Epidemiological Bulletin

PAN AMERICAN HEALTH ORGANIZATION

Vol. 14, No. 1 March 1993

Maternal Mortality in the Americas

Until very recently maternal death was considered to be a problem of relatively little public health importance in most countries of Latin America and the Caribbean.

Gradual recognition of the seriousness of the problem began in the 1980s, when the dimensions of this *silent epidemic* first began to become apparent in a series of studies on its epidemiology and consequences in various countries, among others: Argentina, Brazil, Colombia, Guatemala, Honduras and Jamaica.

This research coincided, or was associated with, the emergence in the countries of organized women's movements and the demands they made for more equitable social treatment.

Various international conferences in turn reaffirmed the urgency of the problem and the need for solutions. These included the Interregional Meeting on the Prevention of Maternal Mortality, convened by WHO in 1985, the International Conference on Safe Motherhood, in Nairobi in 1987, and the Plan of Action approved at the United Nations World Summit for Children in New York in 1990.

In the Americas this movement became clearly established in PAHO policies in 1984 when the Directing Council called on the countries to take further action in matters concerning population. This policy was endorsed again in 1986 and 1988, and finally led to the Regional Plan of Action for the Reduction of Maternal Mortality in the Americas, approved by the Pan American Sanitary Conference in 1990 *(1)*.

Analyses of maternal mortality in the Region contained in both the Plan and other publications regard it as a social and health problem of major importance. Moreover, it reflects the great inequality and inequity of the reproductive process among a large proportion of the female population in countries of Latin America and the Caribbean.

Maternal death is the end result of a complex series of factors that act upon the life continuum of a woman from the time she is born through her childbearing years.

These determining factors of maternal mortality may be grouped as follows: those related to context, including the inferior economic, educational, legal, and family status of women and the conditions of poverty in which they live, which, in turn, determine their access to and control of social resources and the extent of their isolation; and, factors related to their previous state of health, their reproductive behavior, and the accessibility and quality of maternal health and family planning services.

The health status of women is conditioned by the environment in which they live, their levels of nutrition, the diseases they have suffered, such as hypertension, diabetes, and heart disease, and especially their previous obstetric histories.

IN THIS ISSUE . . .

The reproductive behavior of women may in turn be associated with risk factors during their fertile period, especially during pregnancy. Among these are their age at first delivery, the number of pregnancies they have had, and their perceptions of their own health during pregnancy and the puerperium and of their need for greater accessibility to health services.

The variables that have a more obvious influence on maternal health are those that are related to access to appropriate health technology that can provide quality care. Despite the progress observed, unsatisfied demand continues to exist in a large number of countries in the Region, along with insufficient coverage and quality of prenatal, delivery, and family planning services.

The economic crisis that has affected the social sectors has also contributed to deterioration of the health services and to a decrease in the problem-solving capacity of a large proportion of these services in the countries of the Region.

Cultural factors and women's perceptions of their needs and the risks involved in pregnancy are, in turn, determinants of the use of the health services. In a significant segment of the population maternity is considered to be a normal occurrence of daily life that does not require special attention.

The confluence of these factors determines the coverage and quality observed in the family planning, prenatal, and delivery services described below.

Family Planning

The level of knowledge of contraceptive methods is high in the countries of the Region. More than 90% of women between the ages of 15 and 44 years know of at least one contraceptive method, according to the most recent available information *(2)*. However, only 53% of women living with male partners used some method; a considerable proportion used traditional methods *(3)*.

Efforts to reduce maternal mortality should assign priority to satisfying the unmet demand for services to regulate fertility, which in some countries and social groups is high, and also to prevent unwanted pregnancies, which are very frequent in the Region, according to results of the Demographic and Health Surveys *(4)*. It has been estimated *(5)* that 37% and 32% of maternal deaths in Colombia and Mexico, respectively, could have been avoided if all the women with unmet fertility regulation needs had access to the use of an effective contraceptive that would have spared them from having more children.

A large proportion of these unmet needs may be the result of the medicalized approach prevalent in most of the health services, where the concerns or needs of women users are not addressed.

Obstetric Care

Of 21 Latin American and Caribbean countries with available information, in five countries (Ecuador, El Salvador, Guatemala, Guyana, and Venezuela) the known coverage of prenatal care does not exceed 50% of pregnant women; in eleven other countries coverage is between 50% and 89% (Bolivia, Brazil, Colombia, the Dominican Republic, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, and Peru); in four others, coverage is 90% or higher: Costa Rica, Cuba, Jamaica, and Trinidad and Tobago (Table 1).

Similarly, of 24 Latin American and Caribbean countries with available information, in eight countries (Bolivia, El Salvador, Guatemala, Haiti, Honduras,

Table 1. Coverage of maternal health services in the Region of the Americas, by country, 1985-1988.

Country groups	Coverage (%)		
	Contraceptive use[1]	Prenatal care	Institutional birth
Group 1			
Bolivia	30	50	38
Dominican Republic	50	52	52
Ecuador	53	48	56
El Salvador	47	34	34
Guatemala	23	34	23
Haiti	10	67	20
Honduras	41	66	26
Nicaragua	31	81	40
Paraguay	48	56	35
Peru	46	62	49
Group 2			
Brazil	66	65	70
Colombia	66	76	75
Guyana	31	33	90
Jamaica	43	95	82
Mexico	53	68	81
Venezuela	49	35	97
Group 3			
Argentina	...	...	93
Bahamas	...	...	99
Chile	56	60	98
Costa Rica	70	90	94
Cuba	70	98	100
Panama	58	75	86
Suriname	55	...	...
Trinidad & Tobago	53	96	98
Uruguay	...	...	96
Group 4			
Canada	73	...	...
United States	74	...	99

Source: Database GDR/HMP/PAHO/93.
[1]Women of childbearing age living with partners.
...Data not available.

Nicaragua, Paraguay, and Peru) less than 50% of pregnant women receive institutional delivery care. Three countries, which account for 60% of the total population of Latin America and the Caribbean (Brazil, Colombia, and Mexico) have institutional coverage that ranges between 70% and 81%. In only nine countries does the coverage of institutional delivery care reach 90% or more (Argentina, Bahamas, Chile, Costa Rica, Cuba, Guyana, Trinidad and Tobago, Uruguay, and Venezuela).

The deficient coverage and limited quality of the maternal care services do not respond to the health needs of the population in question. An evaluation of the efficiency of the maternal and child care services carried out between 1985 and 1989 in 15 countries in the Region showed that maternal ambulatory services and hospital obstetric services were both deficient, since only 39% of the former and 8% of the latter were operating under conditions considered acceptable for carrying out their missions *(6)*. What is even more disturbing in this regard, however, is that the trend of the leading causes of maternal mortality over time confirms that the health services in most of the countries have not succeeded in changing this situation in the last decade, or in the best of cases, to only a minimal degree.

In daily practice the Region's health services continue to be characterized by operational deficiencies and, due to inadequate prenatal care, fail to detect in a timely manner, pregnancy-induced hypertension; fail to provide timely intervention in the event of hemorrhage, as a result of geographic inaccessibility, deficient transportation or its unaffordability, and the lack of blood supplies at the first referral level; and fail to provide quality care at delivery, as evidenced by the high number of maternal deaths caused by infection and obstructed delivery.

It is unquestionable, on the other hand, that the lion's share of responsibility for the deterioration of the coverage and quality of the health services in the Region may be attributed to the financial constraints imposed upon the public sector by the policies adopted to bring about structural adjustment of the economy.

Maternal Mortality

For women in Latin America and the Caribbean the risk[1] of dying from maternal causes during their reproductive life varies among countries and is reflected in significant differences in the national maternal mortality rates (Table 2) as well as in the rates according to geographical regions, urban and rural residence, education, and other social factors investigated in recent years *(7, 8, 9)*.

Analysis of the information available in PAHO's Technical Information System (TIS) for recent years shows that maternal deaths are among the ten leading causes of death of women of childbearing age in 23 countries of Latin America and the Caribbean; in 11 of these countries they rank among the first five causes. The percent of these deaths in relation to deaths of women from 15 to 49 years of age is also sizable, since they account for 20.2% in Paraguay in contrast with Canada and the United States, where they barely account for 0.5% (Table 3).

Maternal deaths may be classified into direct and indirect obstetric deaths. The former are due to complications of pregnancy, delivery, and the puerperium, including complications of abortion, and account for more than 90% of all maternal deaths, except in Cuba (Table 4). Indirect deaths are the result of preexisting conditions that have been aggravated by pregnancy or delivery.

Generally speaking, in most of the countries abortion, hemorrhage, toxemia, complications of the puerperium, and indirect causes appear among the five leading causes of death among women 15-49 years of age, and the order and magnitude of their contribution to total maternal mortality varies from one country to another (Table 4).[2]

There are no studies available that indicate to what extent each of the socioeconomic, cultural, and health services variables are reflected in the maternal mortality levels in countries. Nevertheless, an inverse relationship may be observed between maternal mortality rates and indicators of prenatal coverage, care at delivery, and prevalence of the use of contraceptives (Table 1). Laurenti established negative correlations between maternal mortality, the use of contraceptives, and professional care at delivery *(10)*.

Another approach for measuring the relationship between maternal mortality and the quality of the health services and their geographic and cultural accessibility is provided by studies that demonstrate its avoidability or preventability. For example, in a recent study of 240 maternal deaths in Mexico *(11)*, the authors concluded that 85% potentially could have been prevented. Assuming that this was done, the estimated maternal death rate of 114 per 100,000 live births recorded in the study would have been reduced 6.7 times. The same study concluded that 70% of the deaths could have been avoided if the quality of medical and institutional care provided had been adequate. In turn, the behavior patterns of the women or their families were involved,

[1] Reproductive risk is the inverse of the probability of a woman's death, due to maternal causes, during her reproductive life. The probability is estimated by dividing the number of maternal deaths by the number of women age 15 to 49 years in the population and multiplying the quotient by 35 (average duration, in years, of the reproductive period). By taking the inverse of this probability, it is possible to obtain the number of women at risk, one of whom will die from maternal causes during her reproductive life. The higher the number obtained, the lower the probability of dying from maternal causes and the smaller the risk.

[2] The data used for the analysis were for the last year reported to the PAHO Technical Information System by 23 countries.

Table 2. Reproductive risk and maternal mortality per 100,000 live births in selected countries of Latin America and the Caribbean, last available year.

Country	Year	Maternal mortality		Reproductive risk[2]
		Number	Rate[1]	
Argentina	1985	386	91	528
Barbados	1984	3	...	638
Belize	1986	4	...	243
Bolivia		837	332	50
Brazil	1985	1,892	140	520
Canada	1985	15	4	12,990
Chile	1985	131	41	700
Colombia	1985	720	100	289
Costa Rica	1985	29	26	663
Cuba	1985	84	26	914
Dominican Republic	1985	106	100	425
Ecuador	1985	397	160	159
El Salvador	1984	99	148	308
Guadalupe	1981	3	...	848
Guatemala	1984	236	240	210
Guyana	1984	17	80	412
Haiti		...	230	...
Honduras	1982	149	221	184
Jamaica	1984	14	115	1,176
Martinique	1981	3	...	857
Mexico	1985	1,702	82	324
Nicaragua		...	159	...
Panama	1985	33	49	468
Paraguay	1985	146	270	172
Peru	1983	611	303	220
Puerto Rico	1985	8	14	3,264
Suriname	1985	7	88	392
Trinidad & Tobago	1986	18	80	502
United States	1985	295	6.6	6,080
Uruguay	1985	23	26	873
Venezuela	1985	291	60	417

[1]Based on the number of deaths reported to the PAHO TIS, except Bolivia, based on data provided by the 1991 Demographic and Health Survey.
[2]Estimate based on TIS data published in *Health Conditions in the Americas*, 1990 edition. For a definition of reproductive risk, see page 3.
...Data not available.

in this particular example in the chain of events that led to 22% of all preventable maternal deaths.

In general, it may be concluded from the available information that variable declines in maternal mortality have been registered in most of the countries of Latin America and the Caribbean, albeit with differences in the contribution to the leading causes of death.

These declines and underregistration notwithstanding, a group of countries is registering a maternal mortality rate similar to that of Sweden at the beginning of the century, of 227 per 100,000 live births *(12)*; a second group of countries has a rate equal to that of Italy in 1955, 133.3 per 100,000 live births *(13)*; and a third group, the most advanced, presents figures similar to those for 1950 in the State of Massachusetts, United States, of 50 per 100,000 live births *(14)*. This appears to indicate that the Latin American and Caribbean countries are 35 to 90 years behind countries and states with low maternal mortality and that they must breach this gap as soon as possible by means of greater social development and the use of appropriate technology to provide better health care for women.

Obstetric Morbidity

Little information is available for Latin America and the Caribbean on maternal morbidity for the total female population. What is available is based on registration of consultations and hospital discharges, with all the limitations of comparability and false positives that this implies.

Measham and Rochat *(15)* estimated a ratio of 10 to 15 morbid episodes of a certain degree of severity per maternal death. Based on this ratio, it could be estimated that between 280,000 and 420,000 annual episodes of severe intercurrent obstetric problems arise among the approximately 12 million women who give birth every year in the Region.

A total of 860,000 women were hospitalized in the United States in 1987 for reasons related to pregnancy but not with delivery, which means that one out of every five pregnancies required hospitalization for pathological episodes. Of these women, 27% were hospitalized for premature labor, 9% for spontaneous abortion, 8% for genitourinary infection, 8% for hemorrhage in the first half of pregnancy, 6% for vomiting, 7% for pregnancy-induced hypertension, 5% for diabetes mellitus, and the remaining 4% for failed attempted abortion *(16)*.

A study carried out by the Mexican Social Security Institute in 1989 found that of 740,000 hospital discharges for obstetric causes, 80.5% were related to delivery, and the remaining 19.5% to various episodes of morbidity during pregnancy. This means that for each four deliveries, one hospitalization was registered for complications of pregnancy, distributed as follows: abortions, 44.2%; other complications of pregnancy, 30.6%; hemorrhage, 13.7%, and toxemia, 11.5% *(17)*.

If the ratio of delivery to complications of pregnancy of these two series is applied to the estimated figure of 12 million births in Latin America and the Caribbean, it may be inferred that the probable number of hospitalizations necessary during pregnancy fluctuates between 2.4 and 3 million *(18)*, that is, six to seven times more than the estimated figures based on the figure by Measham and Rochat.

A data series collected in several countries of the Region, using a standardized instrument, by the PAHO Latin American Center for Perinatology (CLAP),[3] showed that premature rupture of membranes, urinary infection, threatened premature delivery, pre-eclampsia, and pregnancy-induced hypertension[4] were among the five leading causes of morbidity registered for the prenatal period. Urinary infection ranked in first place in the institutions that were studied in suburban Argentina and in Ecuador; premature rupture of membranes was predominant in metropolitan institutions in Argentina, and in Brazil and Chile. Threatened premature delivery and pre-eclampsia also appeared among the five leading causes of morbidity in all the countries.

There is no basis for assuming that the prevalence of these conditions is similar among the general population. However, it is considered that abortion and hemorrhage are less represented in this series, since most of those episodes are treated on medical-surgical emergency basis or do not seek any kind of care.

Table 3. Total number of deaths of women 15-44 years of age, and deaths from complications of pregnancy, childbirth, and the puerperium (ICD-9,630-676) in selected countries of the Region of the Americas, last available year.

Country (year)	Deaths women 15-44 years		
	Total	Maternal	Maternal causes (%)
Argentina (1986)	7,409	369	5.0
Brazil (1986)	41,685	1,814	4.4
Canada (1988)	3,994	18	0.5
Chile (1987)	2,607	135	5.2
Colombia (1984)	7,965	642	8.1
Costa Rica (1988)	489	15	3.1
Cuba (1988)	3,143	73	2.3
Dominican Rep. (1985)	1,568	106	6.8
Ecuador (1987)	3,088	355	11.5
El Salvador (1984)	1,626	99	6.1
Guatemala (1984)	3,888	236	6.1
Guyana (1984)	268	16	6.0
Honduras (1982)	1,145	149	13.0
Jamaica (1984)	444	14	3.2
Mexico (1986)	21,177	1,681	7.9
Panama (1987)	442	22	5.0
Paraguay (1986)	692	140	20.2
Peru (1983)	5,333	611	11.5
Puerto Rico (1987)	732	11	1.5
Trinidad & Tobago (1986)	366	18	4.9
United States (1987)	49,874	251	0.5
Uruguay (1987)	629	15	2.4
Venezuela (1987)	4,345	251	5.8

Source: *Health Conditions in the Americas*, 1990 edition.

It is estimated that there are 65 abortions yearly per 1,000 women of childbearing age in Latin America, and that this figure is even higher in urban areas *(19)*, which would suppose a proportion of at least one abortion for every two or three deliveries in the subregion. This denotes a serious problem of morbidity in women of childbearing age, that affects society as a whole and whose solution will require prompt measures to improve the programs for preventing abortion and providing care for its complications.

A phenomenon that is assuming serious proportions in the Region is the excess of deliveries by cesarean section. A collaborative study by CLAP[5] that covered 16 countries (Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Honduras, Mexico, Nicaragua, Peru, Uruguay, and Venezuela), confirmed that more than half of the 176 hospitals studied showed a

[3] Perinatal Clinical History (CLAP/PAHO, 1990.)
[4] Personal communication from CLAP.

[5] According to this investigation, the risk of death was greater in cases in which cesarean section was performed. In addition, the duration of the hospital stay doubled, thereby increasing the cost of delivery care.

Table 4. Mortality rates (per 100,000 live births) and structure of maternal mortality by group of causes, in countries of the Region of the Americas, last available year.

Country (year)	Abortion (630-639)		Hemorrhage (640,641,666)		Toxemia (642.4-642.9, 643)		Complications of the puerperium (670-676)		Other direct causes (642.0-642.3, 644-646, 651-665, 667-669, 650)		Indirect causes (647-648)	
	Rate	%	Rate	%	Rate	%	Rate	%	Rate	%	Rate	%
Argentina (1986)	19.8	35.0	7.8	13.3	8.9	15.8	8.1	14.3	11.0	19.5	0.9	1.6
Brazil (1986)	6.2	13.2	7.5	16.0	13.5	28.9	7.5	16.0	8.6	18.4	3.5	7.5
Canada (1988)	0.3	6.0	0.8	16.0	1.4	28.0	2.2	44.0	0.3	6.0	-	0.0
Chile (1987)	16.2	34.9	3.8	8.1	5.5	11.8	11.4	24.5	7.2	15.9	2.4	5.2
Colombia (1986)	17.7	10.3	34.0	17.8	40.0	23.3	18.0	10.5	60.0	34.9	2.0	0.2
Costa Rica (1988)	1.3	6.7	5.3	26.7	5.3	26.7	2.6	13.2	5.3	26.7	-	0.0
Cuba (1988)	9.0	21.8	1.1	2.7	3.4	8.2	6.8	16.5	7.4	17.9	13.6	32.9
Dominican Republic (1985)	9.1	17.0	8.6	16.1	13.6	25.5	-	0.0	17.6	33.0	4.5	8.4
Ecuador (1988)	8.0	7.3	26.9	24.6	27.2	25.0	8.0	7.3	37.2	34.0	2.0	1.8
El Salvador (1984)	4.2	7.9	4.2	7.1	3.0	5.1	4.7	8.0	42.2	71.7	0.6	1.0
Guatemala (1984)	12.4	17.0	1.2	1.6	7.4	10.1	11.1	15.2	38.4	52.7	2.5	3.4
Guyana (1984)	61.5	30.8	80.6	40.5	34.6	17.3	11.5	5.7	11.5	5.7	-	0.0
Jamaica (1984)	73.8	65.8	7.7	6.9	24.6	21.5	-	0.0	6.1	5.4	-	0.0
Mexico (1986)	6.8	8.9	19.0	24.8	15.0	19.7	6.8	8.9	27.7	36.2	1.2	1.6
Panama (1987)	8.8	22.9	1.7	4.4	7.0	18.2	-	0.0	19.3	50.1	1.7	4.4
Paraguay (1986)	14.8	13.5	33.6	30.7	19.5	17.8	18.7	17.2	18.0	16.5	4.7	4.3
Peru (1983)	10.2	11.2	30.3	33.2	7.7	8.4	13.2	14.4	29.6	32.4	0.4	0.4
Puerto Rico (1987)	-	0.0	1.3	6.8	3.8	19.8	9.0	46.8	5.1	26.6	-	0.0
Suriname (1985)	9.5	14.2	47.7	71.6	9.5	14.2	-	0.0	-	0.0	-	0.0
Trinidad & Tobago (1986)	54.8	51.7	6.4	6.0	29.0	27.3	6.9	6.1	3.2	3.0	6.4	6.0
United States (1987)	1.2	17.6	0.9	13.2	0.9	13.2	2.3	33.9	1.1	16.2	0.4	5.9
Uruguay (1988)	1.9	5.0	3.8	10.0	3.8	10.0	15.3	38.0	15.3	38.0	-	0.0
Venezuela (1987)	10.4	19.4	9.2	17.2	13.7	25.7	6.6	12.3	9.6	17.9	4.0	7.5

Source: TIS, PAHO.
-Zero magnitude.

proportion of cesarean sections ranging from 17% to 29.4% in the period 1981-1985 *(20)*.

The growing importance being assigned to measuring the costs of health services has created an opinion trend among governments and financing agencies toward devising and applying methodologies to assess cost-efficiency and cost-effectiveness in the provision of health services.

With regard to maternal health this implies, inter alia, being able to quantify the cost of preventing a maternal death and preventing episodes of morbidity in women during pregnancy and the puerperium. The usefulness of this effort is to demonstrate to the still skeptical--those who are usually called upon to allocate resources for maternal health programs--that the cost-benefit of safe motherhood surpasses the social and family costs of maternal death. However, no studies have been carried out to identify and quantify the social and family costs of a maternal death, nor have the compensation measures been quantified that the families and the community would be entitled to, as a result of the disability or death of mothers from almost entirely preventable causes *(21)*. This situation is perfectly consistent with the role of women and the social value they are assigned in most countries of the Region, since up until only a few years ago it would have been unthinkable to put a price tag on *nonproductive activity* (household work) for which *wages are not paid*, which is precisely the principal economic activity performed mostly by women in these latitudes.

PAHO's Regional Plan of Action for the Reduction of Maternal Mortality in the Americas points to a cost of slightly more than $US 300 million a year to diminish maternal mortality by 50% *(1)*. The World Bank estimated that the cost to save one life ranges between $US 190 and $US 3,100, and to prevent a pathological event, between $US 75 and $US 100 *(4)*.

Research carried out in Tlaxcala, Mexico, on the social cost of maternal death measured the resulting homelessness, loss of schooling, and the family impact of such an event *(22)*. However, the focus of the study was only partial, since it appears not to include evaluation of the economic, labor, political, and cultural

losses that derive from a death due to causes that are preventable at low cost.

The great majority of maternal deaths are avoidable, since their principal causes and determining factors are known. It is also true that sufficient scientific and technological knowledge for preventing such deaths has been available for a long time.

In general terms it may be argued that improving the educational and health conditions of women can have a positive influence on the outcome of their pregnancies. What is indisputable, however, is that by providing cultural, economic, and geographic access to health services of good quality, early detection of risk would take place, and the number of maternal deaths substantially reduced through prenatal care, availability of the essential elements for obstetric care, and provision of appropriate information for prevention of unwanted pregnancies.

According to various studies carried out in Latin America, estimates of the avoidability of maternal death range between 52% in Mexico *(23)* to 92% in Colombia *(24)*. For example, if the entire Region of the Americas had conditions similar to those in Canada, maternal deaths would be reduced 47 times; and 85% of such deaths could be avoided merely by correcting omissions of the health services and modifying family behavior with regard to maternity and the use of the health services[6].

It is estimated that if the current health situation persists, the Region will suffer an estimated annual loss of more than 1 million potential years of women's emotional and social life.

Intervention Strategies

The growing commitment of the governments of the Region, nongovernmental organizations (NGOs), and international organizations to the health of women, their reproductive health, and especially maternal health prompted PAHO to formulate in 1990 the Plan of Action for the Reduction of Maternal Mortality in the Americas *(1)*. This Plan was approved by the Ministers of Health of the countries of the Region of the Americas at the XXIII Pan American Sanitary Conference that same year. The broad strategic guidelines proposed in the Plan include:

- Define a policy of providing comprehensive health care to women and preventing maternal morbidity and mortality;
- Set targets for the reduction of maternal mortality by at least 50%, to be attained within the next 10 years;
- Carry out programs for communication and dissemination of information to build collective awareness and informed public opinion on the protection of maternity and promotion of reproductive health;
- Design and execute action plans for reduction of maternal mortality, including, whenever appropriate, the goals, intervention strategies, and action guidelines and policies proposed in the Regional Plan;
- Undertake an analysis of the cost of the national plan for reduction of maternal mortality, define a strategy for financing it, and assign to it the necessary resources;
- Make special efforts to enlist the participation of other sectors in the implementation of actions to promote women's health and maternal health;
- Make a special effort toward improving the quality and use of demographic, health, and services information in order to maintain an up-to-date assessment of women's health situation in general, and their reproductive health, in particular;
- Establish a maternal mortality surveillance system;
- Evaluate the national plan for reduction of maternal mortality every two years and inform PAHO on its progress;
- Continue efforts to achieve rapid progress in executing maternal and child health and family planning programs, and intensify activities aimed at high-risk groups, especially those focusing on promoting women's health and protecting their reproductive health, with the goal of reducing existing differences within and between countries.

These guidelines were divided into two large groups of activities, one aimed at promoting the health conditions of women and modifying their reproductive behavior, and the other directed at the health services.

a) Promotion of the Health Conditions of Women

This includes the promotion of healthy behavior during adolescence, during the periods between pregnancies, and in procreation; it also includes promotion of timely use of the health services and motivation and support for organized responses by the community and women's groups to the needs of the reproductive period and women's participation in the entire process of their health care. Its principal lines of action are:

- Update existing legislation on the protection of the health of women and the family to make explicit the right of women to health care and to protection of their reproductive health;
- Develop comprehensive health programs for women in institutional and community contexts, including education for sexual health;
- Revise national legislation on abortion in order to facilitate its care with a preventive component as well as the free and timely care of complications;
- Strengthen and improve knowledge and actions by the community and by organized women's groups in order to promote optimum health conditions for women;

[6] Figure estimated by Bobadilla and collaborators in a recent study in Mexico City *(11)*.

- Use social, group, and intersectoral communications media to promote health programs for women and to foster enhanced utilization of health services;
- Develop supplementary feeding programs for pregnant women with nutritional problems;
- Develop comprehensive fertility regulation programs with unrestricted access for all users, both men and women;
- Include educational activities on sexual health within adolescent health program;
- Prevent unwanted pregnancies and educate the female carriers of certain diseases aggravated by pregnancy on the risks generated under such conditions;.
- Promote the recognition among health service providers of the importance of promotion and prevention activities within comprehensive care programs for women.

b) Actions Directed at the Health Services

This second group of activities is aimed at reactivating the health systems through new care models; strengthening the various processes involved in the administration of care, training, research, information, and evaluation; emphasizing the quality and humanization of the care provided; expanding the problem-solving capacity of the services; and eliminating economic, geographic, and cultural barriers.

This reactivation of the health services includes activities designed to:

- Implement permanent training systems on the basis of updated standards;
- Develop epidemiological and social research, including investigation of community perceptions;
- Improve the systems for epidemiological surveillance of deaths of women of childbearing age and the recording of information on health actions relating to pregnancy, delivery, the puerperium, and family planning;
- Promote humanized health care for women;
- Eliminate the economic barriers that stand in the way of women's access to health services;
- Reorganize maternal care services based on universal coverage and the risk approach;
- Improve the operational efficiency of maternal care services, strengthening the problem-solving capacity of the first level of referral;
- Increase the coverage and quality of prenatal care, with emphasis on pregnant women in rural and marginal urban areas;
- Prevent abortion and improve care for incomplete abortion;
- Rationalize the use of technologies;
- Develop alternative models of maternal care, homes for high-risk pregnant women, birthing centers, and clean delivery at home by traditional midwives.

Role of PAHO

In order to assist in implementing these strategies, PAHO's Program on Maternal and Child Health has designed a Plan of Action for 1992-1995 *(25)*. This Plan is based on three pillars: a) developing epidemiological surveillance of maternal mortality in the Region; b) promoting the implementation of the national plans of action simultaneously with the mobilization of resources for their execution and the measurement of their costs; and c) supporting intercountry initiatives aimed at improving technologies and sharing experiences.

In brief, the aim is to promote widespread agreement at the country and international levels in executing the Regional Plan of Action for the Reduction of Maternal Mortality in the Americas as a means of reducing the overwhelming social debt owed to the women of this Region.

References

(1) Regional Plan of Action for the Reduction of Maternal Mortality in the Americas. XXIII Pan American Sanitary Conference/XLII Regional Committee Meeting of WHO for the Americas. Washington, DC, 1990. Document CSP23/10 (Eng.) 7 August 1990.

(2) PAHO/WHO. XXXV Meeting of the Directing Council/XLIII Regional Committee Meeting of WHO for the Americas. Washington, DC, 1991.

(3) Marckwardt AM, Ochoa LH. Comparative Population and Health Data for the Latin American Region [draft]. Institute for Resource Development/Macro International. Columbia, Maryland, United States, January 1992.

(4) Herz B, Measham T. Safe Motherhood Initiative: Proposals for Action. World Bank Discussion Paper No. 9. World Bank, Washington, DC, 1987.

(5) Suárez Ojeda N, Moreno E, Brant JC, Rodríguez MV, Araiz S, Ruiz F, Miravet MD. Evaluación de servicios de salud maternoinfantil. Condiciones de eficiencia en algunos países de América Latina. In: *Evaluación de Servicios de Salud Maternoinfantil.* PAHO/WHO, Washington, DC, pp. 239-269, 1989.

(6) Rochat RW. *The magnitude of maternal mortality: definitions and methods of measurement.* Document WHO/FHE/PMM/85.6.1.

(7) Kestler EE. Maternal Mortality in Guatemala. A big gap...but just start! Document presented at *Primer Taller Latinoamericano sobre Salud Maternoinfantil: Estrategias Operativas*. Metepec, Puebla, Mexico, 27 May-1 June 1991.

(8) Castellanos MDJ, Ochoa Vázquez JC, David V. Mortalidad de mujeres en edad reproductiva y mortalidad materna. Document presented at *Congreso Latinoamericano de Obstetricia y Ginecología*, Montevideo, Uruguay, December 1990.

(9) Pino A, Reascos N, Villota I, Landázuri X, Yépez R. Mortalidad materna en el Ecuador y aspectos culturales en la atención de la mujer embarazada. *Revista del Instituto Juan César García* 1(1): 33-56, January 1991.

(10) Laurenti R. *A saúde materna na Região das Américas.* Document presented to PAHO. p. 20, March 1992.

(11) Bobadilla JL, Reyes Frausto S, Karchmer S. Magnitud y causas de la mortalidad materna en el Distrito Federal, 1988-1989. Document presented at *Seminario sobre Causas y Prevención de la Mortalidad de los Adultos en los Países en Desarrollo*, Santiago, Chile, 7-11 October 1991.

(12) Högberg U, Wall S. Secular trends in maternal mortality in Sweden from 1750 to 1980. *Bulletin of the World Health Organization* 64(1): 79-84, 1986.

(13) Parazzini F, La Vecchiea C, Mezzanotte G. Maternal mortality in Italy, 1955 to 1984. *Am J Obstet Gynecol* 159(2): 421-422, 1988.

(14) Sachs BP, Jewett JF, Brown DAJ, Driscoll SG, Schulman E, Acker D, Ransil BJ. Maternal mortality in Massachusetts: Trends and prevention. *N Engl J Med* 316: 667-672, 1987.

(15) Measham AR, Rochat RW. Slowing the stork: Better health for women through family planning. Working document, *International Conference on Better Health for Women and Children through Family Planning*, Nairobi, Kenya, 1987.

(16) National Center for Health Statistics. *National Hospital Discharge Survey*. USDHHS (CDC/PHS), Hyattsville, Md., 1991.

(17) Instituto Mexicano del Seguro Social. *Subdirección General Médica: Estadísticas de egresos hospitalarios 1989*. Taken from 30 most frequent diagnoses by sex. Mexico City, pp. 1-2, May 1990.

(18) Acsadi GTF, Johnson-Acsadi G, Vlassoff M. *Safe motherhood in Latin America and the Caribbean: Socio-cultural and demographic aspects of maternal health*. Document prepared for meetings on safe motherhood in Latin America and the Caribbean. Acsadi & Associates, New York, 1991.

(19) Henshaw SK. Aborto inducido: Una perspectiva mundial. *Perspectivas Internacionales en Planificación Familiar*. Special issue, pp. 12-16, 1987.

(20) CLAP/PAHO. El nacimiento por cesárea hoy. In: *Salud Perinatal* 3(9):101-120, 1989.

(21) Tinker A. Safe motherhood: How much does it cost? Document presented at *Taller sobre costos de la maternidad segura*, World Bank, Washington DC, April 1991.

(22) Elu MC. In: Final Report, *Primer Taller Regional sobre Investigación en Mortalidad Materna*. Secretaría de Salud de México. Dirección General de Salud Maternoinfantil - PAHO/WHO. Mexico City, p. 11, April 1990.

(23) Mojarro OD, Hernández DF, Fuentes JV, Martínez JM. La epidemiología de la mortalidad materna y las estrategias operativas de los Comités de Mortalidad Materna en el Instituto Mexicano del Seguro Social. Document presented at *Primer Taller Latinoamericano sobre Salud Maternoinfantil: Estrategias Operativas*. Metepec, Puebla, Mexico, 27 May-1 June 1991.

(24) Rodríguez J, Quintero C, Bergonzoli G, Salazar A. Avoidable mortality and maternal mortality in Cali, Colombia. WHO document FHE/PMM/85.6.2.

(25) PAHO/WHO. Regional Program on Maternal and Child Health. *Plan of Action 1992-1995*, Washington, DC, December, 1991.

(*Source*: Program on Maternal and Child Health and Population, PAHO.)

Calendar of Meetings

16 to 18 June 1993 Keystone, Colorado, USA	Twenty-sixth Annual Meeting Society for Epidemiological Research (SER)	Dr. Richard Hamman Dept. of Preventive Medicine and Biometrics UCHSC, Box 425, Denver, Colorado 80262, USA Tel. (303) 270-6863 Fax (303) 270-3183
24 August to 11 September 1993 Montreal, Quebec, Canada	Twenty-second International Conference on Population International Union for the Scientific Study of Population (IUSSP)	Réjean Lachapelle Ottawa, Ontario, Canadá Tel. (613) 951-3763, or Bruno Remiche IUSSP 34, rue des Augustins, B-4000 Liége, Belgium Tel. 32(41) 22-40-80 Fax 32(41) 22-38-47
18 to 22 October 1993 Buenos Aires, Argentina	Second Pan American Congress on Epidemiology and Health Care. In commemoration, Tenth anniversary of the 1983 Buenos Aires Seminar on Current Uses and Future Prospects of Epidemiology	Dr. Jorge Daniel Lemus Cerviño 3356, 7mo piso División Area Programática 1425 Capital Federal, Argentina Tel. 54(1) 801-0020 Fax 54(1) 801-7767
27 to 29 October 1993 Havana, Cuba	Fourth Cuban Congress on Microbiology and Parasitology First Congress on Tropical Medicine	Prof. Gustavo Kourí Flores Presidente, Comité Organizador Instituto "Pedro Kourí" Apartado 601, Marianao 13, Ciudad de La Habana, Cuba Fax 21- 5957