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# REGIONAL PLAN OF ACTION FOR THE REDUCTION OF MATERNAL MORTALITY IN THE AMERICAS

This document presents the First Progress Report on the Regional Plan of Action for the Reduction of Maternal Mortality in the Americas to be submitted to the Executive Committee for consideration. It proposes adjusting the Plan's targets, strategies, and lines of action so that they may serve as a basis for the Committee's recommendations to the Directing Council on this topic.

Analysis of the available information indicates that the Plan made limited progress in most of the countries, largely due to political and financial restrictions. Although the countries have endorsed the Plan, it is evident that this has generally not been translated into any political decision, nor to the allocation of resources, the search for additional resources, or to specific programs and action. Consequently, the recommendation is made to adjust the targets, strategies, and lines of action.

The document emphasizes the need for a greater commitment on the part of the countries to improving the information system, achieving intersectoral coordination, and intensifying the search for national and international resources to implement actions to improve the health of women, particularly with regard to maternal health and family planning.

It is recommended that the countries intensify their efforts to implement the following lines of action, as appropriate:

- Improvement of the epidemiological surveillance system for maternal deaths, basic statistics, and reproductive health.

- Strengthening of family planning activities to prevent abortion and unwanted pregnancies, and to fulfill unmet demand.

- Increase in the coverage of prenatal care.

- Implementation and/or expansion of supplementary maternal care models (maternity homes, birthing centers and clean delivery at home).

- Improvement of the quality of institutional delivery and of maternity hospitals at the first level of referral.

In addition, it is recommended that the countries adopt indicators to evaluate the impact, the processes, the accessibility, and the quality of the services.

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Annex. Tables and Figures

## 1. Introduction

In continuing the development of its population policy, the XXIII Pan American Sanitary Conference, in Resolution XVII, adopted the Regional Plan of Action for the Reduction of Maternal Mortality in the Americas.

This Plan has been designed to improve the health of women, especially their reproductive and maternal health. It proposes a large-scale social effort in this direction, in addition to the mobilization of national and international resources so that actions to promote health, expand and improve the health services, and effectively involve the population can succeed in reducing the real figures of maternal mortality by 50% by the year 2000.

The goals of the Plan and its principal lines of action were endorsed by the countries during the meeting to evaluate fulfillment of the goals of the World Summit for Children (Brasilia, Brazil, 1991), in the national plans formulated to reduce maternal mortality and in two subregional and interagency meetings[1] on safe motherhood risk held in Guatemala (Guatemala City, 1992) and Santa Cruz (Bolivia, 1993).

## 2. Reproductive Health of Women

The proposal of the Regional Plan is based on the following considerations:

- Maternal mortality is avoidable. Its leading causes are known, and knowledge and appropriate technology for reducing it have been in existence for a long time.

- All maternal deaths represent an important social and health problem.

- Women are more vulnerable during the reproductive period.

- The living conditions of a considerable proportion of the women in the Region of the Americas increase the risks of disease and death during pregnancy, delivery, and the puerperium.

- Programs to reduce maternal mortality should take into account the socioeconomic context which is marked by a severe financial crisis and external and social debt.

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[1] For the countries of Central America and the Andean Subregion.

- Proposals should be viable, offer a variety of alternatives, include the identification of different sources of resources, and expand community participation.

- The reduction and surveillance of morbidity and maternal mortality should be integrated into the general health care of women and children in the framework of the Strategic Orientations and Program Priorities for the Quadrennium 1991/1994 (PAHO/WHO, 1990).

### *2.1 General Considerations*

There is insufficient knowledge of the true magnitude of maternal mortality in most of the countries of Latin America and the Caribbean.

Differences exist with regard to the quality of information gathered on the reproductive health of women, its quality, and the capacity to analyze it and use it properly. The availability and accessibility of information for analysis and use are also a matter of concern.

The different types of underregistration (of maternal deaths and causes) and the use of a definition of maternal death that excludes deaths that occur more than 42 days after the termination of pregnancy also contribute to this situation.[2] More serious still is the information situation with regard to morbidity. The available information largely concerns admissions to public hospitals and does not reflect the overall epidemiological situation of the reproductive health of the population.

The health statistics services of the countries of the Region are in varying stages of development, which means that the completeness and quality of the information, as already indicated, are uneven. There is a very generalized tendency to not make use of available information, which also affects its quality. Not all the countries have sent the information on time and in full, and consequently certain information is lacking for certain years, particularly the most recent years. These circumstances make it difficult to evaluate and monitor the Plan at the regional level and in the countries.

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[2] Inclusion of the definition of late maternal death in the Tenth Revision of the International Classification of Diseases may diminish the magnitude of the problem.

The social conditions of women in Latin America and the Caribbean have not changed in recent years, and inequities continue to exist, which are aggravated by the heterogeneous or unequal effects of population growth, accelerated urbanization, urban and rural poverty, the conditions of employment and underemployment of women, combined with their low educational levels, and, finally, the still insufficient coverage and quality of the health services.

*2.2. Changes in the Situation of Reproductive Health of Women in the Region*

In 1990, the estimated population of women of childbearing age (15 to 49 years) in the Region of the Americas was 186 million, and it may have reached 197 million in the three years that the Regional Plan has been in effect.

In the last four decades fertility has declined significantly throughout the entire Region. Nevertheless, there are countries that still have high levels of fertility, such as, for example, Bolivia, Guatemala, Haiti, and Honduras (Table 1).

Fertility among adolescents is a phenomenon of special interest for society today. Large differences exist in the countries in the Region, exemplified by figures that range between 48 and 133 live births per 1,000 women from 15 to 19 years of age. These fertility rates have declined in all the countries in recent years with the exception of three: Argentina, Cuba, and Uruguay. In several countries adolescents have contributed to the increase in the total number of births, especially in Cuba, El Salvador, and Mexico (Munist, 1993). The risk of disease and death associated with the increase in specific fertility from 15 to 19 years of age is primarily a social problem. This risk has increased as the living conditions of certain groups of adolescents have declined.

Maternal mortality is also associated with social development. There is no doubt that it is a very good indicator of the quality of life of the female population. In countries such as Canada, the United States, Cuba, Costa Rica, and Uruguay, the female population enjoys better living conditions; in the other countries of the Region, where large differences exist, maternal mortality reflects the poorer living conditions of this population group.

The position occupied by maternal deaths among the 10 leading causes of deaths of women from 10 to 49 years of age is related to the maternal mortality rate. Thus, in countries with high and very high maternal mortality, this cause is ranking high on the list of the 10 leading causes of death for this group of women. Conversely, in countries with a medium level of maternal mortality, this cause tends to be lower on the list, and in countries with low mortality it does not appear among the 10 leading causes at all (Figure 1).

Maternal mortality levels in the countries in the Region of the Americas continue to exhibit wide variations that are related to the quality of the services, the availability of the resources needed to prevent maternal deaths, the availability of blood and other supplies, and access to adequate care. Maternal mortality in recent decades in the countries and territories of the Region has remained quite high, with the exception of some countries, such as Canada, the United States, and Puerto Rico, and in more recent years, Chile, Costa Rica, Cuba, and Uruguay (Table 1).

Generally speaking, the countries with the highest maternal mortality have the highest total fertility, in addition to the lowest percentages of institutional deliveries and the use of contraceptives, as in Bolivia, Ecuador, Haiti, Paraguay, and Peru (Table 1). There are also intermediate situations, such as those found Chile and Costa Rica, with moderate maternal mortality, institutionalized delivery, and low fertility rates. This suggests that once countries attain a certain level of maternal mortality, measures such as the reduction of fertility, institutionalization of delivery, and increased use of contraceptives, if isolated from other reproductive health measures, do not ensure that mortality will continue to decline (Tables 2, 3, 4).

Direct obstetric causes are the most frequent cause of maternal deaths in almost all the countries that have provided information (Table 5). The three leading causes of maternal death registered are abortion, toxemia, and hemorrhage, and only their order and magnitude vary in accordance with the particular circumstances of each country.

Abortion is the leading cause of death in Argentina, Costa Rica, Cuba, Chile, Guatemala, Nicaragua, and Venezuela; toxemia is the leading cause in Brazil, Canada, Colombia, Jamaica, Mexico, the Dominican Republic, and Trinidad and Tobago; and hemorrhage is the leading cause in Ecuador, El Salvador, Guyana, Panama, Paraguay, Peru, and Puerto Rico. The only country where complications of the puerperium is the leading cause is the United States.

The relationship between age and deaths from complications of pregnancy, delivery, and the puerperium indicates that toxemia is generalized in all the countries for all age groups, as is hemorrhage. In countries in which abortion is also a concern, it increases with age (Figure 2).

In analyzing maternal deaths in the countries in the Region from 1985 to 1991, stabilization was observed of the progress achieved in some countries from 1988 on with regard to the reduction of deaths, whereas in others, some ground has been lost. Even though there is a tendency in the great majority of countries toward a reduction of

fertility, the absolute number of maternal deaths in certain countries has nevertheless increased since the date indicated above (TIS-PAHO, 1993). In the mid 1980s this characteristic was associated with the exacerbation of the economic and social crisis in the countries, which heightened the social inequalities existing between countries and in the various population groups, including those related to access to the health services.

Various authors have employed different methodologies in attempting to quantify morbidity (Mora and Yunes, 1993; (Acsadi et al., 1991). However, on the basis of data published by the Mexican Social Security Institute it was estimated that for every four deliveries there would be one hospitalization for complications of pregnancy (Mora and Yunes, 1993). If this ratio is applied to the estimate of 12 million births in Latin America and the Caribbean the probable number of hospitalizations required during pregnancy would be between 2.4 and 3 million (Mora and Yunes, 1993).

With regard to morbidity during the prenatal period, series have been constructed for several countries in the Region on the basis of data collected by means of the Simplified Perinatal Clinical History (Latin American Center for Perinatology and Human Development). It was observed that, except for some institutions which were probably serving high-risk populations, the incidence of pathologies ranged from 8.6% to 33.6%. The following order of frequency of registered morbidity during pregnancy was observed: premature labor, hemorrhage during pregnancy, urinary tract infections, pre-eclampsia, and premature rupture of membranes.

A rate of 65 abortions per 1,000 women of childbearing age is estimated for Latin America. This figure is even higher in urban areas, which would imply a ratio of at least one abortion for every two or three deliveries in the subregion [3]. This represents a serious problem of morbidity for women of childbearing age that affects society as a whole, one whose solution will require that steps be taken soon to improve preventive efforts and care services for the complications of abortion (Mora and Yunes, 1993).

## 3. Execution of the Plan at the Regional and Country Levels

### *3.1 Progress Achieved in the Countries*

Some of the information sent by the 17 countries in the Region on the degree of progress they had achieved in reducing maternal mortality was incomplete and, on

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[3] An indicator of the magnitude of this problem is the proportion of hospitalizations for abortion, which in the Mexican Social Security Institute and the National Institute of Medical and Social Welfare of Brazil account for 12% and 14.8%, respectively in a recent year.

occasion, even inconsistent with the published data. This limited information notwithstanding, especially with regard to the period of execution of the Plan, it is still possible to infer the progress achieved and the priority it has been assigned in the countries.

*Targets.* In the countries that reported, with the exception of Bahamas, Bolivia, and Chile, a national plan for the reduction of maternal mortality had been formulated. Eight countries set targets for reducing maternal mortality by 1995 that were equal to or greater than that proposed by the Regional Plan[4]. In some countries no specific plan had been formulated for reducing maternal mortality. Targets were defined and included as a component of the maternal and child program, as in the case of Bolivia, Chile, Ecuador, and the Dominican Republic. In some countries with federal governments, states or municipalities strengthened the plan by enacting specific legislation.

More than 70% of the countries that sent information reported that they had some kind of epidemiological surveillance system for maternal mortality. Chile, Cuba, the United States, Jamaica, and Mexico have surveillance systems in place with nation-wide coverage and varying degrees of operation of the respective committees at the national, provincial, municipal, and institutional levels (PAHO-CDC, 1992). Argentina and Brazil have surveillance systems with good development of regional and hospital committees on maternal mortality and/or national commissions or committees for monitoring the fulfillment of maternal and child health goals, among which are the reduction of maternal mortality. Colombia has begun establishing committees at the level of several Health Sections. Other countries have emphasized the development of maternal mortality committees at the level of the health establishments (as in Costa Rica, Peru, Honduras, and Venezuela), and have also begun implementing surveillance systems for maternal death.

The development of installed hospital capacity for obstetric emergency and delivery care was included in a Regional Plan target to increase the efficiency of hospital beds. The information sent by nine countries shows that more than half of them have an occupancy rate of less than 70%, and in one case, less than 40%.

Particular attention was given by the countries to the development of human resources. A comparison of the information sent by only 13 countries showed that the target proposed for the five-year Plan was probably exceeded, since 59.5% of the courses were given in maternal health and family planning, 16.2% in maternal health, and 24.3%

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[4] In Bolivia, Costa Rica, Cuba, and the Dominican Republic it was equal to or greater than 30%; in Brazil, Panama, Trinidad and Tobago, and Uruguay it was 50% or higher. Peru and Venezuela set a target lower than 30%.

exclusively in family planning. If the training of traditional birth attendants is excluded--a category in which Guatemala alone contributed 47.2% of the total of trained personnel and 86.8% of the total of the traditional birth attendants trained--it may be seen that 123.7% of the target proposed by the Regional Plan was fulfilled (Table 6).

Of the total of 12,111 persons who were trained in the health services, 22.8% were physicians, 37.8% nurses, and 39.4% nursing auxiliaries. More than 40% of this personnel received courses in maternal health and family planning, 31% in maternal health, and 29% in family planning. As mentioned elsewhere in the present document, the impact of this great effort on the quality of the services has been hampered by the shortage of essential supplies.

The targets for service coverage are more difficult to measure. Even so, the information obtained leads to the following conclusions or assumptions: The prevalence of contraceptive use has increased notably in several countries in the Region, such as Costa Rica, Ecuador, Honduras, and Peru, and to a lesser extent in Colombia and Guatemala. Some evidence exists of problems having to do with the quality of the services, the high proportion of traditional methods used, lack of continuity of the methods, and a possible increase in hospital abortions in countries with a high prevalence of contraceptive use. Bolivia, Guatemala, Nicaragua, and Venezuela have low figures of contraceptive use with very few changes observed in the recent past, except for Nicaragua, where use declined (Table 7).

Prenatal coverage in three countries, Honduras, Panama, and Peru, increased by more than 7% during the period. In contrast, in Costa Rica, Nicaragua, and Uruguay it diminished by 6% or more. The rest of the countries did not show any significant change. (Table 7). It is also evident from other indicators (% of VDRL test and tetanus vaccination) that the quality of care still leaves much to be desired in most of the countries in the Region (Table 8).

Delivery care, in turn, registered proportionately smaller increases than prenatal care and contraceptive use. This improvement was lower than 2% in Colombia, Costa Rica, Nicaragua and Venezuela, and between 5% and 6% in Guatemala, and Honduras. The figures from the rest of countries showed no variation, except for the case of Peru, which registered a large reduction of 14.5% in coverage (Table 7). The quality of delivery care is unknown, but it may be inferred from the increase in the number of cesarean sections above the maximum recommended limit of 15% that it should be

improved in most of the countries.[5] The foregoing considerations make it possible to estimate, on the basis of the best available information, that in 1990 the number of maternal deaths for the Region as a whole was close to 20,000 (Table 9).

*Strategies.* Brazil has standardized actions to protect the health of women as a strategy for achieving the goal of reducing maternal mortality.

The strategy of developing maternity homes is mentioned in the reports received from the countries. Honduras reports that four homes are being built, both to attract pregnant women at risk for their subsequent transfer to an institution of greater complexity, and to provide low-risk delivery care by specially trained nurses and nursing auxiliaries under medical supervision.

The strategy of using the risk approach to improve the quality of care is also mentioned, in addition to incorporation of the Perinatal Computer System in Chile, Honduras, Panama, the Dominican Republic, and Trinidad and Tobago.

Adaptation of the services infrastructure establishing new health centers or reorganizing them with new personnel and technology is given little mention in the reports of the countries.

The problem here may be specifically attributed to a lack of supplies, which is more marked in certain countries and in certain regions within each country. Consequently, a paradox arises in which some countries possess trained personnel and well-equipped health centers, but, because of the lack of supplies, only educational activities are carried out and very few services are provided for the population.

A notable effort has been made by the Latin American and Caribbean countries in research. A recent study performed by the WHO Program on Human Reproduction reports that 650 investigations have been carried out on human reproduction in 38 institutions in 14 countries in the subregion. Of these, 132 were in the area of maternal and child health (Table 10).

With regard to financial resources, only three countries (Brazil, Panama, and Peru) have reported on the resources they have assigned to the Plan from the national treasury and from external cooperation, and two countries (Guatemala and Honduras) have reported on funds received from external cooperation. It was not possible to ascertain if the amounts of these funds were different from those of the period prior to approval of the national plans.

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[5]According to reports sent to PAHO in 1993 by 12 countries in the Region.

It may be concluded that the progress achieved by the Plan showed a decline in recent years owing to factors inherent in the health sector--which was unsuccessful in implementing the Plan with the necessary priority--and to extrinsic factors attributable to the world economic crisis. The countries were unable to fulfill the requirement--specifically formulated in the Regional Plan--of increasing the financial resources in order to support activities to improve maternal health care and, consequently, to reduce maternal mortality. Neither can it be said that the efficiency of the existing resources was increased, as was proposed in the Regional Plan, due in part to the limited use of appropriate indicators to assess their effectiveness.

### *3.2 Role of the Pan American Sanitary Bureau*

Resolution XVII of the XXIII Pan American Sanitary Conference requested the Director to provide support for:

- Mobilization of national and international technical and financial resources to assist in carrying out the Plan's national, subregional, and regional activities.

- Preparation of a report on the progress made in this regard.

In compliance with this mandate, the Pan American Sanitary Bureau, through six major cooperation mechanisms, undertook the activities described below.

*Mobilization of Resources.* In order to expand the Organizations's technical base, agreements were signed with Family Health International and with International Project Assistance Support; agreements with the Population Council were strengthened; and activities were intensified with the International Planned Parenthood Federation (Western Hemisphere Region), Family Care International, Mother Care International, and the Centers for Disease Control (CDC) in Atlanta.

Financing was obtained from the Government of the Netherlands for a project to improve maternal care in local health systems in Central America and from CIDA/Canada for the development of perinatal health in selected areas of Bolivia, Honduras, Nicaragua, and Peru. In addition, resources were provided, from UNFPA for projects in Antigua, Barbados, Bolivia, Brazil, Colombia, Cuba, Ecuador, Grenada, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, and Peru.

Numerous meetings, workshops, and seminars on maternal health were promoted, including the first meeting to monitor implementation of the plans of action to achieve the targets set by the World Summit on Children, which was held in Brazil in 1992, and

various international meetings on safe motherhood. These were held in Guatemala City, Guatemala, Santa Cruz, Bolivia, and Washington during 1992 and 1993. Also worthy of note is the International Symposium on Family Planning that was held in Mexico in 1992.

*Dissemination of Scientific and Technical Information.* Significant efforts were made to disseminate information and improve the preparation and timeliness of the distribution of the reports of regional technical meetings and other Program publications. In addition, an increase was reported in the list of subscribers in the countries, universities, and other concerned institutions and individuals.

*Development of Policies, Plans, and Standards.* PAHO has convened two working groups, the first to implement the Regional Plan (Montevideo, 1991), and the second group to analyze the progress achieved by the Plan in the Region of the Americas (Montevideo, 1993).

Mention should be made of the support given to the countries for the development and implementation of the national plans in Bolivia, Colombia, Guatemala, Paraguay, and Peru in response to the requests of the governments of these countries. With a view to strengthening the ties between agencies for joint action on maternal, child, and adolescent health related to the goals of the World Summit for Children, an Interagency Committee for the Region was set up, composed of PAHO, UNICEF, UNFPA, USAID, IDB, and the World Bank. A high-level scientific and technical group was also formed to advise the Organization with regard to the execution and evaluation of the Regional Plan.

*Training.* A number of activities concerning manpower training were developed with universities, scientific societies, and the health services of the countries. One example is the process initiated in the countries of the Andean area for the incorporation of scientific and academic advances in reproductive and maternal and child health. Some of these activities were shared with other international organizations.

*Research.* PAHO's research activities were directed toward the development and adaptation of technologies--mainly simplified technologies--aimed at improving maternal and perinatal health.

PAHO supported the development of this type of research and contributed with some resources for its development. This process was essentially set in motion through the Latin American Center for Perinatology, the WHO Program on Human Reproduction, the WHO Program on Maternal Health and Safe Motherhood, and the support given by PAHO's regular research program. (Tables 11, 12, 13).

*Advisory Services for the Countries.* The Program has 12 national and international consultants assigned to 11 countries in the Region (Brazil, Bolivia, Colombia, Costa Rica, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Paraguay, and Peru) and four regional consultants. The estimated time devoted by these consultants to activities to support maternal health would be equivalent to four consultants devoted specifically to the subject.

This work of the Pan American Sanitary Bureau is supplemented with interprogram activities focused on the components of women, health, and development; development of maternal health in the local health systems; AIDS and sexually transmitted diseases; and development of information systems.

## 4. Adjustments to the Plan

Analysis of the information provided by the countries reflects to some extent the lack of a strong commitment by countries, provinces, and municipalities to formulate policies that assign priority to improving women's living conditions and health. In countries where these policies are explicit and supported by a legal framework, there are no indicators that make it possible to visualize how they are being implemented.

Based on the analysis performed, an adjustment is proposed to the Regional Plan with regard to its goals, principal strategies, and the components of the national plans, supplemented by a proposal for regional and subregional activities and for financing and evaluating the Plan.

### *4.1 Targets*

In order to achieve the targets as stated in the Plan, substantial investment would have to be made in the health services to improve the quality of care--particularly institutional care--which is where the problem lies as far as reducing maternal mortality is concerned. This investment does not envisage the incorporation of sophisticated technology. Without diminishing the responsibility of the governments, it is suggested that the targets be adjusted both for levels of achievement and time.

- For the countries in Groups 1, 2, and 3 [6] in the Plan it is proposed that the reduction targets be changed to 15% by 1995, 30% by 1997, and 50% by the year 2000.

- For the countries in Group 4 the targets set by the Plan would remain the same.

*4.2 Strategies*

Although strategies to improve women's health conditions imply intersectoral coordination, participation of the health sector should also be emphasized in order to promote such conditions with a comprehensive approach.

With regard to family planning, which is emphasized in the general strategies of the Plan, the countries should make a concerted effort to find resources. Information provided by the countries has shown that some of them have primarily developed the educational component of this activity because of the lack of other supplies, and therefore expectations have been generated among the population that cannot be fulfilled.

Adjustments should be made in training activities so that the human resources trained can develop the skills they have acquired and for which they were trained. From the information supplied by some countries, it may be inferred that considerable investment has been made in training. This has been done, however, without modifying the organization of the services and without a guarantee of providing the inputs that would make it possible for the personnel trained to apply their skills to the services and succeed in improving the quality of care. Priority should be assigned to coordinating the health sector and the institutions that train the health personnel, such as the universities, scientific societies, and other related institutions.

In promoting research on maternal mortality there is a need to stress that such research should bring about changes in the health services and in the living conditions of women. It has been observed that the results of most research projects have not been applied to the health services.

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[6] Group 1: Bolivia, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Nicaragua, Paraguay, Peru, and the Dominican Republic.
Group 2: Brazil, Colombia, Guyana, Jamaica, Mexico, and Venezuela.
Group 3: Argentina, Bahamas, Chile, Costa Rica, Cuba, Panama, Suriname, Trinidad and Tobago, and Uruguay.
Group 4: Canada and the United States.

It is considered that the strategic lines of research proposed in the Regional Plan continue to be valid. Nevertheless, less emphasis should be placed on population studies of maternal mortality and more resources should be oriented toward the study of maternal morbidity.

In addition, research should stress analysis of the barriers to the implementation of national plans in order to monitor their progress and assess the effectiveness of the interventions carried out. This includes definition of the problem in epidemiological and behavioral terms and the development of technology and measurement of the efficiency and impact of its appropriate use, with particular regard to its acceptance by the users and suppliers of the services. In addition, an analysis should be made of the information existing in the countries by means of target analysis, case study, and the study of specific groups.

The subjects recommended include the various considerations related to the lines of action proposed in the Regional Plan: abortion and the unsatisfied demand for family planning; the impact on maternal morbidity and mortality of prenatal care; alternative care models, including maternity homes, birthing centers, and clean delivery at home by traditional birth attendants, family members, and others; and emergency obstetric care at the first level of the health services and in hospitals at the first level of referral.

In view of the limited national and international resources available, it is essential to perform studies on the cost of the various components of the national plans. Similarly, research on the cost efficiency and cost effectiveness of the various alternatives must be carried out. Despite the fact that an improvement has been observed in some countries, which is manifested in the larger amount of good-quality information available, in others no information at all is available at the present time except that derived from a particular investigation. Even in countries where information systems are relatively adequate, they are not used for decision-making that would result in improving the quality of the services. It should also be emphasized that in countries in which it is feasible, available data sources should be used for devising and implementing epidemiological surveillance systems on maternal mortality. The difficulties that have been experienced in evaluating the progress of the Plan, owing to insufficient information or to problems concerning its completeness and quality, underscore the commitment that should be assumed by the countries to improve their information systems and to allocate 10% of the funds of the program to research.

It may be concluded, from the information on the resources of the countries and on the mobilization of international resources for this area, that the Plan's activities must have suffered. There is no evidence that the countries are going to increase the allocation of resources to reduce maternal mortality. Furthermore, there appears to be a need for substantial investment to improve the services in a situation in which the

health care models are assigning special importance to productivity and are not emphasizing quality. Accordingly, the countries should make an effort to improve the efficiency and effectiveness of the currently available resources.

Social participation and community mobilization have increased considerably since 1985, more as a result of the demand of organized community movements (particularly those involving women) than the initiative of the health sector. This kind of participation in the health services should be promoted, emphasizing coordination between sectoral and extrasectoral resources.

Although progress has been made in developing local health systems, the health of women and mothers has not been assigned its proper place in these processes.

### *4.3 Principal Components of the National Plans*

*System for epidemiological surveillance of maternal deaths and improvement of the basic and reproductive health statistics.* The targets set by the Plan for establishing and operating systems for epidemiological surveillance of maternal deaths that continue to be valid. Implementation of these systems in the countries is very important for improving maternal care and preventing maternal deaths. Various models exist for their development that have been tested in several countries, one of them prepared by an advisory group convened by PAHO and the Centers for Disease Control (CDC) in the United States, which compiles experiences of this kind (PAHO-CDC, 1992).

Although a substantial amount of information exists at the country level that has not been used for political or administrative decisions, greater systematization is required through an efficient and simple system that would permit wider use by all levels of the health services and their users. This system should include minimum information that would make it possible to devise indicators of the impact, quality, and coverage of the services.

It is imperative for the countries to recognize the need for adequate information systems and to make a commitment in this regard. It is also suggested that the experience accumulated in the Region be used through intercountry cooperation and that the countries develop their data bases at the national or state level or at the level of the health services in order to prepare indicators to complement those proposed in the Plan.

*Strengthening of family planning activities to prevent abortion and unwanted pregnancies and to meet the unsatisfied demand.* The great majority of the countries have formulated family planning policies that include this basic activity in their programs for comprehensive health care of women or in maternal and child health programs.

Information is available on specific actions to modify quality coverage in Chile, where the number of controls for cases at risk has been increased and greater access of the population to the services has been promoted; in Peru, where a model for community distribution of injectable contraceptives has been implemented in rural areas on the coast and in the highlands; and in Bolivia, through the training of traditional birth attendants in family planning methods.

One of the actions that is being revitalized to remedy this situation is postpartum and postabortion family planning, which is based on a broader proposal that includes comprehensive postpartum care at home and the promotion of "breast-feeding amenorrhea" as a contraceptive method and one that provides an additional incentive to breast-feeding.

Another urgent action to be implemented is to encourage greater participation by men in decisions about contraceptive methods and to substantially increase the use of vasectomy and condoms. An increase in the quality of care is recommended by making optimal use, for example, of the advances made in contraceptive use, which necessarily requires allocating sufficient resources for this purpose.

Sufficient information exists in several countries in the Region that should be used for administering the programs and improving access to the services for the neediest groups.

The targets suggested in the Regional Plan for contraceptive use should be maintained as a measure of the effort that the countries should make to acquire resources, to improve the quality of care and its contribution to the impact on maternal mortality, to prevent abortion and unwanted pregnancies, and to satisfy the demand.

*Increase of the coverage and improvement of the quality of prenatal care.*[7] Some actions reported in the countries indicate a certain degree of interest in increasing the coverage and quality of care. Honduras, for example, has developed a model to reach pregnant women in the community by means of a survey carried out by volunteers that includes a list of the interventions provided by the health system. Guatemala has experimented with a participatory self-teaching model for traditional birth attendants in one area of the country.

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[7] Prenatal coverage in this document is defined as the number of pregnant women who sought prenatal care once or more during their pregnancies. This does not mean that they received the minimum care proposed in the targets of the Regional Plan for 1995.

Simply putting pregnant women in contact with the health services is not enough to ensure adequate prenatal care. There is a need for substantive improvement in the quality of consultation so that risk situations may be detected, controlled, and remedied. There are populations and groups at risk that can be identified, and appropriate actions can be taken for their inclusion in prenatal care. Advantage should be taken of grass-roots and women's organizations in order to link them actively in co-managing the health services, which would make it possible to reach more pregnant women and improve the quality of care.

*Complementary care models:*

- Maternity homes. Experiences in the Region point to the merit of this proposal as a means of diminishing transportation time and the risk to pregnant women living in rural and marginalized areas.[8] The Plan has made a low-cost proposal to implement this modality, but it not yet been accepted by the countries. It is considered of great importance to implement this proposal through community participation and co-management.

- Birthing centers. Several countries in Latin America and the English-speaking Caribbean[9] have developed this institutionalized model for delivery care. This proposal requires an initial investment of resources based on the personnel providing the services, which ranges from trained traditional birth attendants to teams consisting of physicians, nurses, or midwives. The health sectors of the countries have an extensive network of facilities for delivering the services, some of them underused. This idle capacity could be converted into birthing centers. Consequently, the proposal of the Plan for this modality of delivery care continues in force, and the targets should be reviewed in accordance with the needs detected.

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[8] Cuba has used this modality on a country-wide scale and is evaluating its impact at the present time. Also on a nation-wide scale, Chile is implementing a program called "Maternal Outreach" to attract pregnant rural women and those at risk to maternity homes. Nicaragua has three projects in operation, and Honduras has four under construction. Brazil and Colombia have tested a model in urban areas, and Peru has started a project for adolescents at social risk.

[9] Brazil has developed a model using traditional birth attendants in the State of Ceará. The United States has accumulated a large amount of experience in its birthing centers; Honduras is setting up a model using nurses and nursing auxiliaries in four maternal and child clinics, and Mexico has developed a network of childbirth clinics with trained traditional midwives associated with the health services. In Dominica, Grenada, Jamaica, Saint Lucia, and Saint Vincent and the Grenadines health centers of varying levels of complexity have been equipped to attend low-risk deliveries.

- Clean delivery at home. A large proportion of deliveries in the Region are attended at home by traditional birth attendants who may or may not be associated with the health services, by family members, and by other individuals. There is no evidence, except in rare exceptions[10], of any significant development of this modality of delivery care. Given the extent of the phenomenon, this activity should be prioritized in the plans of action of countries that still have a substantial proportion of deliveries at home. Consequently, the proposal of the Regional Plan should be revised and incorporated into the country plans.

*Improvement of the quality of institutional delivery care in maternity hospitals at the first level of referral.* Analysis of the data presented in Chapter 2, "Reproductive Health of Women", leads to the conclusion that the quality of institutional delivery care has not improved.[11] This situation is directly related to the quality of the health services and to their capacity to provide maternal care. There is no information available on actions carried out to change the situation, except for that reported by Chile and Honduras.[12] Improvement of the maternal health services depends on substantial investment of new resources or, in its absence, reassignment of the resources of the state and the governmental health subsector, combined with a renewed effort to increase the efficiency and effectiveness of the governmental services in this area. These resources, which were estimated in the Plan, should, of necessity, be an expression of a political decision in the countries that still has not been clearly manifested. Each country should review this estimate in order to make implementation of the Plan viable. This line of action is an essential condition for reducing maternal mortality and morbidity, and consequently, the countries should make an effort to implement it.

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[10] Guatemala has provided extensive training for traditional midwives. Honduras has provided participatory training with a risk approach for this kind of personnel. Peru has increased clean delivery services at home in periurban areas by professionals and medical and nursing students. Panama has provided intensive training of traditional midwives, and Bolivia has trained rural schoolteachers to instruct pregnant women and family members, providing them with a delivery care kit. In several countries in the English-speaking Caribbean delivery at home is attended to by obstetric nurses.

[11] The absolute number of maternal deaths increased in Argentina, Brazil, the United States, and El Salvador. Hemorrhage and toxemia also increased in absolute numbers in deaths from complications of the puerperium.

[12] Chile reported improvement of its maternal care infrastructure as a result of increasing its human resources and equipping the services. Honduras reported initiation of a process to develop hospital management.

### 4.4 *Regional and Subregional Activities*

Activities at the regional and subregional level are based on principles of comprehensive support for the reproductive health needs of the countries, on the interdependence of their health problems and the economy of scale in the search for solutions and the mobilization produced by such activities, and on the need to transmit experiences and knowledge and to share the particular technical resources developed by the countries.

These activities are ultimately determined by the manner in which the various national plans and Regional Plan are developed. This will be realized through the use of a comprehensive approach aimed at developing the local health services through appropriate actions to promote health, prevent disease, and provide early treatment for pregnant women and newborns at home, in communities, health centers, and referral hospitals.

These actions may be divided into three categories: the mobilization of resources; research, evaluation, and development of information and epidemiological surveillance systems; and development of human resources.

The proposal for mobilization of resources is based on three processes:

- Networking of institutions for the management of knowledge, dissemination of information, technical support for the development of national plans, and the formulation of standards. This includes networks of international institutions, nongovernmental organizations, and societies of specialists as a means of expanding cooperation into the interinstitutional and international arena.

- Mobilization of international financial resources for intercountry projects.

- Support for participation in international meetings for promotion and information report on the progress made in the various topics concerning safe motherhood.

Research, evaluation, and the development of information and epidemiological surveillance systems on maternal death include:

- Research for the development of object and process technology, testing of service quality models and specific interventions for the prevention and treatment of maternal morbidity and mortality, and the generation of epidemiological and socio-behavioral knowledge in this area.

- Support for the development of data bases, surveillance and evaluation indicators, and decision-making.

- Technical cooperation for the development of national surveillance systems on maternal death for improving information, decision-making, and maternal care at the individual, institutional, and community levels.

Training includes:

- The formation of trainers for the specific needs of the national plans.

- The development of undergraduate curricula in maternal health and family planning in the schools of health sciences.

The following regional and subregional activities are proposed:

- Preparation of subregional and country projects for the acquisition of additional funds.

- Broad dissemination of the advances of the Regional Plan at the central and provincial levels and in teaching institutions and scientific societies.

- Dissemination of materials and technical documents in the Region.

- Intercountry and subregional meetings for promotion, exchange of experiences, and preparation of joint strategies to support the Plan.

- Development and broad dissemination of simplified technologies for the management of obstetric care.

- Production of guidelines for the formulation of national plans, epidemiological surveillance of maternal death, and management of the five most frequent causes of maternal death.

- Preparation of a model for the schools of health sciences for the study and improvement of teaching curricula in maternal, child, and adolescent health, including the areas of population and family planning.

- Development of software for a data base on maternal and child health, which is being implemented in several countries in the Region.

- Support for groups of investigators to carry out reproductive and maternal health studies based on the Latin American Center for Perinatology and Human Development, the network of institutions of the WHO Program on Human Reproduction in 14 countries in Region[13], the PAHO/WHO Reference Centers, and the nongovernmental organizations (NGOs) specializing in research.

PAHO/WHO should play a major role in carrying out these subregional and regional tasks, and in some of them, articulate its actions with other donor agencies and governments.

Priority should be assigned to these proposed regional and subregional activities and sufficient resources allocated so that they may continue to facilitate and support the national plans and the implementation of the Regional Plan.

*4.5 Financing*

Very little progress was made at the country level in the Region and on the part of the international organizations, the development banks, and the donor governments[14] in acquiring new funds for the Plan.

This circumstance is considered to be the greatest obstacle to implementing the Plan in the countries. In countries with significant economic achievements, the health sector has not still recovered its political priority in development plans. Much to the contrary, there is a reduction in public spending on health that is concomitant with a very strong international trend toward privatization of the sector. At the same time broad sectors of the population are becoming impoverished.

If this financial trend is maintained, the prospects for fulfilling the objectives and targets of the Plan are not very encouraging.

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[13] Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Guatemala, Jamaica, Mexico, Panama, Peru, Uruguay, and Venezuela.

[14] With the exception of the Government of the Netherlands, CIDA/Canada, and UNPFA, already mentioned.

A proposal is made to review the strategies for financing the Plan that would consider at least the following possibilities:

- Greater efforts by the public sector to allocate new resources to improve the health services.

- Identification of opportunities for national (public and private) and international financing, such as the purchase of external debt, participation of NGOs, soft loans from development banks, and multi- and bilateral assistance.

- Setting up a cost accounting system that would make it possible to quantify the real value of the services and estimate the expenditures and projections of the health sector.

- Implementation of efficient and effective alternatives in order to expand the coverage and improve the quality of the care provided.

*4.6 Evaluation of the Plan*

This component of the Plan has been developed to some extent, both in the countries and at the regional level; however, the reports received suggest that it is still very limited.

On the basis of the proposal of the Plan and the experience of the past two years, a minimum list of indicators has been prepared to measure the impact on maternal health, to quantify the coverage, and to detect the quality of the care provided. These indicators are grouped into four categories, as follows:

- Indicators of impact: total fertility (children per woman), adolescents fertility (15 to 19 years of age), maternal mortality, percentage of low birthweight, percentage of maternal deaths in relation to total deaths of women 15 to 49 years of age, and number of cases of neonatal tetanus.

- Indicators of process (coverage): contraceptive prevalence in women in union, 15 to 49 years of age; percentage of prenatal coverage, and percentage of institutional delivery.

- Indicators of access: distance in time between the residences of pregnant women and the nearest first level and referral institutions.

- Indicators of quality: percentage of cesarean sections, percentage of pregnant women vaccinated with tetanus toxoid, percentage of pregnant women with VDRL Test, and hospital lethality due to maternal death.

In addition, criteria and indicators should be designed to measure:

- The progress made in achieving national targets to strengthen the first level of referral, the utilization and location of obstetric beds, the training of human resources, and epidemiological surveillance of maternal deaths.

- The political commitment to the Plan, the investment of financial resources, and the advances made in legislation and in health policies for women.

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# TABLES AND FIGURES

TABLE 1: MATERNAL MORTALITY, FERTILITY, AND INDICATORS OF REPRODUCTIVE HEALTH SERVICES IN SELECTED COUNTRIES IN THE REGION
- CIRCA 1990 -

| COUNTRY OR TERRITORY | MATERNAL MORTALITY (per 100.000 live births) | OVERALL FERTILITY | PREVALENCE OF CONTRACEPTIVE USED BY WOMEN 15-49 YEARS OF AGE, MARRIED OR LIVING WITH PARTNERS (%) | PRENATAL CARE COVERAGE (%) | DELIVERY COVERAGE (%) |
|---|---|---|---|---|---|
| Argentina (1990) | 52,0 | 2,8 | ... | ... | 95,4 |
| Bahamas (1990) | 39,9 | 2,3 | ... | 95,0 | 95,0 |
| Bolivia (1990) | 332,0 | 5,8 | 30,0 | 47,0 | 42,2 |
| Brazil (1989) | 72,0 | 2,9 | 65,8 | 69,6 | 70,0 |
| Canada (1988) | 4,0 | 1,7 | 73,0 | ... | 99,0 |
| Colombia (1990) | 107,0 | 3,3 | 66,0 | 76,0 | 75,0 |
| Costa Rica (1990) | 26,0 | 3,0 | 85,5 | 34,0 | 96,4 |
| Chile (1991) | 34,5 | 2,7 | 18,4 | 60,0 | 98,8 |
| Cuba (1991) | 36,0 | 1,7 | 70,0 | 98,0 | 99,8 |
| Ecuador (1991) | 150,0 | 4,3 | 52,9 | 48,1 | 23,4 |
| United States (1987) | 6,6 | 1,9 | 74,0 | ... | 99,0 |
| El Salvador (1990) | 140,0 | 4,5 | 61,0 | 36,1 | 26,4 |
| Guatemala (1990) | 106,0 | 5,4 | 23,0 | 34,4 | 23,0 |
| Guyana (1987) | 60,0 | 2,4 | 31,0 | 33,0 | 90,0 |
| Haiti (1990) | 340,0 | 6,0 | 10,0 | 67,4 | 20,0 |
| Honduras (1991) | 221,0 | 5,2 | 46,7 | 72,6 | 45,6 |
| Jamaica (1987) | 114,4 | 2,4 | 55,0 | 95,0 | 81,6 (1) |
| Mexico (1989) | 58,1 | 3,8 | 53,0 | 70,0 | 77,4 (2) |
| Nicaragua (1991) | 100,0 | 5,0 | 27,0 | 93,0 | 40,3 |
| Panama (1991) | 55,0 | 2,7 | 58,0 | 87,5 | 84,9 |
| Paraguay (1990) | 150,0 | 4,6 | 48,0 | 60,0 | 50,0 |
| Peru (1990) | 298,0 | 4,0 | 46,0 | 61,5 | 49,0 |
| Puerto Rico (1986) | 16,0 | 2,3 | 70,0 | ... | ... |
| Dominican Rep. (1991) | 84,0 | 3,6 | 50,0 | 80,0 | 52,4 |
| Trinidad and Tobago (1991) | 67,9 | 2,5 | 53,0 | 64,0 | 98,7 |
| Uruguay (1991) | 38,0 | 2,5 | ... | 88,1 | 99,0 |
| Venezuela (1991) | 60,0 | 3,5 | 14,5 | 38,6 | 98,9 |

SOURCE: Data Base of Growth-Development and Human Reproduction Unit of the Special Program on Maternal and Child Health and Population, PAHO/WHO, Fascicles I, II, and III, and additional information provided by the countries.
(1) University West Indies, 1989.
(2) Secretariat of Health of Mexico, 1990.

TABLE 2

FERTILITY AND MATERNAL MORTALITY IN SELECTED COUNTRIES
IN THE REGION OF THE AMERICAS (1)
CIRCA 1990

| FERTILITY (Overall Rate) | MATERNAL MORTALITY (Rate per 100,000 live births) | | | |
|---|---|---|---|---|
| | LOW (Less Than 20) | MEDIUM (20-49) | HIGH (50-149) | VERY HIGH (150 or more) |
| LOW (Less Than 2.0) | Canada<br>United States | Cuba | | |
| MEDIUM (2.0 to 3.4) | Puerto Rico | Bahamas<br>Chile<br>Costa Rica<br>Panama<br>Uruguay | Argentina<br>Brazil<br>Colombia<br>Guyana<br>Jamaica<br>Suriname<br>Trinidad and Tobago | |
| HIGH (3.5 to 5.0) | | | El Salvador<br>Mexico<br>Dom. Republic<br>Venezuela | Ecuador<br>Paraguay<br>Peru |
| VERY HIGH (More Than 5.0) | | | Guatemala | Bolivia<br>Haiti<br>Honduras |

(1) Does not include countries in the Region that do not report maternal deaths or report very few of around 1.

**SOURCE:** Data base of the Growth-Development and Human Reproduction Unit of the Special Regional Program on Maternal and Child Health and Population, PAHO/WHO, Fascicles I, II, and III, and additional information provided by the countries.

## TABLE 3

## CONTRACEPTIVE PREVALENCE IN WOMEN 15 TO 49 YEARS OF AGE, MARRIED OR LIVING WITH PARTNERS AND MATERNAL MORTALITY IN SELECTED COUNTRIES IN THE REGION OF THE AMERICAS (1) CIRCA 1990

| % PREVALENCE OF CONTRACEPTIVE USE | MATERNAL MORTALITY (Rate per 100,000 live births) | | | |
|---|---|---|---|---|
| | LOW (Less Than 20) | MEDIUM (20-49) | HIGH (50-149) | VERY HIGH (150 or more) |
| LOW (Less than 40%) | | Chile | Guatemala<br>Guyana<br>Nicaragua<br>Venezuela | Bolivia<br>Haiti |
| MEDIUM (40% to 59%) | | Panama | Jamaica | Ecuador<br>Honduras<br>Paraguay<br>Peru |
| HIGH (60% or higher) | Canada<br>United States | Cuba<br>Costa Rica | Brazil<br>Colombia<br>El Salvador | |

(1) Does not include countries in the Region that do not report maternal deaths or report few numbers of around 1.

SOURCE: Data base of the Growth-Development and Human Reproduction Unit of the Special Program on Maternal and Child Health and Population, PAHO/WHO, Fascicles I, II, and III, and additional information provided by the countries.

**TABLE 4**

**COVERAGE OF INSTITUTIONAL DELIVERY CARE AND MATERNAL MORTALITY IN SELECTED COUNTRIES IN THE REGION OF THE AMERICAS (1) CIRCA 1990**

| % DELIVERY CARE (2) | MATERNAL MORTALITY (Rate per 100,000 live births) | | | |
|---|---|---|---|---|
| | LOW (Less Than 20) | MEDIUM (20-49) | HIGH (50-149) | VERY HIGH (150 or more) |
| LOW (Less than 50%) | | | Guatemala | Bolivia<br>Ecuador<br>Haiti<br>Honduras<br>Paraguay<br>Peru |
| MEDIUM (50% to 75%) | | | Brazil<br>Colombia<br>El Salvador<br>Mexico<br>Nicaragua<br>Dom. Republic | |
| HIGH (76% to 90%) | | | Guyana<br>Jamaica | |
| VERY HIGH (More than 90%) | Canada<br>United States | Bahamas<br>Chile<br>Costa Rica<br>Cuba<br>Panama<br>Uruguay | Argentina<br>Venezuela | |

(1) Does not include countries in the Region that do not report maternal deaths or report few numbers of around 1.

(2) The concept of institutional delivery refers in some countries to deliveries in institutions and in others to deliveries performed by professionals.

SOURCE: Data base of the Growth-Development and Human Reproduction Unit of the Special Program on Maternal and Child Health and Population, PAHO/WHO, Fascicles I, II, and III, and additional information provided by the countries.

TABLE 5: STRUCTURE BY CAUSES OF MATERNAL MORTALITY IN SOME COUNTRIES IN THE REGION OF THE AMERICAS - CIRCA 1990 -

| COUNTRY OR TERRITORY | TOTAL MATERNAL DEATHS | PERCENTAGE OF MATERNAL DEATHS FROM DIRECT OBSTETRIC CAUSES | | | | | PERCENTAGE OF MATERNAL DEATHS FROM INDIRECT OBSTETRIC CAUSES |
|---|---|---|---|---|---|---|---|
| | | ABORTION | TOXEMIA OF PREGNANCY | HEMORRHAGE FROM PREGNANCY AND DELIVERY | COMPLICATIONS OF THE PUERPERIUM | OTHER DIRECT OBSTETRIC CAUSES | |
| Argentina (1990) | 353 | 32.9 | 14.4 | 15.3 | - | 34.8 | 2.6 |
| Brazil (1987) | 1886 | 12.0 | 30.4 | 17.2 | 15.3 | 18.0 | 7.1 |
| Canada (1990) | 10 | 10.0 | 30.0 | 10.0 | 20.0 | 10.0 | 20.0 |
| Colombia (1990) | 537 | 19.9 | 27.4 | 16.9 | 10.6 | 23.5 | 1.7 |
| Costa Rica (1989) | 25 | 44.0 | 16.0 | 16.0 | 4.0 | 20.0 | - |
| Cuba (1990) | 78 | 20.5 | 9.0 | 1.3 | 17.9 | 26.9 | 24.4 |
| Chile (1989) | 123 | 33.3 | 17.1 | 4.1 | 20.3 | 12.2 | 13.0 |
| Ecuador (1990) | 306 | 9.5 | 20.9 | 29.4 | 8.5 | 28.1 | |
| El Salvador (1990) | 55 | 5.4 | 7.3 | 9.1 | 7.3 | 70.9 | - |
| United States (1989) | 320 | 15.6 | 18.1 | 13.5 | 27.8 | 15.9 | 9.1 |
| Guatemala (1984) | 236 | 17.0 | 10.0 | 2.0 | 15.0 | 56.0 | - |
| Guyana (1984) | 17 | 29.0 | 18.0 | 41.0 | 6.0 | 6.0 | - |
| Honduras (1983) | 79 | 9.0 | ... | ... | ... | 88.0 | 3.0 |
| Jamaica (1985) | 28 | 25.0 | 28.6 | 25.0 | 21.4 | ... | - |
| Mexico (1990) | 1464 | 6.6 | 25.6 | 23.1 | 10.6 | 32.8 | 1.3 |
| Nicaragua (1991) | 84 | 25.0 | 16.7 | 15.5 | 10.7 | 32.1 | - |
| Panama (1989) | 37 | 16.2 | 2.7 | 24.3 | 8.1 | 43.3 | 5.4 |
| Paraguay (AI)*(1988) | 101 | 22.8 | 10.9 | 29.7 | 12.9 | 17.8 | 5.9 |
| Peru (1988) | 362 | 12.2 | 15.5 | 31.5 | 13.0 | 25.9 | 1.9 |
| Puerto Rico (1990) | 13 | 30.8 | 15.4 | 38.4 | - | 15.4 | - |
| Dominican Rep. (1985) | 101 | 16.8 | 26.7 | 15.9 | - | 31.7 | 8.9 |
| Suriname (1987) | 3 | 33.3 | - | 33.3 | 33.3 | - | - |
| Trinidad and Tobago (198 | 20 | 20.0 | 55.0 | 5.0 | 15.0 | 5.0 | - |
| Uruguay (1990) | 9 | 11.1 | - | - | 11.1 | 77.8 | - |
| Venezuela (1989) | 338 | 24.0 | 23.4 | 11.5 | 13.3 | 20.7 | 7.1 |

SOURCE: Informal reports on mortality available in the PAHO technical information system.

* Information Area
... Information unavailable
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TABLE 6

PERSONNEL TRAINED IN COURSES IN MATERNAL AND CHILD HEALTH
AND FAMILY PLANNING IN
13 COUNTRIES IN LATIN AMERICA AND THE CARIBBEAN
1991-1992

| TYPE OF COURSE/ TYPE OF PERSON | MATERNAL HEALTH AND PLANNING | MATERNAL HEALTH | FAMILY PLANNING | TOTALS | TARGET OF PLAN | FULFILL-MENT |
|---|---|---|---|---|---|---|
| | NO. | NO. | NO. | NO. | NO. | % |
| PHYSICIANS | 723 | 1,553 | 487 | 2,763 | 4,904 | 56.3 |
| NURSES | 2,500 | 1,031 | 1,052 | 4,583 | 4,884 | 191.4 |
| NURSING AUXILIARIES | 1,670 | 1,143 | 1,952 | 4,765 | | |
| **SUBTOTAL** | **4,893** | **3,727** | **3,491** | **12,111** | **9,788** | **123.7** |
| TRADITIONAL MIDWIVES | 10,905 | 579 | 2,970 | 14,454 | 36,300 | 39.9 |
| **TOTAL** | **15,798** | **4,306** | **6,461** | **26,565** | **46,088** | **57.6** |
| % | 59.5 | 16.2 | 24.3 | 100 | | |

Source: Report of countries to PAHO, 1993

TABLE 7

PREVALENCE OF CONTRACEPTIVE USE IN WOMEN 15-49 OF AGE, MARRIED OR LIVING WITH PARTNERS, PERCENTAGE OF PRENATAL COVERAGE AND INSTITUTIONAL DELIVERIES IN 17 COUNTRIES IN THE REGION OF THE AMERICAS, 1989 AND 1991 *

| Countries | Prevalence contraceptive use | | % Prenatal coverage | | % Institutional deliveries | |
|---|---|---|---|---|---|---|
| | 1989 | 1991 | 1989 | 1991 | 1989 | 1991 |
| Bahamas | .. | ... | 95(1) | 95(1) | 95(1 | 95(1) |
| Bolivia | 30.3 | ... | .. | 70.0 | .. | 39.5 |
| Brazil | 65.8 | 65.8 | 69.6 | ... | 70. | ... |
| Chile | 18.5 | 18.4 | .. | ... | 98.8 | ... |
| Colombia | .. | 66.0 | .. | 78.2 | 78.6 | 80.3 |
| Costa Rica | .. | 85.9 | 41.2 | 34.0 | 93.8 | 96.4 |
| Cuba | 70.0 | 70.0 | 102.7 | 97.9 | 99.8 | 99.8 |
| Ecuador | 52.8 | ... | 47.3 | 46.4 | 23.4 | 22.9 |
| Guatemala | 23.0 | 25.8 | 40.0 | 34.3 | 22.6 | 28.0 |
| Honduras | 40.5 | 46.7 | 65.0 | 72.6 | 40.5 | 45.6 |
| Nicaragua | 35.3 | 30.8 | 93.0 | 81.4 | 39.5 | 40.3 |
| Panama | 54.0 | 58.0 | 70.4 | 87.5 | 84.4 | 84.9 |
| Dom. Republic | .. | ... | 90.0 | 90.0 | 70.0 | 85.0 |
| Peru | 46.0 | 59.0 | 55.0 | 63.9 | 60.0 | 45.5 |
| Trinidad and Tobago | 52.7 | ... | 64.0 | 63.9 | 98.7 | 98.7 |
| Uruguay | (14.4 to 52.2)** | | 88.1 | 82.9** | 99.0 | ... |
| Venezuela | 13.8 | 14.5 | .. | 3.6 | 98.9 | 99.0 |

* Or circa 1989 and 1991.
** Range cited by Ministry of Health, Uruguay.

SOURCE: Report of Ministries of Health to PAHO, 1993.

TABLE 8: PERCENTAGE OF COVERAGE FOR PRENATAL CARE AND VDRL SEROLOGY OF PREGNANT WOMEN, NUMBER OF CASES OF CONGENITAL SYPHILIS, PERCENTAGE OF PREGNANT WOMEN VACCINATED FOR TETANUS, NUMBER OF CASES OF NEONATAL TETANUS, IN 14 COUNTRIES OF THE AMERICAS
- 1989 and 1991-

| COUNTRY | PRENATAL CARE COVERAGE (%)(a) | | PREVALENCE OF VDRL (%)(a) | | No. OF CASES OF CONGENITAL SYPHILIS (b) | | % PREGNANT WOMEN VACC. FOR TETANUS (a) | | No. OF CASES OF NEONATAL TETANUS (a) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1989 | 1991 | 1989 | 1991 | 1989 | 1991 | 1989 | 1991 | 1989 | 1991 |
| Bahamas | +95 (1) | +95 (1) | 85,5 | 96,0(2) | ... | ... | 79,2 | 80,1 | ... | ... |
| Brazil | 69,6 | ... | ... | 62,0 | 732 (3) | ... | ... | 62 | 392 | 254 |
| Costa Rica | 39,9 | 34,0 (2) | ... | ... | 33 | 35 | 6,6 | 5,2 | ... | ... |
| Chile | ... | ... | ... | ... | 2.722 | 3.294 (2) | ... | ... | ... | ... |
| Ecuador | 47,3 | 46,4 | ... | ... | 13 | 15 | 26,2 | 18,8 | 56 | 59 |
| Honduras | 65,0 | 72,6 | 23,2 | 26,8(2) | ... | 102 | 19,4 | 29,7 | 20 | 13 |
| Nicaragua | 93,0 | 81,4 | ... | ... | 1 | 3 | ... | ... | ... | ... |
| Panama | 70,4 | 87,5 | ... | ... | 24 | 33 | 23,1 | 23,7 | ... | ... |
| Peru | 55,0 | 63,9 | ... | ... | - | ... | 10,0 | 20,1 | 183 | 95 |
| Dominican Rep. | 90,0 | 90,0 | ... | ... | ... | ... | 87 | 87 | 18 | 12 |
| Trinidad and Tobago | 64,0 | 63,9 | 64 | 63,9 | 3 | 2 | 18,7 | 19,3 | 1 | - |
| Uruguay | 88,1 | 82,9 | .... | 6,3 | 107 | 139 | ... | 84,3 | ... | ... |
| Venezuela | 98,8 | 99,0 | 43,8 | 71,7 | 98 | 112 | 28,1 | 50,3 | 46 | 36 |
| Guatemala | 40,0 | 34,4 | ... | ... | ... | ... | ... | 18,0 (2) | 103 | 60 (2) |

SOURCE: (a) Data base of Growth-Development and Human Reproduction Unit of the Special Program on Maternal and Child Health and Population, PAHO/WHO, Fascicles I, II, and III.
(b) Report on Surveillance of STDs - 1991, PAHO/WHO.

(1) Estimated value by country.
(2) 1990.
(3) 1988.

TABLE 9: ESTIMATED NUMBER OF MATERNAL DEATHS IN COUNTRIES IN THE REGION, USING ADJUSTED RATES OBTAINED FROM VARIOUS SOURCES (*) - CIRCA 1990 -

| COUNTRY(**) OR TERRITORY | MATERNAL (***) MORTALITY PER 100.000 LIVE BIRTHS -REGISTERED RATE- | MATERNAL MORTALITY PER 100.000 LIVE BIRTHS -ADJUSTED RATE- | LIVE (****) BIRTHS (in thousands | ESTIMATED NUMBER OF DEATHS |
|---|---|---|---|---|
| GROUP 1: (LOW MATERNAL MORTALITY: FEWER THAN 20) | | | | |
| Canada (1988) (2) | 4,0 | 4,0 | ... | 18 |
| United States (1987)(2) | 6,6 | 6,6 | ... | 251 |
| Puerto Rico (1986) (5) | 16,0 | 22,2 | 78 | 17 |
| GROUP 2: MEDIUM MATERNAL MORTALITY: FROM 20 TO 49) | | | | |
| Costa Rica (1987) (1) | 26,0 | 34,7 | 106 | 37 |
| Cuba (1991) (2) | 36,0 | 36,0 | 181 | 65 |
| Chile (1991) (2) | 34,5 | 34,5 | 301 | 104 |
| Panama (1991) (3) | ... | 55,0 | 68 | 37 |
| Uruguay (1991) (2) | 38,0 | 38,0 | 54 | 21 |
| GROUP 3: HIGH MATERNAL MORTALITY: FROM 50 TO 149) | | | | |
| Argentina (1990)(4) | 52,0 | 101,0 | 678 | 688 |
| Brazil (1989) (6) | 72,0 | 135,5 | 3.250 | 4.398 |
| Colombia (1990) (7) | 107,0 | 160,5 | 861 | 1.382 |
| El Salvador (1990)(11) | 140,0 | 280,0 | 182 | 510 |
| Guatemala (1990)(12) | 106,0 | 240,0 | 350 | 840 |
| Guyana (1987)(8) | 60,0 | 264,1 | 26 | 69 |
| Honduras (1991)(3) | ... | 221,0 | 189 | 418 |
| Jamaica (1987)(9) | 114,4 | 115,0 | 65 | 75 |
| Mexico (1989)(10) | 58,1 | 145,2 | 2.569 | 3.730 |
| Nicaragua (1991)(13) | 100,0 | 220,0 | 149 | 328 |
| Dominican Rep. (1991)(14) | 84,0 | 210,0 | 213 | 443 |
| Trinidad and Tobago (1991) (5) | 67,9 | 94,4 | 31 | 29 |
| Venezuela (1991)(11) | 60,0 | 120,0 | 569 | 683 |
| GROUP 4: (VERY HIGH MATERNAL MORTALITY: 150 or more) | | | | |
| Bolivia (1991)(12) | ... | 390,0 | 293 | 1.143 |
| Ecuador (1991)(13) | 150,0 | 225,0 | 328 | 738 |
| Haiti (1990)(3) | 340,0 | 410,0 | 213 | 873 |
| Paraguay (1990)(3) | 150,0 | 307,0 | 150 | 461 |
| Peru (1990)(3) | ... | 298,0 | 759 | 2.262 |
| T O T A L | | | | (*****) 19.633 |

(*) Does not include countries in the Region that do not report maternal deaths or report low rates of around 1.

(**) The groups of countries are formed on the basis of registered maternal mortality.

(***) Information supplied by the countries and available in the data base of the Growth-Development and Human Reproduction Unit of the Special Program on Maternal and Child Health and Population, PAHO/WHO, Fascicles I, II, and III.

(****) CELADE data for population and birth rate were used in calculating births (CELADE-PAHO, 1989).

(*****) Plus 6 deaths in Suriname and 3 in Bahamas.
... Data not available.

TABLE 9 (Cont.)

(1) Rate adjusted taking into account a 25% underregistration identified in a study of maternal mortality carried out in Costa Rica, 1992.

(2) Data registered for which it is estimated that underregistration is close to 0.

(3) Data adjusted by the country.

(4) For Argentina the rate was adjusted taking into account the underregistration of maternal causes identified in investigations carried out in the Federal Capital (Ministry of Health and Social Action, 1992) and in Cordoba (Illia et al, 1987).

(5) Correction was made taking into account the 39% underregistration in the United States (Kooning, 1988).

(6) Data adjusted by the country taking into account underregistration differences from one region to another.

(7) Correction was made on the basis of studies carried out in the country.

(8) Data were used supplied by Ken Antrobus from information collected during the seminar or directors of maternal and child health (rate of 26.41 per 10,000 live births).

(9) For Jamaica the figure from a recent study was used (Univeristy of the West Indies, 1989).

(10) The rate was adjusted taking into account the underregistration and studies carried out by Bobadilla et al in Mexico City, 1989.

(11) The rate was adjusted taking into account the underregistration of the investigation carried out in Argentina (Federal Capital: Ministry of Health and Social Action, 1982, and Cordoba: Illia et al, 1987).

(12) The rate was adjusted on the basis of studies carried out in the country.

(13) The adjustment was made on the basis of the estimated rate produced by the study carried out in Honduras.

(14) The estimated rate was ajusted using results of the Brasilian studies.

N O T E: For some countries the adjustments made of the rates may be more realistic than others. This is attributable to the varying quality of the available information, which in many cases makes it difficult to process the data, and to the fact that not all countries investigated the topic to identify the levels and kinds of underregistration.

## TABLE 10

**Research Carried Out or In Progress by the Collaborating Centers of the WHO (*) Program on Human Reproduction in the Region of the Americas, 1991-1992 (*)**

| ACCORDING TO TYPE OF RESEARCH | | | | | | |
|---|---|---|---|---|---|---|
| | 1991 | | 1992 | | TOTAL | |
| | NO. | % | NO. | % | NO. | % |
| Basic science | 91 | 24 | 57 | 21 | 148 | 23 |
| Clinical | 190 | 50 | 121 | 45 | 311 | 48 |
| Epidemiological | 31 | 8 | 43 | 16 | 74 | 11 |
| Social and behavioral | 34 | 9 | 30 | 11 | 64 | 10 |
| Development of tests | 34 | 9 | 19 | 7 | 53 | 8 |
| **TOTALS** | **380** | **100** | **270** | **100** | **650** | **100** |
| **ACCORDING TO RESEARCH SUBJECT** | | | | | | |
| Biology of Reproduction | 103 | 32 | 62 | 26 | 165 | 29 |
| Contraception | 84 | 26 | 62 | 26 | 146 | 26 |
| Maternal and Child Health | 68 | 21 | 64 | 27 | 132 | 24 |
| Diseases of Reproduction | 35 | 11 | 24 | 10 | 59 | 11 |
| Abortion | 23 | 7 | 14 | 6 | 37 | 7 |
| Sexually Transmitted Diseases | 10 | 3 | 12 | 5 | 22 | 3 |
| **TOTAL** | **323** | **100** | **238** | **100** | **561** | **100** |

* Financed with Regular Funds of WHO and other organizations.

## TABLE 11

## RESEARCH PERFORMED BY THE LATIN AMERICAN CENTER FOR PERINATOLOGY (CLAP/PAHO) BY TOPIC AND TYPE OF STUDY, 1991-1992

| PREVENTION AND INTERVENTIONS | TOPICS | EPIDEMIOLOGICAL STUDIES |
|---|---|---|
| . Development, Evolution, Implementation of Participatory Role-Playing for Perinatal Health Promotion.<br>. Adolescence and Reproduction: Bases for Health Education.<br>. Guide for Standardization of High-risk Pregnancy Care.<br>. Standardization of Perinatal Control; Content, Schedule, and Evaluation of Quality and Impact.<br>. Standardization of Delivery and Puerperal Care. Proposal for Different Levels of Care. | • Maternal Mortality<br>• Morbidity<br>• Risk Factors<br>• Standardized Interventions | . Prenatal Risk: Determination of Factors Related to Premature Delivery.<br>. Spacing Between Births and Information in the Data Base on 200,000 Births.<br>. Intrapartum Risk: Identification of Factors.<br>. Monitoring of Adolescents Interviewed in the Postpartum.<br>. Identification and Behavior of Perinatal Risk Factors in Maternity Hospitals in Latin America.<br>. Epidemiology of Cesarean Section. Evolution in Latin American Maternity Wards.<br>. Epidemiology of Perinatal Health in Local Health Systems with Community Participation. |
| **SOCIAL AND BEHAVIORAL** | | **DIAGNOSIS AND TREATMENT**<br><br>Partogram: Design of Simplified Models. |

**TABLE 12**

**MATERNAL HEALTH RESEARCH BY TOPIC AND TYPE OF STUDY IN LATIN AMERICA AND THE CARIBBEAN, 1991-1992, SAFE MOTHERHOOD PROGRAM, DIVISION OF FAMILY HEALTH, WHO**

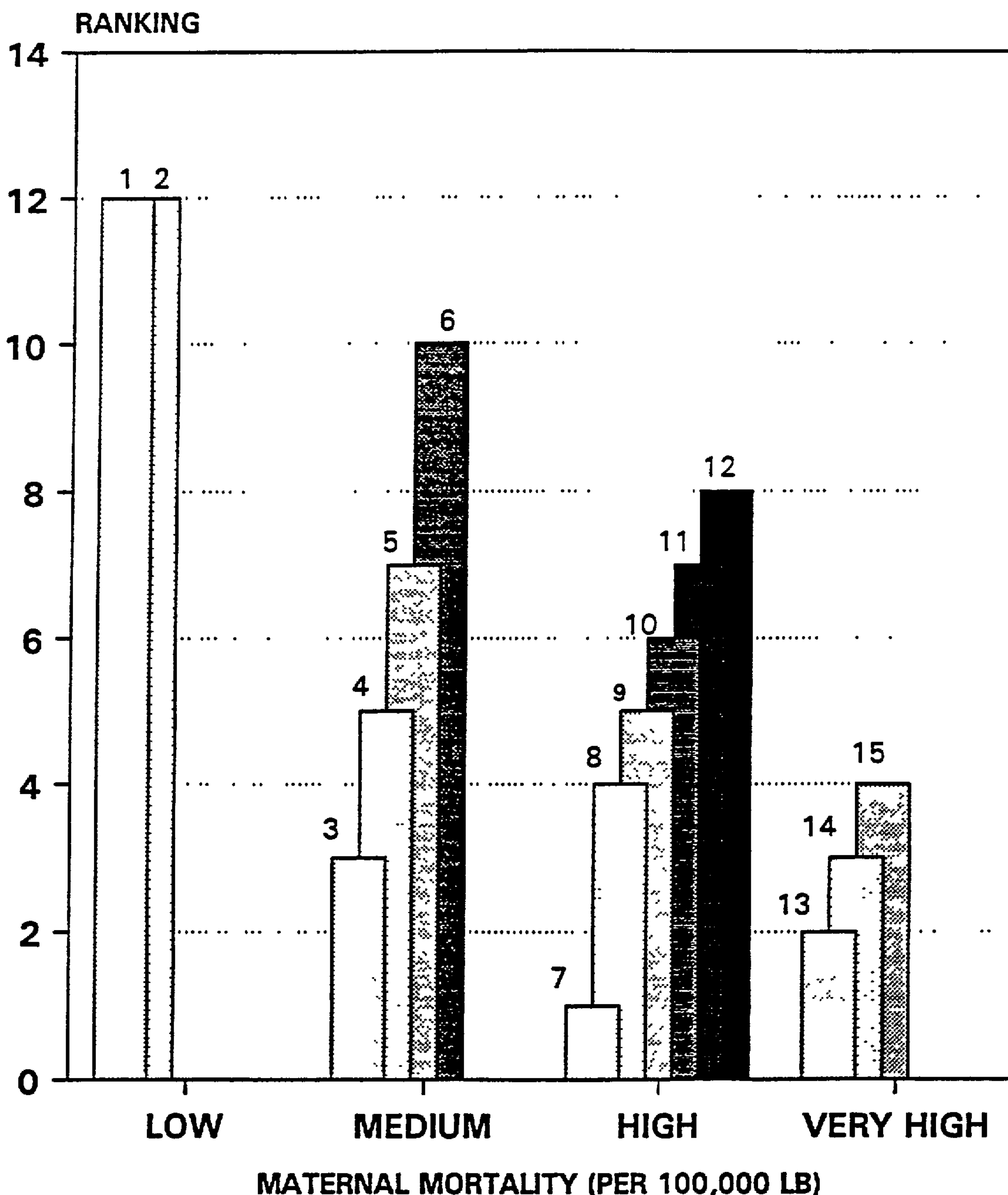
| PREVENTION AND INTERVENTIONS | TOPICS | EPIDEMIOLOGICAL STUDIES |
|---|---|---|
| Peru: Interdisciplinary approach for prenatal care and family planning with community participation.<br>Ecuador: Effect of calcium on the prevention of hypertension of pregnancy in adolescents.<br>Jamaica: Aspirin in low doses for the prevention and treatment of eclampsia.<br>Bolivia: Improvement of the use of the Ministry of Health's rural services.<br>Cuba: Study of the impact of maternity homes. | *Maternal Mortalidad<br>*Morbidity<br>*Hemorrhage<br>*Anemia<br>*Pre-eclampsia and eclampsia | Colombia: Risk factors in maternal mortality.<br>Guatemala: Maternal mortality. The importance of poor nutrition in maternal mortality and fetus size.<br>Mexico: Analysis of maternal mortality in rural areas of Morelos.<br>Brazil: Maternal mortality in the region of Marilia São Paulo.<br>Bolivia: Maternal mortality in provincial hospitals.<br>Argentina: Study of mortality in women of childbearing age in Matanza, Buenos Aires. |
| SOCIAL AND BEHAVIORAL | *Infections | TREATMENT |
| Mexico: Patterns of fertility and maternal mortality and their social cost. | *Obstructed delivery | Argentina: Injection in umbilical vein for retention of the placenta.<br>Argentina, Colombia, and Venezuela: Comparative study of the treatment of eclampsia with diazepam and magnesium sulfate. |

## TABLE 13

## RESEARCH BY TOPIC AND TYPE OF STUDY OF THE PAHO PROGRAM ON RESEARCH AND TECHNOLOGICAL DEVELOPMENT IN HEALTH - 1991-1993

| PREVENTION AND INTERVENTIONS | TOPICS | EPIDEMIOLOGICAL STUDIES |
| --- | --- | --- |
| . ANTIGUA AND BARBUDA: Prevention and control of anemia in pregnant women.<br>. CHILE: Monitoring of teenage mothers and their children 2 to 5 years after delivery.<br>. COSTA RICA: Perinatal mortality: Causes and risk factors.<br>. PERU: Eating habits and consumption levels of nutrients in pregnant women in Metropolitan Lima: Information for educational materials.<br>. VENEZUELA: Prenatal and neonatal care and care up to 1 year of age with monitoring up to 3 years of age in 600 families in poor neighborhoods in Caracas. | • Maternal Mortality<br>• Morbidity<br>• Risk Factors | . BRAZIL: Maternal age as a risk factor in congenital malformations.<br>. PERU: Prevention and determinants of anemia in a sample representative of pregnant women in Lima.<br>. MEXICO: The contraceptive effects of breast-feeding, spacing between births, and the infant mortality rate. |
| **SOCIAL AND BEHAVIORAL**<br>. BARBADOS: Determining psychosocial factors in breast-feeding habits of healthy women in Barbados.<br>. MEXICO: Adolescent paternity: Causes and psychosocial consequences.<br>. BRAZIL: Aspects of female sterilization. | • Standardized Interventions | **DIAGNOSIS AND TREATMENT**<br>. VENEZUELA: Prevalence of fetal chromosome alterations detected by aminiocentesis.<br>. BRAZIL: Study of diabetes of pregnancy. |

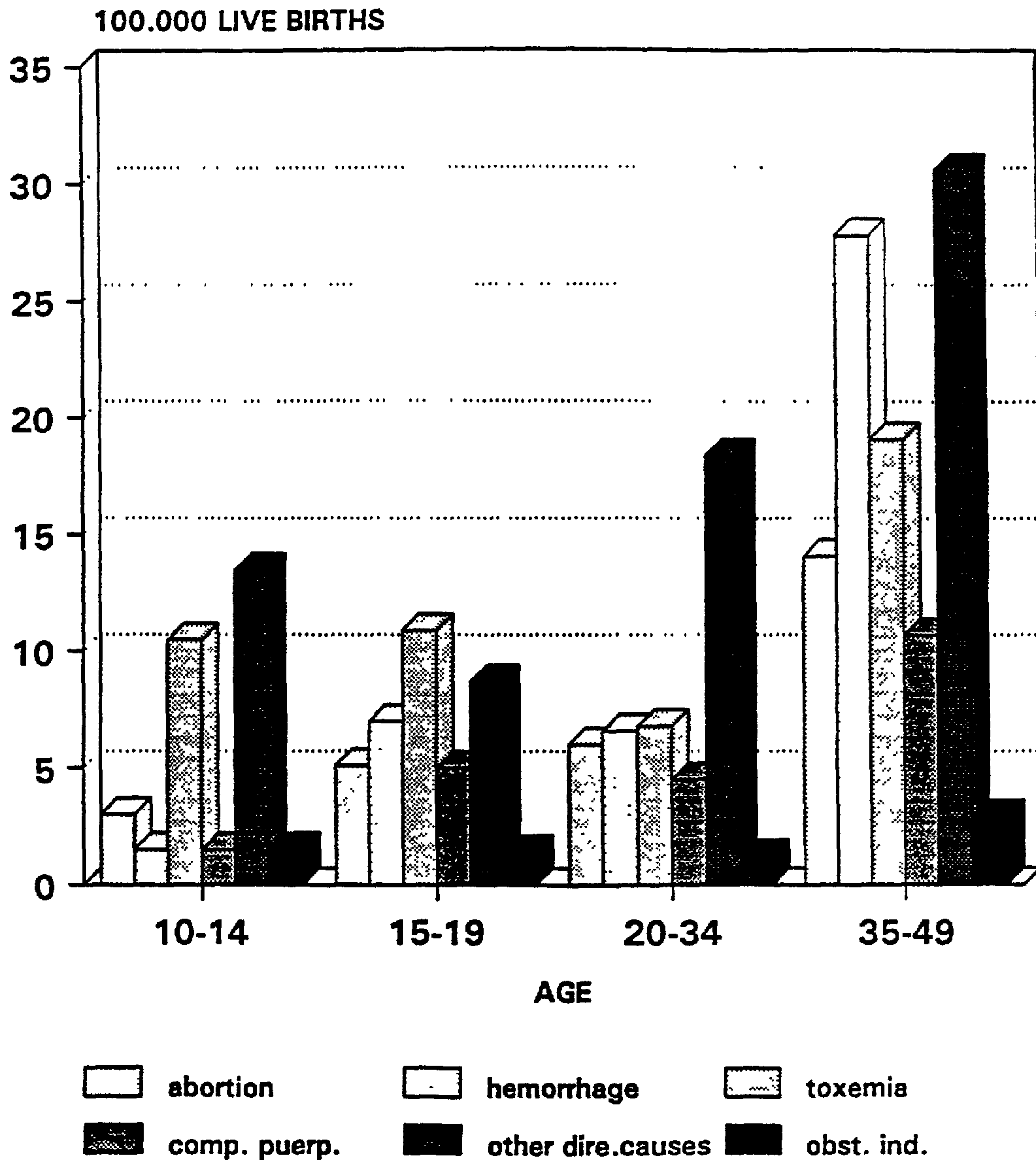
# FIG.1: RANKING OF MATERNAL DEATHS AMONG THE FIRST 10 CAUSES OF DEATH IN WOMEN 10 TO 49 YEARS OF AGE, BY LEVEL OF MM




TIS, PAHO/WHO

1. Canada; 2. United States; 3. Panama; 4. Costa Rica; 5. Bahamas, Cuba, Chile; 6. Uruguay; 7. Honduras; 8. Mexico, Nicaragua, Venezuela; 9. Argentina, brazil, Guyana; 10. Colombia, Dominican Republic; 11. El Salvador, Trinidad and Tobago; 12. Suriname; 13. Paraguay; 14. Ecuador; 15. Peru.

# FIG.2 MATERNAL MORTALITY BY AGE AND CAUSE IN 21 COUNTRIES IN THE REGION CIRCA 1989




PAHO/WHO DATA BASE