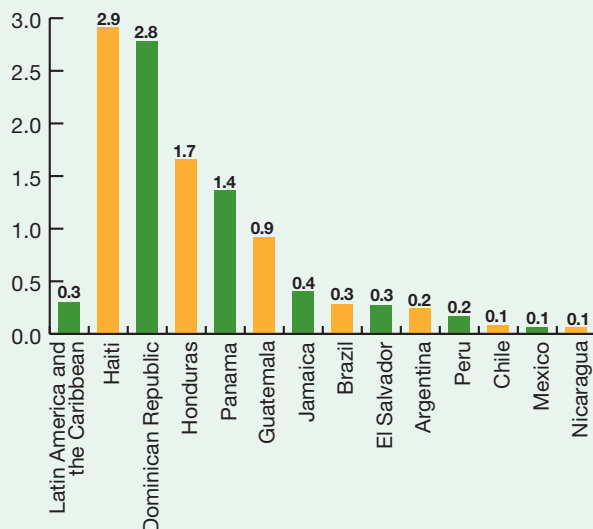
FIGURE 7. USE OF CONTRACEPTIVE METHODS AMONG WOMEN OF FERTILE AGE – 1998



Source: WHO (2003) and AbouZahr and Wardlaw, 2003

Once again it should be emphasized that the use of contraception is strongly determined by the degree of social, ethnic, and cultural exclusion. Among the indigenous populations of Guatemala, for example, only 9.6 percent of the women of fertile age used contraceptive methods in 1995, compared with 43.3 percent of non-indigenous women of fertile age.

9. Data from Langer, A. and Nigenda, G. (2000). Traditional family planning methods refers to those used traditionally and that do not require inputs, such as rhythm, coitus interruptus, the Billings method and others. Modern methods include oral and injectable hormones, IUDs, tubal ligation, vasectomy, subdermal implants, condoms, and diaphragms.

FIGURE 8. INCIDENCE OF AIDS AMONG WOMEN 15 TO 24 IN SELECTED COUNTRIES – 1996

Contraception increases the freedom of couples to choose the number of children wanted and the time for having them. It also reduces infant mortality and the risk of infection from sexually transmitted diseases (such as AIDS) for men and women.

In the first case, it has been shown that reducing fertility and spacing pregnancies has a positive effect on reducing infant mortality. Wanted children, with greater spacing, have a greater chance of surviving and are better cared for by the family, especially by the mother.

In the second case, it should be pointed out that countries in which fertility is higher and the use of contraceptive methods is lower have higher rates of infection from sexually transmitted diseases. This is the case of Haiti and the Dominican Republic where, as can be seen in figure 8, the rates of AIDS infection among young women (15 to 24) reached almost 3 percent in 1996.

Communicable diseases considerably increase the incidence of maternal mortality. Even though the information available is not sufficiently robust, data from the World Bank and WHO for 1995 indicate that 20 percent of maternal deaths worldwide are due to indirect causes, such as anemia, malaria, and cardiac diseases. Recently, AIDS has been added to this list.

The principal direct and avoidable causes of maternal mortality, on an average worldwide scale, are severe hemorrhages (25 percent), followed by infections (15 percent), unsafe abortions (13 percent), eclampsia (12 percent), obstruction during labor (8 percent) and other direct causes such as problems related to anesthesia, embolisms, tubal pregnancies and others (8 percent).

Reaching the goal of reducing maternal mortality is closely related to actions for the safe treatment of the above-mentioned complications. In countries where maternal mortality rates are highest, complications due to hemorrhaging are a relatively high percentage of maternal mortality because of the low degree of access to contraceptive means. Information from the Population Council and from the US Agency for International Development (USAID) for 2001 show that, in Bolivia, maternal deaths are at 35 percent; 47 percent of hospital expenditures are for obstetric care, and 60 percent of the spending on obstetric care is associated with hemorrhages and unsafe abortions.

The increase in adolescent pregnancy rates is another consequence of the lack of sex education program in schools and the lack of access to contraceptive means among young persons. In countries like Paraguay, Colombia and Bolivia, 15 to 20 percent of the girls between 15 and 19 years were pregnant, according the HDS survey carried out in 2000. Even in Argentina, where fertility rates are relatively lower, adolescent pregnancy rates increased from 12.5 to 15 percent between 1991 and 2001.

Accordingly, the main indirect challenges for reducing maternal mortality in the region are, among others, providing means for controlling the fertility of couples, increasing the spacing of pregnancies, intensifying sex education programs in schools, and preventing increases in adolescent pregnancies.

Background Determinants of Maternal Mortality: The Social Environment of Development

In the last instance, it may be said that economic development, family income and social exclusion resulting in lack of access to health services form the basis of the high maternal mortality rates in the region. Income inequality in Latin America and the Caribbean is strongly reflected in unequal access to health services, as shown in table 6. It can be seen that, with the exception of Brazil and Colombia, all countries listed present health coverage levels lower than 40 percent among the 20 percent poorest segment of the population.

TABLE 6.
ACCESS TO HEALTH SERVICES BY INCOME QUINTILE IN SELECTED COUNTRIES (1996)

Country	Average	Poorest	2nd	3rd	4th	Richest
Bolivia	56.7	19.8	44.8	67.7	87.9	97.9
Brazil	87.7	71.6	88.7	95.7	97.7	98.6
Colombia	84.5	60.6	85.2	92.8	98.9	98.1
Guatemala	34.8	9.3	16.1	31.1	62.8	91.5
Haiti	46.3	24.0	37.3	47.4	60.7	78.2
Nicaragua	64.6	32.9	58.8	79.8	86.0	92.3
Paraguay	66.0	41.2	49.9	69.0	87.9	98.1
Peru	56.4	14.3	49.6	75.4	87.2	96.7

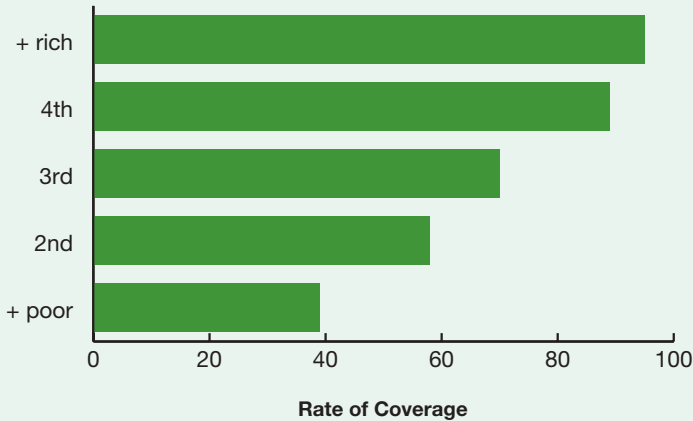
Source: MECOVI Surveys – 1996

Lack of access to health services determines, in turn, the low degree of access to sexual and reproductive health services, to prenatal care, and to emergency and specialized obstetric care, thereby increasing the risk of maternal death for these groups. Figure 9 shows that institutional birth coverage in Bolivia in 1998 ranged from 39 percent for women in the poorest quintile to 95 percent for those in the richest quintile.

Socioeconomic differences in the countries of the region are profoundly affected by social exclusion. Among the poorest populations are indigenous persons and persons of African descent who run the greatest risk of maternal mortality as a result of their lack of access to medical and health services due to their limited socioeconomic status.

The social environment of reproductive health is also characterized by the absence of participation by men. International experience has demonstrated that the exclusion of men from reproductive health services increases the possibility of failure of efforts in this area. Men are important in the decision-making process in the home, influencing decisions on the reproductive health care or education to be offered to their wives and children. Better male education from the gender equity perspective is fundamental for improving the health of mothers and contributing to the prevention of maternal mortality.¹⁰

FIGURE 9. RATE OF COVERAGE OF INSTITUTIONAL BIRTHS BY INCOME QUINTILE IN BOLIVIA (1998)



Source: HDS, 1998

10. The absence of male education in reproductive health has negative effects on women's health. One study conducted in the state of Guerrero (Mexico, 2001) has shown that 75 percent of women are victims of domestic violence during pregnancy, resulting in miscarriages and complications during pregnancy and at delivery. Around 5,100 tubal ligations were carried out versus only 144 vasectomies. Many men requested tubal ligations for their wives without their permission. In many communities in the region, women's wishes and opinions have no value, even on issues that concern them directly.

Poverty and the social conditions of low-income groups result in economic deprivation, which in turn, weakens the health of women and can lead to high-risk pregnancy and maternal deaths. A correlation can be found between low nutritional levels and anemia in pregnant women.

Summary of the Challenges

In sum, the principal challenges for improving maternal health in the countries of Latin America and the Caribbean are:

1. *High fertility rates* without integrated reproductive health programs for women and men that permit promoting reproductive education, lowering the high rates of adolescent pregnancy, and raising awareness among men of their role in preventing reproductive health problems.
2. *Lack of access to health programs and services* that ensure a safe motherhood through emergency obstetric care and care at delivery by specialized personnel as well as the provision of low-cost prenatal care programs at the local level. These programs must include an adequate reference system for tracking cases where there are complications, especially in the poorest communities and in socially excluded groups such as rural populations and indigenous peoples.
3. *Lack of social communication programs* that would permit use of the communication media and the educational system so that boys and girls can become aware of their rights and roles in reproductive health.
4. *Improvement of databases* with respect to indicators directly associated with maternal mortality and with sexual and reproductive health services and providing relevant information for making decisions and for solving any problems that arise.
5. *Identification of financial gaps* so that the target for maternal mortality reduction in the countries of Latin American and the Caribbean can be reached by increasing the degree of financial commitment of governments, using their own budget resources or external aid, with programs specifically directed at this target.

3. PRACTICES THAT COULD LEAD TO THE REDUCTION OF MATERNAL MORTALITY

In recent years a set of best practices has been identified which, when combined, could result in the reduction of maternal mortality. Most notable among these practices are:

VIII. IMPROVING MATERNAL HEALTH IN LATIN AMERICA AND THE CARIBBEAN

1. The creation and implementation of health care programs for women and children from low-income families and excluded populations that are integrated with family planning actions, prenatal and postnatal care, and diagnosis and treatment of sexually transmitted diseases.
2. The promotion of training strategies for medical and paramedical personnel as well as for midwives in order to increase the availability of specialized care during labor and delivery.
3. The enactment of legislation in the area of health and nutrition, including the allocation of funds.
4. Access to essential obstetric care (EOC), including the promotion of adequate cultural approaches to provide this services among socially excluded groups.
5. The promotion of sexual and reproductive education for adolescents in school.
6. The promotion and dissemination of safe motherhood in the poorest communities, including the development of a culture of monitoring and evaluation, through the creation of maternal mortality evaluation committees at the community level.
7. Improvement of the processes for the registration and evaluation of information on sexual and reproductive health and on maternal mortality through new methodologies that measure the socioeconomic impact of maternal mortality and social gains that could result from the implementation of the above best practices.

4. IDB SUPPORT FOR REACHING THE TARGET OF IMPROVING MATERNAL HEALTH

The IDB has supported the countries through activities that directly or indirectly contribute to reducing maternal mortality. This includes loans, technical cooperations, the preparation of studies, the advocacy of social rights, and the promotion of policy dialogues with the governments of the region.

Between 1997 and 2002, the Bank approved US\$358 million in loans directly linked to aspects of improvement of maternal health and of sexual and reproductive health, as well as US\$666 million in loans that will have an indirect impact on improving maternal mortality in the region.

A good part of the activities supported by the Bank are aimed at programs to combat the causes of maternal mortality (reducing anemia in pregnant and nursing women, for example), strengthen the prenatal care and basic obstetric care networks, strengthen

the reference and counter-reference systems for prenatal care, extend coverage to low-income groups through the delivery of mother-child health care service packages, and other actions.

Among the projects indirectly supported by the Bank, the following stand out: activities to reform and improve health services; institutional strengthening and improvement of the regulatory capacity of the ministries of health; implementation of primary care services and family health programs; training of health professionals with special emphasis on nursing; and rationalization and expansion of the health services network with a view to increasing coverage of and access to health services for low-income groups.

In addition to these operations, the Bank is supporting efforts to protect social spending in mother-child health care programs, through its sector and emergency loans and in agreements on the initiative to forgive the debt of highly indebted poor countries (HIPC), thus carrying out the important task of keeping these programs active in times of budget adjustments and cuts in public spending.

The Bank has supported numerous activities to improve the sexual and reproductive health information system, implement basic health packages with mother-child components, establish regional dialogues on sexual and reproductive health, providing education in sexual and reproductive health for young persons, and other important activities to promote this issue and increase progress toward reaching the target of reducing maternal mortality.

As a participant in the efforts of international organizations to reduce maternal mortality, the IDB has supported the drafting and was a signatory of the Regional Interagency Consensus for Reduction of Maternal Mortality and Morbidity in Latin American and the Caribbean. This document was signed in March 2004; other signatory organizations are PAHO, UNDP, UNICEF, USAID, the World Bank, and Family Care International.

In sum, throughout the second half of the 1990s, the IDB has sought to maintain its commitment to reduce maternal mortality through initiatives directed toward:

- Investment in tools that promote greater knowledge of the causes and consequences of maternal mortality: information, monitoring and evaluation systems in national ministries of health, and local, national, and regional dialogues on sexual and reproductive health and maternal mortality.
- Promoting the extension of basic mother-child health services coverage, such as prenatal and postnatal care, emphasis on emergency obstetric care and obstetric care by specialized personnel.

- Support for implementing health systems that integrate sexual and reproductive health issues and promote the observation, monitoring, identification and solution of maternal mortality cases with maximum coverage and quality.
- Promotion of efforts so that the countries will guarantee and protect social spending on primary health care programs, especially the budgets needed for sexual and reproductive health programs, assistance during pregnancy, childbirth and the puerperium.
- Improvement of education programs for young persons, communication and promotion of social capital at the local level by incorporating issues of sexual and reproductive health.

5. INVESTMENT PRIORITIES FOR REACHING THE MATERNAL MORTALITY REDUCTION TARGET

Despite these advances, many challenges still stand in the way of responding effectively to the problems presented and of supporting the countries of the region to reduce maternal mortality. The main challenges can be summarized in three points: (i) Lack of basic information for sizing up the problem of maternal mortality, and for evaluating costs and intervention options; (ii) Lack of a policy that would promote equity in access to safe motherhood, giving priority to the inclusion of women from the poorest social strata and socially excluded populations, such as indigenous and other cultural ethnic groups; (iii) Lack of political leadership and participatory action so that the population may organize itself and collaborate with the government in the tasks aimed at reducing maternal mortality and promoting sexual and reproductive health.

In order to meet these challenges, the Bank seeks to support the countries of the region through investments and technical assistance that encourage:

Improvement of the Production, Systematization, and Use of Information on Maternal Mortality and on Sexual and Reproductive Health

- Improvements of vital statistics through support of efforts to improve birth and death registrations.
- Improvements of the administrative records of health units such as hospitals and primary care service providers so that they include appropriate disease classifications for measuring maternal mortality and for meeting the information requirements on sexual and reproductive health recommended at the Cairo Conference on Population and Development.
- Collaboration on financing and technical assistance for conducting periodic surveys that include the topic of maternal mortality and sexual and reproductive health, emphasizing the aspects of equity and social inclusion.

- Collaboration on financing for training technical teams that can conduct studies and estimate the dimensions of the direct, indirect and background determinants of maternal mortality.

Support for National and Local Policies and Programs to:

- Protect personal rights in terms of access to health, nutrition, and sexual and reproductive health education.
- Guarantee the availability of physical, financial, and material resources so that such actions can be carried out.
- Increase the response capacity of health offices to the needs of the population in actions aimed at reducing maternal mortality and promoting sexual and reproductive health.
- Integrate sexual and reproductive health services into routine health services.
- Disseminate and use product and process indicators to monitor the quality and effectiveness of sexual and reproductive health actions.

Emphasis on Health Projects that Give Greater Priority to Reaching the Maternal Mortality Reduction Target by Promoting:

- The development of sexual and reproductive health programs and services (family planning, prenatal and postnatal care; diagnosis and treatment of sexually transmitted diseases; specialized care at childbirth; essential obstetric care that is both geographically accessible and appropriate for groups excluded as a result of their social, ethnic, and cultural characteristics).
- The provision of high quality services at the lowest cost possible so as to increase their accessibility; emphasize the prevention of sexually transmitted disease and avoidable problems during pregnancy; increase the role of the community and of women's organizations in decisions on sexual and reproductive health programs and programs for reducing maternal mortality (creating, when possible, maternal mortality committees at the local level) and to promote coordinated actions between civil society (including nongovernmental organizations) and international agencies for monitoring the progress on reaching the maternal mortality reduction targets.

Guarantee Financial and Sustainable Support for:

- Developing methodologies for measuring the economic and social impact of maternal mortality reduction in Latin America and the Caribbean.

- Establishing methodologies for supporting the evaluation of the economic and budget impact of sexual and reproductive health activities at the level of the governments of the region (such as the construction of satellite accounts similar to what is done with AIDS in the region).
- Encouraging tools that promote the priority use of public spending in health for excluded and lower-income groups.

REFERENCES

AbouZahr, C. 2001. Maternal Mortality in 1995: Estimates Developed by WHO, UNICEF, UNFPA. Geneva: World Health Organization.

AbouZahr, C. and Wardlaw, T. 2001. Maternal Mortality in 2000: Estimates Developed by WHO, UNICEF, UNFPA. Geneva: World Health Organization.

CEDES. 2003 Salud reproductiva y reforma del sector salud en Argentina. Final Report of a study financed by the Inter-American Development Bank. Buenos Aires.

Centro de Análisis de Políticas Públicas de la Universidad de Chile. Salud reproductiva y reforma del sector salud. Final Report of a study financed by the Inter-American Development Bank. Santiago.

Evers, B. and Juárez M. 2001. Understanding the Links: Globalization, Health Sector Reform, Gender and Reproductive Health. New York: Ford Foundation.

Freedman, L. et al. 2003. Background Paper on the Task Force on Child Health and Maternal Health. United Nations Millennium Project. New York.

Hugues, J. 2003. Gender, Equity and Indigenous Women's Health in the Americas. Washington, D.C.: Pan American Health Organization. October.

Krieger, N. 2003. Gender, Sexes and Health: What are the connections – and why does it matter? *International Journal of Epidemiology*, 2003;32:652-657.

Langer, A. and Nigenda, G. 2000. *Salud sexual y reproductiva y reforma del sector salud en América Latina y el Caribe: desafíos y oportunidades*. Mexico City: Population Council and Inter-American Development Bank.

Langer, A. and Espinosa, H. 2001. *Embarazo no deseado: impacto sobre la salud y la sociedad en América Latina y el Caribe*: Civil Society Forum of the Americas, Mexico City, December.

Levine, R., Glassman, A., and Schneidman, M., 2001. The Health of Women in Latin American and the Caribbean. Washington, D.C.: Inter-American Development Bank.

PAHO. 2003a. Regional Interagency Task Force for the Reduction of Maternal Mortality: Latin American and the Caribbean Regional Strategy for the Reduction of Maternal Mortality for the Next Decade: 2002-2010. Mimeo. Washington, D.C. June.

PAHO. 2003b. Health Situation in the Americas: Basic Indicators. Washington, D.C.

United Nations. 1994. Report of the International Conference on Population and Development A/CONF. 171/13, 1994. New York.

World Health Organization and World Bank. 1997. Maternal Health around the World. Washington, D.C.: World Bank.