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Methodological Summaries in Epidemiology: Health Situation Analyses

What is meant by health situation analysis?

Health situation analyses (HSA) are analytical-synthetic processes that encompass various types of analysis. HSA make it possible to characterize, measure, and explain the health-disease profile of a population, including illnesses, injuries and other health problems and their determinant factors, whether they are the responsibility of the health sector or of other sectors. The HSA also facilitate the identification of needs and priorities in health, as well as the identification of interventions and appropriate programs and the evaluation of its impact on health.

HSA are based on the study of the interaction of the living conditions and the existing level of the health processes of a country or any other geographic-political unit. The HSA include as substrata population groups with different degrees of neglect, resulting from unequal living conditions and quality of life and defined according to specific characteristics such as sex, age, occupation, etc., that occur in specific environments. The environment constitutes the historical, geographical, demographic, social, economic, cultural, political, and epidemiological context of the human groups, where complex relations of determination and effect exist.

What are the purposes of HSA?

The HSA have various purposes and their importance resides in contributing the information that the technical component requires for directing, management, and decision-making processes in health. In particular, the purposes are to support in:

- **Definition of needs, priorities, and policies in health and the evaluation of their relevance.** Figure 1 exemplifies the assessment of social needs of geostatistical units, using high population density, crowding and limited access to water at home as indicators, and identification of priority areas, where higher levels of those factors co-exist, in the city of Guadalajara, Mexico. Although the distribution patterns of high levels of the indicators towards the periphery are similar, when a condition to identify all three in a single geographic unit was set, only a few units were selected.

- **Formulation of strategies of health promotion, disease prevention and control and the evaluation of their relevance and fulfillment.** Figure 2 shows changes in the risk of meningoccocal disease in Cuba at the local level after the introduction of universal vaccination. Overall, a decrease was observed, but areas of persistence were seen in the central and eastern areas of the country, a finding that deserves further study.

- **Construction of prospective health scenarios.** Figure 3 displays the 1950-1995 trends of infant mortality rates for 5 groups of countries of the Americas, classified according to Gross National Product per capita in 1995, Group I being the most affluent and V the least. An overall decrease of mortality in the Region was observed in all groups. However, countries in group V had not reached in 1995 what was occurring in Group I in the 1950-1954 period and the pace (slope) of change has been more dramatic in the opposite way, being faster in the least and slower in the most affluent ones.

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Figure 1: Identification of critical areas in the metropolitan region of Guadalajara, Mexico. 1990

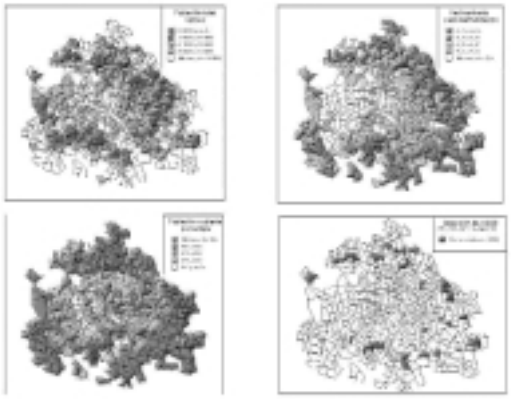
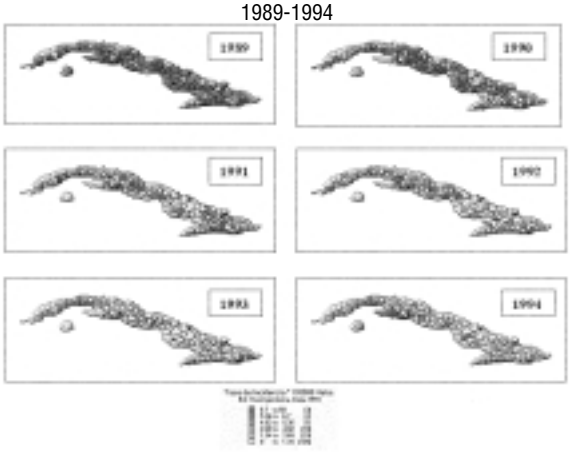
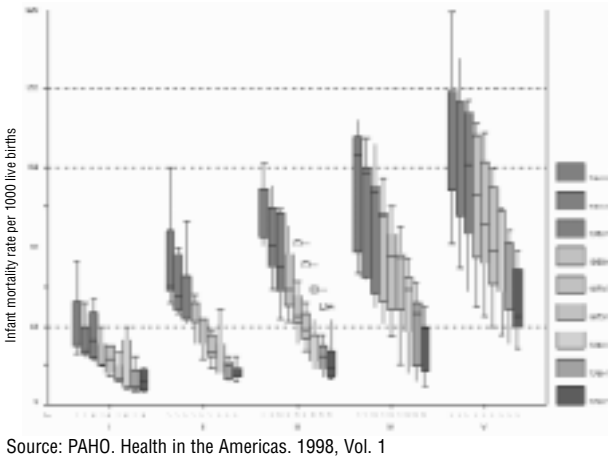


Figure 2: Changes in the risk of meningococcal disease, Cuba. 1989-1994



Source: PAHO/SHA. Geographic Information Systems in Health

Figure 3: Infant mortality rate trends in the Americas. 1950-1995



Source: PAHO. Health in the Americas. 1998, Vol. 1

That is, the HSA serve for political negotiation, institutional management, resource mobilization, and the dissemination of health information. The principal goal of the HSA is to contribute to the rational decision-making for the satisfaction of the health needs of the population with a maximum of equity, efficiency, and social participation.

Which are the different types of HSA?

There are several types of analysis, among them the analyses of **trends** and the analyses of **situation**. The first ones have as their purpose to identify and to determine the conditions of changes in the health-disease processes of a population, usually in the medium and long terms. In turn, the situation analyses respond to a context and short-term defined situations that make it possible to orient courses of action depending on conditions of viability and feasibility of the existing political situation.

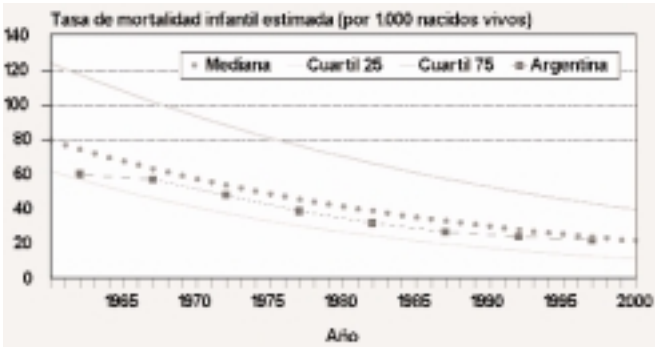
Measuring Inequity in Health

Inequity in health is expressed in the structure and level of the health-disease profile of the various population groups. This results from their exposure to risk factors that are related to living conditions, their control of exposure, their access to health services and their opportunity to participate in the decisions with respect to the management of those services. The HSA will have characteristics that will depend on the level of aggregation of the information, whether they are carried out at the national, regional or local level.

For example, the trends of infant mortality of a country in a period can be analyzed, comparing them with Latin America and the Caribbean (Figure 4). The progress of mortality in a country can also be defined according to its causes, considering that the quality and access to the health services will affect more the perinatal causes, while the living conditions will have a more important effect on communicable diseases (Figure 5).

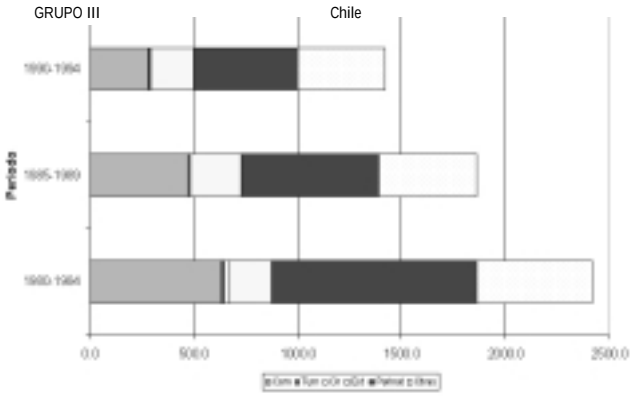
Another example to analyze, for its effect on health, is the evolution and distribution of the wealth of the Region of the Americas in relation to the Gross National Product (GNP), specifically the highest 20%/lowest 20% income ratio (Figure 6). The gaps can be analyzed between countries, the geographical pattern by subregions, and their relation to levels of life expectancy at birth (Figure 7).

Figure 4: Estimated infant mortality rates for Latin America, the Caribbean and Argentina, 1960–2000



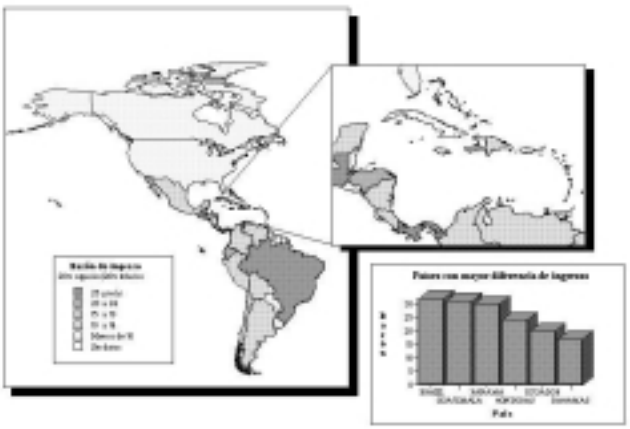
Source: Technical Information System. PAHO/SHA

Figure 5: Mortality in children younger than 1 year, by broad groups of causes, in countries grouped according to GNP*. 1980-1984, 1985-1989 y 1990-1994



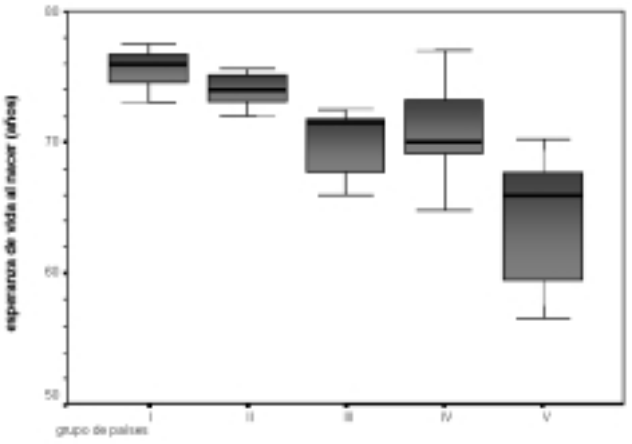
Note: *Rate per 100.000 children under 1 year old
Source: PAHO. *Health in the Americas, 1998, Vol. 1*

Figure 6: Highest 20% / lowest 20% income ratio by countries, Region of the Americas, 1993-1996*



Note: *Last available year
Source: PAHO. *Health Situation and Inequities Atlas. 1997*

Figure 7: Inequalities in life expectancy, Region of the Americas, summary distribution of frequencies, 1994



Source: Basic Indicators 1996. *Health Situation in the Americas*

New PAHO List 6/67 for Tabulation of ICD-10 Mortality Data

When changing from one revision of the International Classification of Diseases to another, a particular concern is the potential impact of the changes on health statistics.[1] This concern is usually taken into account when preparing special tabulation lists, such as those for presentation of mortality data.

PAHO efforts underway concerning development of a short list for mortality tabulation using ICD-10 were mentioned in a previous article.[2] In this regard, and as part of a process leading to development of a short ICD-10 list for PAHO use in tabulating mortality data, the Special Program for Health Analysis undertook a review of experience using the 6/61 list for tabulating ICD-9 mortality data.[3,4] This was accompanied by a review of the special tabulation lists for mortality recommended in ICD-10 volume 1, as well as lists developed for their own use by the countries and by other international agencies.[5] A provisional list was then prepared, submitted for scrutiny by data users and ICD experts, and used for trial tabulation of real data from several different countries of the Americas that are at different stages of development.

The PAHO 6/61 List

Development of the PAHO 6/61 list was conceptualized in 1987, when several countries of the Americas carried out research projects on health profiles/mortality analysis, with technical support from the Health Situation and Trend Assessment Program (now the Special Program for Health Analysis) and under the sponsorship of the PAHO Research Grants Program. The research projects focused on grouping of causes of deaths and preparing short lists for mortality analysis. Upon completion of the projects a Regional Meeting on Guidelines and Procedures for Mortality Analysis was held, in February 1988, and subsequently a summary of the reports of several research projects were published in the PAHO Epidemiological Bulletin.[6,7,8]

At the Regional meeting the need to be able to analyze causes of death according to different epidemiological criteria was discussed, and also the fact that the groups of causes of death which are used in the analyses generally reflect the epidemiological criteria applied. Different analytical objectives usually require different groupings of causes, and short lists differ depending, for example, on whether the purpose of the analysis is to generate knowledge, to identify leading causes of death, or to define priorities and orient actions at political and technical levels. It was acknowledged that several lists are probably needed for use at national level, and the recommendation was made that a short list be developed by PAHO for Regional use, to facilitate comparisons between countries.

First used in the 1992 edition of *Health Statistics from the Americas*, the 6/61 list is used by PAHO for summary presentation of mortality data. Designed specifically for mortality data coded according to the ICD-9, its main purpose was to facilitate inter-country comparisons, and thereby to assist PAHO in undertaking mortality analysis from a Regional perspective. A broad process of consultation with selected analysts and experts in the Region was followed in its preparation, with the hope that the list, as finally adopted, would be useful at country level as well. Ultimately, it was intended to be a PAHO contribution to the countries as a tool for mortality analysis— a short list that could serve the needs of countries as well as those of PAHO.

Of necessity, however, the 6/61 list reflects the data restrictions imposed by the PAHO mortality questionnaire. This was the instrument used by PAHO for many years for collecting ICD-9 data from the countries of the Region, and is essentially a condensed version of the ICD-9 Basic Tabulation List.[9,10] In recent times the questionnaire has gradually been replaced by diskette transmission of data at the level of individual deaths. However, the list of cause groups on the questionnaire, called the "A9 list", is still the maximum level

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1 PAHO. Revisions of the International Classification of Diseases (ICD-9 and ICD-10): Impact on Health Statistics. Epidemiological Bulletin. Vol. 17, No. 2. Washington, D.C., July 1996.

2 PAHO. *Implementation of the International Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10).* Epidemiological Bulletin. Vol. 18, No. 1. Washington, D.C., March 1997.

3 PAHO. *Health Statistics from the Americas, 1992 edition.* Washington, D.C., 1992.

4 PAHO. *Health Statistics from the Americas, 1995 edition.* Washington, D.C., 1995.

5 WHO. *International Statistical Classification of Diseases and Related Health Problems, Tenth Revision.* Vol. 1, pp. 1207-1214. Geneva, 1992.

6 PAHO. *Regional Meeting on Guidelines and Procedures for Mortality Analysis.* Epidemiological Bulletin. Vol. 9, No. 2. Washington, D.C., 1988.

7 PAHO. *Health Profiles, Brazil, 1984.* Epidemiological Bulletin. Vol. 9, No. 2. Washington, D.C., 1988.

8 PAHO. *Health Profiles, Argentina, 1980-1982.* Epidemiological Bulletin. Vol. 9, No. 3. Washington, D.C., 1988.

9 WHO. *International Statistical Classification of Diseases, 1975 Revision.* Vol. 1, pp. 746-755. Geneva, 1977.

10 PAHO. *Health Statistics from the Americas, 1998 edition,* pp. 464—466. Washington, D.C., 1998.

of detail available in the PAHO mortality database.

As shown on Table 1, the 6/61 list consists of six broad groups of causes and 61 more detailed groups nested within those six. Deaths due to signs, symptoms and ill-defined conditions are presented in a separate category that precedes the 6/61 cause groups.

The six broad groups are defined as follows:

- Group l, "Communicable diseases," comprises all infectious and parasitic diseases, i.e. all the categories in ICD-9 chapter I, and in addition, meningitis, acute respiratory infections, and pneumonia and influenza. It should be noted that deaths due to AIDS are not included in this group. A few countries use ICD-9 codes 042-044 for AIDS, and report AIDS deaths to PAHO under these codes. However, a WHO Expert Group recommended use of codes 279.5 and 279.6, and as a result, upon inclusion in the PAHO database all AIDS deaths are (re)assigned to A9 category 18.9, a residual grouping of ICD-9 categories that includes code 279. Most countries of the Americas use ICD-9 codes 279.5 and 279.6 for AIDS deaths, but some use 279.1 or another subcategory of 279.

- Group 2, "Neoplasms," comprises all of ICD-9 chapter II, i.e. malignant neoplasms, benign neoplasms, carcinoma in situ, neoplasms of uncertain behavior and those of unspecified nature.

- Group 3, "Diseases of circulatory system," comprises all of ICD-9 chapter VII, i.e. acute rheumatic fever, chronic rheumatic heart disease, hypertensive disease, ischemic heart disease, diseases of pulmonary circulation and other forms of heart disease, cerebrovascular disease, and "other" diseases of the circulatory system.

- Group 4, "Certain conditions originating in the perinatal period," comprises all categories in chapter XV, i.e. maternal conditions and obstetric complications affecting the fetus or newborn, slow fetal growth, fetal malnutrition and immaturity, birth trauma, hypoxia, asphyxia, other respiratory conditions of fetus or newborn, infections specific to the perinatal period, and other and ill-defined conditions originating in the perinatal period.

- Group 5, "External causes," comprises all of chapter XVII, Code E, i.e., all accidents, suicide, homicide, injury due to legal intervention and operations of war, and injury undetermined whether accidentally or purposely inflicted.

- Group 6, "All other diseases," comprises all other defined causes not included in groups 1 to 4. It is important to note that Group 6, as a whole, is not a residual category; rather, it contains several subgroups that have major public health importance but do not belong in any of groups 1 to 4. Examples are: diabetes mellitus, congenital anomalies, and complications of pregnancy, childbirth and the puerperium.

Preparation of the ICD-10 Short List

In preparing a PAHO short list for tabulation of general mortality under ICD-10 it was clear that several other ICD-10 lists would need to be prepared as well. For example, a second ICD-9 list is already in use for tabulating infant and child mortality, and an ICD-10 version is needed.[11] Yet another list is needed for ascertainment of leading causes of death.

The new ICD-10 short list would not be used for every purpose, but it had to be a list that PAHO could recommend to countries for adoption. It also had to serve a fundamental purpose which the 6/61 list already addressed since it was created: as a point of entry to any mortality analysis. The ICD-10 short list was intended, as was the 6/61, to provide a panoramic view of causes of mortality in any country. It was to be compiled at the earliest stages of any mortality analysis undertaken, and it would place causes of death in proper perspective and weight relative to each other. Once this was accomplished, special tabulations for particular analytical purposes would follow.

Several criteria were established in preparing the ICD-10 short list. First, the six broad groups of the 6/61 list would be retained. Second, the groups contained within the broad six would be as similar as possible to those of the 6/61 list, although exact line-by-line equivalences were not imperative and, moreover, might not always be possible in light of changes between ICD Revisions. Third, groups could be dropped or new ones included, based on experience with real data from the countries. Finally, it was assumed that ICD-10 mortality data will be provided by countries to PAHO at 4-character level, hence no restrictions would be placed on the level of detail of the ICD codes making up the groups.

A provisional 6/65 ICD-10 list was circulated to the WHO Collaborating Centers for Classification of Diseases in the Region of the Americas. These are the Brazilian Center for Classification of Diseases (for the ICD in Portuguese), the Venezuelan Center for Classification of Diseases (for the ICD in Spanish), and the North American Center, serving Canada and the United States and located at the U.S. National Center for Health Statistics. A number of experts in different countries of the Americas were also consulted, as well as PAHO staff at Headquarters and in the field. After a final internal review which took into account the feedback received, supplemented by data-based considerations, the

11 PAHO. *Health Statistics from the Americas*, 1998 edition, p. 459.

6/67 list was agreed upon and is presented in Table 2. A detailed analysis of the differences between the 6/61 and 6/67 lists follows.

Comparison of the PAHO 6/67 (ICD-10) and 6/61 (ICD-9) Lists

As was the case for the 6/61 list, the 6/67 list was prepared for mortality tabulation. However, the 6/61 list has also been used for tabulation of morbidity, and although less than ideal this will probably continue to happen. In anticipation of this, ICD-10 codes that should not be used for underlying cause of death, which are contained in various chapters, were not excluded. Nonetheless, the two entire chapters (XIX and XXI) that should not be used for coding underlying cause of death were omitted from the 6/67 list.

The 6/67 list, as planned, contains six broad groups of causes; however, it was not possible to attain exact equivalence between all the broad groups of both lists. Two broad groups of the 6/67 list are completely equivalent to the corresponding broad groups of the 6/61 list: 2.00 *Neoplasms*, and 5.00 *External causes*. Broad groups 1.00 *Communicable diseases*, 3.00 *Diseases of circulatory system*, 4.00 *Certain conditions originating in the perinatal period*, and 6.00 *All other diseases* are different as to content. Differences are largely minor, except for a major change that should be highlighted: a new group, 1.07 *HIV disease*, was established under broad group 1.00 of the 6/67 list. By contrast, list 6/61 placed it in group 6.14 *Residual of all other diseases*, and PAHO tabulations place AIDS deaths in 6/61 group 6.14, following WHO recommendations that this cause be coded as a subcategory of ICD-9 code 279.

Based on experience using the 6/61 list, several groups that usually had a very small number of deaths were excluded from the 6/67 list. However, several new groups were added, and the ICD-10 list grew to 67 groups nested within the six broad groups. As an intended result, residual groups should contain fewer deaths under list 6/67 than under the 6/61.

The names of the broad groups remained the same, while the names of several groups nested within the broad six were changed slightly in order to maintain consistency with terms used in ICD-10, or to reflect the changed content of the group. Within each broad group, the groups are placed in increasing ICD-10 code sequence.

Those groups for which there is no exact equivalence between the 6/61 and 6/67 lists are discussed below.

a. Certain vector-borne diseases and rabies (6/67, 1.03)

Group 1.03 of the 6/67 list includes dengue, hence it is not equivalent to group 1.04 *Certain vector-borne diseases* of list 6/61, which does not. On list 6/61, dengue is part of group 1.09 *Other infectious and parasitic diseases*. "Rabies" was added to the name of the group on the 6/67 list, in recognition of the fact that it is not a vector-borne disease. Rabies as a cause of death is included in this group under both lists.

b. Certain diseases preventable by immunization (6/67, 1.04)

Group 1.04 of the 6/67 list contains the following diseases, in addition to those included in group 1.03 of list 6/61: neonatal tetanus, obstetrical tetanus, rubella (except congenital), viral hepatitis B, and mumps. On list 6/61 these diseases are included in groups 1.09 *Other infectious and parasitic diseases*, 4.06 *Other conditions originating in the perinatal period*, and 6.12 *Complications of pregnancy, childbirth and the puerperium.*

c. Meningitis (6/67, 1.05)

Group 1.05 of the 6/67 list contains all clinical forms of meningococcal disease (such as meningococcal meningitis and meningococcemia) and also viral meningitis, in addition to bacterial meningitis and meningitis of unspecified cause. On the 6/61 list, group 1.07 *Meningitis* contains only bacterial meningitis and meningitis of unspecified cause.

d. Syphilis and other venereal diseases (6/61, 1.06)

This group does not appear separately on the 6/67 list; rather, it is part of group 1.09 *Other infectious and parasitic diseases.*

e. HIV disease (AIDS) (6/67, 1.07)

This 6/67 group is a new one. On the 6/61 list, this disease is part of group 6.14 *Residual of all other diseases.*

f. Other infectious and parasitic diseases (6/67, 1.09)

As a result of the changes mentioned above, this 6/67 group is not equivalent to 6/61 group 1.09.

g. Malignant neoplasm of uterus (6/67, 2.07, 2.08, 2.09)

The three components of list 6/61 group 2.07 *Malignant neoplasm of cervix uteri*, and of body and unspecified parts of uterus appear separately on list 6/67. These are 6/67 groups 2.07 *Malignant neoplasm of cervix uteri*, 2.08 *Malignant neoplasm of corpus uteri*, and 2.09 *Malignant neoplasm of uterus, part unspecified.*

h. Malignant neoplasm of lymphoid, hematopoietic and related tissue (6/67, 2.12 and 2.13)

List 6/61 group 2.10 *Malignant neoplasm of lymphatic and hematopoietic tissue* was separated into two groups on the 6/67 list: 2.12 *Leukemia* and 2.13 *Malignant neoplasm of lymphoid, other hematopoietic and related tissue.*

i. Pulmonary heart disease, diseases of pulmonary circulation and other forms of heart disease (6/67, 3.04)

This 6/67 group is not equivalent to any on the 6/61 list. Group 3.04 *Diseases of pulmonary circulation and other forms of heart disease*, of the 6/61 list, was disaggregated

into three 6/67 groups. One of them is 3.04 *Pulmonary heart disease, diseases of pulmonary circulation and other forms of heart disease*; the other two are 3.05 *Cardiac arrest* and 3.06 *Heart failure*, which are mentioned below.

j. Cardiac arrest (6/67, 3.05)
This group was not identified separately on the 6/61 list; it was included on list 6/67 to offer users the possibility of interpreting it as an ill-defined cause or keeping it within group 3.00 *Diseases of the circulatory system.*

k. Heart failure (6/67, 3.06)
This group was not identified separately on the 6/61 list, where this cause of death is part of group 3.04 *Diseases of pulmonary circulation and other forms of heart disease.*

l. All other diseases of the circulatory system (6/67, 3.09)
This residual group of the 6/67 list is not equivalent to the residual 6/61 group 3.07 *Other diseases of circulatory system*, because the 6/67 group excludes polyarteritis nodosa. ICD-10 places this cause of death in Chapter XIII *Diseases of the musculoskeletal system and connective tissue*, which is a part of 6/67 group 6.14 *Remainder of diseases.*

m. Bacterial sepsis of newborn (6/67, 4.05)
On the 6/61 list this is not a separate group; rather, it is included in 4.06 *Remainder of certain conditions originating in the perinatal period.*

n. Hemolytic disease of fetus or newborn (6/61, 4.05)
This 6/61 group does not appear as a separate group on the 6/67 list. Instead, it is included in the residual 6/67 group 4.06 *Remainder of certain conditions originating in the perinatal period.*

o. Remainder of certain conditions originating in the perinatal period (6/67, 4.06)
As a result of the changes mentioned above, this 6/67 group is not equivalent to 6/61 group 4.06.

p. Land transport accidents (6/67, 5.01)
Under ICD-9, motor vehicle traffic accidents are grouped in E810-E819 and appear as group 5.01 of the 6/61 list, whereas under ICD-10 they are scattered among the transport accidents, which are organized quite differently. Under ICD-10 the first axis is the type of vehicle, followed by two other axes: type of accident and person involved, which are not always placed in the same sequence. Use of the group *Land transport accidents*, which corresponds to an entire range of ICD-10 codes (V01-V89) provides a good approximation to motor vehicle traffic accidents.

q. Other and unspecified transport accidents (6/67, 5.02)
This group refers to water transport accidents, air and space transport accidents, and other and unspecified transport accidents. It is not exactly equivalent to any group on the 6/61 list.

r. Falls (6/67, 5.03)
This 6/67 group excludes fracture, cause unspecified, which was part of 6/61 group 5.05 *Accidental falls*. Under ICD-10, fracture, cause unspecified does not have an individual code but is assigned to residual category X59 *Exposure to unspecified factor*. Hence this group is not equivalent to 6/61 group 5.05.

s. Misadventures during medical care, abnormal reactions and late complications, and drugs and medicaments causing adverse effects in therapeutic use (6/61, 5.04)
This 6/61 group does not appear on the 6/67 list as a separate group. Rather, it is part of the residual 6/67 group 5.10 *All other accidents*.

t. Accidental threats to breathing (6/67, 5.06)
This group did not appear on the 6/61 list.

u. Exposure to electric current (6/67, 5.07)
This group did not appear on the 6/61 list.

v. Accidents caused by machinery, and by cutting and piercing instruments (6/61, 5.08)
This 6/61 group does not appear on the 6/67 list as a separate group. Rather, it is part of the residual 6/67 group 5.10 *All other accidents.*

w. All other accidents (6/67, 5.10)
This residual 6/67 group is not equivalent to the 6/61 residual group 5.10 *Other accidents, including late effects*. In view of the fact that different accidental cause groups were established in the 6/61 and 6/67 lists, the residuals are also different.

x. Assault (homicide) (6/67, 5.12)
This 6/67 group is not equivalent to group 5.12 of the 6/61 list, in that the 6/67 group excludes deaths due to legal intervention and operations of war, whereas the 6/61 group includes them.

y. All other external causes (6/67, 5.14)
This group does not appear separately on list 6/61. It includes legal intervention and operations of war, as well as sequelae of external causes.

z. Nutritional deficiencies and nutritional anemias (6/67, 6.02)
This group differs from 6/61 group 6.02 *Nutritional deficiencies and anemias*, which includes anemias that are not nutritional in nature (hemolytic and aplastic, for example).

aa. Chronic lower respiratory diseases (6/67, 6.05)
This group is not exactly equivalent to any on the 6/61 list. Group 6.05 of the 6/61 list contains only chronic and unspecified bronchitis, emphysema and asthma, whereas group 6.05 of the 6/67 list includes all chronic obstructive pulmonary diseases.

bb. Remainder of diseases of the respiratory system (6/67, 6.06)

This group is not equivalent to any on the 6/61 list. Jointly with 6/67 groups 6.05 *Chronic lower respiratory diseases* and 1.08 *Acute respiratory infections*, the three groups make up all of ICD-10 Chapter X Diseases of the respiratory system.

cc. Pregnancy, childbirth and the puerperium (6/67, 6.12)

This 6/67 group is not exactly equivalent to 6/61 group 6.12, partly because the 6/67 list places obstetrical tetanus in group 1.04 *Certain diseases preventable by immunization.* As is the case with ICD-9, under ICD-10 several causes of death that may be maternal are excluded from the chapter. These include HIV disease; injury, poisoning and certain other consequences of external causes; and mental and behavioral disorders associated with the puerperium.

dd. Remainder of all other diseases (6/67, 6.14)

As a result of the changes mentioned above, this 6/67 group is not equivalent to 6/61 group 6.14 *Residual.*

Table 1. PAHO 6/61 Mortality Tabulation List (ICD-9)

0.00 Symptoms, signs and ill-defined conditions (780-799)

1.00 Communicable diseases (001-139, 320-322, 460-466, 480-487)
1.01 Intestinal infectious diseases (001-009)
1.02 Tuberculosis (010-018)
1.03 Certain diseases preventable by immunization (032, 033, 037, 045, 055)
1.04 Certain vector-borne diseases (020, 060, 062-064, 071, 080-088)
1.05 Septicemia (038)
1.06 Syphilis and other venereal diseases (090-099)
1.07 Meningitis (320-322)
1.08 Acute respiratory infections (460-466, 480-487)
1.09 Other infectious and parasitic diseases (remainder of 001-139)

2.00 Neoplasms (140-239)
2.01 Malignant neoplasm of stomach (151)
2.02 Malignant neoplasm of colon (153)
2.03 Malignant neoplasm of digestive organs and peritoneum, other than stomach and colon (150, 152, 154-159)
2.04 Malignant neoplasm of trachea, bronchus and lung (162)
2.05 Malignant neoplasm of respiratory and intrathoracic organs, except trachea, bronchus and lung (160, 161, 163-165)
2.06 Malignant neoplasm of female breast (174)
2.07 Malignant neoplasm of uterus (179, 180, 182)
2.08 Malignant neoplasm of prostate (185)
2.09 Malignant neoplasm of bladder and other genitourinary organs (183, 184, 186-189)
2.10 Malignant neoplasm of lymphatic and hematopoietic tissue (200-208)
2.11 Other malignant neoplasms (remainder of 140-208)
2.12 Benign neoplasms, carcinoma in situ and neoplasms of uncertain behavior and of unspecified nature (210-239)

3.00 Diseases of circulatory system (390-459)
3.01 Acute rheumatic fever and chronic rheumatic heart disease (390-398)
3.02 Hypertensive disease (401-405)
3.03 Ischemic heart disease (410-414)
3.04 Diseases of pulmonary circulation and other forms of heart disease (415-429)
3.05 Cerebrovascular disease (430-438)
3.06 Atherosclerosis (440)
3.07 Other diseases of circulatory system (441-459)

4.00 Certain conditions originating in perinatal period (760-779)
4.01 Maternal conditions affecting fetus or newborn (760)
4.02 Obstetric complications affecting fetus or newborn, and birth trauma (761-763, 767)
4.03 Slow fetal growth, fetal malnutrition and immaturity (764, 765)
4.04 Hypoxia, birth asphyxia and other respiratory conditions (768-770)
4.05 Hemolytic disease of fetus or newborn (773)
4.06 Other conditions originating in perinatal period (766, 771, 772, 774-779)

5.00 External causes of injury and poisoning (E800-E999)
5.01 Motor vehicle traffic accidents (E810-E-819)
5.02 Other transport accidents (E800-E807, E820-E848)
5.03 Accidental poisoning (E850-E869)
5.04 Misadventures during medical care, abnormal reactions and late complications, and drugs and medicaments causing adverse effects in therapeutic use (E870-E879, E930-E949)
5.05 Accidental falls (E880-E888)
5.06 Accidents caused by fire and flames (E890-E899)
5.07 Accidental drowning and submersion (E910)
5.08 Accidents caused by machinery, and by cutting and piercing instruments (E919-E920)
5.09 Accidents caused by firearm missile (E922)
5.10 Other accidents, including late effects (E900-E909, E911-E918, E921, E923-E929)
5.11 Suicide and self-inflicted injury (E950-E959)
5.12 Homicide and injury purposely inflicted by other persons, injury due to legal intervention, and injury resulting from operations of war (E960-E969, E970-E978, E990-E999)
5.13 Injury undetermined whether accidentally or purposely inflicted (E980-E989)

6.00 All other diseases (remainder of 001-779)
6.01 Diabetes mellitus (250)
6.02 Nutritional deficiencies and anemias (260-269, 280-285)
6.03 Mental disorders (290-319)
6.04 Diseases of nervous system, other than meningitis (323-359)
6.05 Chronic and unspecified bronchitis, emphysema and asthma (490-493)
6.06 Other chronic pulmonary disease, pulmonary diseases due to external agents, and other diseases of respiratory system (494-496, 500-508, 510-519)
6.07 Appendicitis, hernia of abdominal cavity, and intestinal obstruction without mention of hernia (540-543, 550-553, 560)
6.08 Chronic liver disease and cirrhosis (571)
6.09 Diseases of other parts of digestive system (remainder of 530-579)
6.10 Diseases of urinary system (580-599)
6.11 Hyperplasia of prostate (600)
6.12 Complications of pregnancy, childbirth and the puerperium (630-676)
6.13 Congenital anomalies (740-759)
6.14 Residual (remainder of 001-779)

Table 2. PAHO 6/67 Mortality Tabulation List (ICD-10)

0.00 Symptoms, signs and ill-defined conditions (R00-R99)

1.00 Communicable diseases (A00-B99, G00-G03, J00-J22)
1.01 Intestinal infectious diseases (A00-A09)
1.02 Tuberculosis (A15-A19)
1.03 Certain vector-borne diseases and rabies (A20, A44, A75-A79, A82-A84, A85.2, A90-A98, B50-57)
1.04 Certain diseases preventable by immunization (A33-A37, A80, B05, B06, B16, B17.0, B18.0-B18.1, B26)
1.05 Meningitis (A39, A87, G00-G03)
1.06 Septicemia, except neonatal (A40-A41)
1.07 HIV disease (AIDS) (B20-B24)
1.08 Acute respiratory infections (J00-J22)
1.09 Other infectious and parasitic diseases (remainder of A00-B99, i.e. A21-A32, A38, A42-A43, A46-A74, A81, A85.0-A85.1, A85.8, A86, A88-A89, A99-B04, B07-B15, B17.1-B17.8, B18.2-B19.9, B25, B27-B49, B58-B99)

2.00 Neoplasms (C00-D48)
2.01 Malignant neoplasm of stomach (C16)
2.02 Malignant neoplasm of colon and rectosigmoid junction (C18-C19)
2.03 Malignant neoplasm of digestive organs and peritoneum, except stomach and colon (C15, C17, C20-C26, C48)
2.04 Malignant neoplasm of trachea, bronchus and lung (C33-C34)
2.05 Malignant neoplasm of respiratory and intrathoracic organs, except trachea, bronchus and lung (C30-C32, C37-C39)
2.06 Malignant neoplasm of female breast (C50 in women)
2.07 Malignant neoplasm of cervix uteri (C53)
2.08 Malignant neoplasm of corpus uteri(C54)
2.09 Malignant neoplasm of uterus, part unspecified (C55)
2.10 Malignant neoplasm of prostate (C61)
2.11 Malignant neoplasm of other genitourinary organs (C51-C52, C56-C57, C60, C62-C68)
2.12 Leukemia (C91-C95)
2.13 Malignant neoplasm of lymphoid, other hematopoietic and related tissue (C81-C90, C96)
2.14 Malignant neoplasm of other and unspecified sites (remainder of C00-C97, i.e. C00-C14, C40-C47, C49, C50 in men, C58, C69-C80, C97)
2.15 Carcinoma in situ, benign neoplasms and neoplasms of uncertain or unknown behavior (D00-D48)

3.00 Diseases of the circulatory system (I00-I99)
3.01 Acute rheumatic fever and chronic rheumatic heart diseases (I00-I09)
3.02 Hypertensive diseases (I10-I15)
3.03 Ischemic heart diseases (I20-I25)
3.04 Pulmonary heart disease, diseases of pulmonary circulation and other forms of heart disease (I26-I45, I47-I49, I51)
3.05 Cardiac arrest (I46)
3.06 Heart failure (I50)
3.07 Cerebrovascular diseases (I60-I69)
3.08 Atherosclerosis (I70)
3.09 All other diseases of the circulatory system (I71-I99)

4.00 Certain conditions originating in the perinatal period (P00- P96)
4.01 Fetus and newborn affected by certain maternal conditions (P00, P04)
4.02 Fetus and newborn affected by obstetric complications, birth trauma (P01-P03, P10-P15)
4.03 Slow fetal growth, fetal malnutrition, short gestation, low birth weight (P05, P07)
4.04 Respiratory disorders specific to the perinatal period (P20-P28)
4.05 Bacterial sepsis of newborn (P36)
4.06 Remainder of certain conditions originating in the perinatal period (rest of P00-P96, i.e. P08, P29, P35, P37-P96)

5.00 External causes (V01-Y89)
5.01 Land transport accidents (V01-V89)
5.02 Other and unspecified transport accidents (V90-V99)
5.03 Falls (W00-W19)
5.04 Accidents caused by firearm discharge (W32-W34)
5.05 Accidental drowning and submersion (W65-W74)
5.06 Accidental threats to breathing (W75-W84)
5.07 Exposure to electric current (W85-W87)
5.08 Exposure to smoke, fire and flames (X00-X09)
5.09 Accidental poisoning by and exposure to noxious substances (X40-X49)
5.10 All other accidents (W20-W31, W35-W64, W88-W99, X10-X39, X50-X59, Y40-Y84)
5.11 Intentional self-harm (suicide) (X60-X84)
5.12 Assault (homicide) (X85-Y09)
5.13 Event of undetermined intent (Y10-Y34)
5.14 All other external causes (Y35-Y36, Y85-Y89)

6.00 All other diseases (D50-D89, E00-E90, F00-F99, G04-G98, H00-H59, H60-H95, J30-J98, K00-K93, L00-L99, M00-M99, N00-N99, O00-O99, Q00-Q99)
6.01 Diabetes mellitus (E10-E14)
6.02 Nutritional deficiencies and nutritional anemia (E40-E64, D50-D53)
6.03 Mental and behavioral disorders (F00-F99)
6.04 Diseases of the nervous system, except meningitis (G04-G99)
6.05 Chronic lower respiratory diseases (J40-J47)
6.06 Remainder of diseases of the respiratory system (rest of J00-J99, i.e. J30-J39, J60-J98)
6.07 Appendicitis, hernia of abdominal cavity and intestinal obstruction (K35-K46, K56)
6.08 Cirrhosis and certain other chronic diseases of liver (K70, K73, K74, K76)
6.09 All other diseases of the digestive system (rest of K00-K93, i.e. K00-K31, K50-K55, K57-K66, K71, K72, K75, K80-K93)
6.10 Diseases of the urinary system (N00-N39)
6.11 Hyperplasia of prostate (N40)
6.12 Pregnancy, childbirth and the puerperium (O00-O99)
6.13 Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)
6.14 Remainder of all other diseases (rest of A00-Q99, i.e. D55-D89, E00-E07, E15-E34, E65-E90, H00-H59, H60-H95, L00-L99, M00-M99, N41-N99)

Case definitions: Measles and Rubella

Rationale for Surveillance

Measles

Introduction: In 1994, the Pan American Sanitary conference established the goal of measles eradication from the Western Hemisphere by the year 2000.

Great progress has been made towards interrupting measles transmission in most countries of the Americas. However, as of September, 1999, with only 15 months remaining until the target date for achieving the goal of hemispheric measles eradication, measles virus continues to circulate in some areas of the Region.

To obtain information that can be used to prevent and control future outbreaks, appropriate investigations and analysis must be conducted for all measles outbreaks. Efforts are needed to determine sources of measles virus introduction, transmission patterns and specific risk factors for acquiring measles.

Surveillance: Measles surveillance is critical for measuring progress towards the goal of measles eradication in the Americas and for detecting problem areas. Efforts that are urgently needed to improve the quality of measles surveillance throughout the Region include:

- All suspected measles cases should be investigated within 48 hours of illness onset, and a serum sample should be collected from the patient upon initial contact with the health provider. This sample must be collected within 30 days of rash onset to be considered adequate.
- To monitor progress toward the achievement of measles eradication, all countries should provide data on a weekly basis to the Region-wide measles eradication surveillance system (MESS)
- Each country should periodically have its measles surveillance system objectively evaluated using the standardized evaluation protocol developed by PAHO. Countries should constantly work to improve the quality of the reporting system.
- Virologic surveillance and molecular epidemiology can provide important information to an eradication program. Appropriate clinical specimens for viral isolation should be obtained from every chain of measles transmission, including all sporadic cases and approximately 5-10 cases from every outbreak. Urine, the most practical specimen to collect for measles virus isolation, should be obtained within 7 days of rash onset and forwarded to a reference laboratory capable of performing measles virus isolation.
- In all countries, measles and rubella surveillance should be integrated.

Rubella

Introduction: Rubella virus continues to circulate freely in most countries of the region. After a complete investigation, many suspected measles cases are ultimately found to be rubella. Moreover, cases of the Congenital Rubella Syndrome (CRS) have been found in all countries of the Region that have established CRS surveillance systems. This suggests that CRS is a major public health problem in all countries of the Americas.

Surveillance: Rubella surveillance should be integrated with measles surveillance. The purpose of rubella surveillance is to detect circulation of rubella virus, not to detect every case of rubella. A separate rubella surveillance system is not needed. All sera from suspected rubella cases which test negative for rubella IgM antibodies should be tested for measles IgM antibodies and vice versa.

Recommended Case Definitions

The measles eradication and rubella control/elimination programs should use the following standardized case definitions, revised from PAHO's Measles Eradication Field Guide, 1999, and the WHO Recommended Surveillance Standards from the 2nd. Ed., June 1999, revised by PAHO's Communicable Diseases Program.

Suspected measles case: any patient in whom a health care provider suspects the possibility of measles.

Suspected rubella case: any patient in whom a health care provider suspects the possibility of rubella.

In suspected measles or rubella cases, a serum sample should be collected from the patient upon initial contact with the health provider. This sample must be collected within 30 days of rash onset to be considered adequate.

Laboratory-confirmed case: a suspected measles or rubella case that after complete investigation is:

1. Confirmed as either measles or rubella using commercially available enzyme immunoassays (EIA) for measles or for rubella IgM antibodies, and/or
2. Confirmed by isolation of measles or rubella virus and/or
3. Epidemiologically linked to another laboratory-confirmed case (the epidemiological link is established if any contact between the suspected case and the laboratory-confirmed case has occurred anytime during the month prior to rash onset).

Clinically-confirmed case: a suspected measles or rubella case that is not completely investigated for any reason. This could include: patients that died before the investigation was complete, patients lost to follow-up, or patients without adequate specimens submitted for laboratory analysis.

Discarded: a suspected measles or rubella case that has been completely investigated, including an adequate blood specimen, which lacks serologic evidence of infection, has no virus isolated, and does not have epidemiological link to a laboratory-confirmed case. If laboratory results indicate another viral infection compatible with the clinical symptoms, such as dengue, the case should be discarded as well.

Imported Measles Case: a confirmed measles case in a person who traveled to another country with documented measles circulation during the possible exposure period (7-18 days prior to rash onset). The possibility of local exposure must be ruled out through careful investigation.

Recommended Surveillance Measures

Testing of rubella and dengue suspected cases for measles:

- Blood samples from all rubella suspected cases that are IgM negative for rubella should be tested for measles within 24 hours.
- Blood samples from at least 10% of the dengue suspected cases with rash that are IgM negative for dengue should be regularly tested for measles.
- In the case of laboratory–confirmed rubella or dengue outbreaks, the total number of samples that are negative for either rubella or dengue might be overwhelming. In such a case, the surveillance team, in conjunction with the laboratory, should decide which samples to test for measles.

Investigation and reporting:

- The reporting system must cover health facilities, private practitioners, hospitals and laboratories and have at least one reporting source for every geopolitical unit.
- Written material should be provided to all health personnel describing their responsibilities and how to report cases, collect samples and send them for laboratory confirmation.
- Investigation of all suspected cases should take place within 48 hours of rash onset. It should include:
  - Filling the case report form.
  - Investigation of contacts of the suspected case to determine if other cases have occurred.
  - taking blood samples and samples for viral isolation (usually urine) from all sporadic cases and from 5-10 cases from each outbreak.
- Weekly reporting of data, even in the absence of cases, is critical.
- Timely feedback to all participants of the surveillance system, keeping them informed of where and when cases are occurring, is essential.
- The reporting system must be monitored monthly using the surveillance indicators.
- Cooperation from the private medical community by reporting suspected cases to the system is essential for all surveillance efforts.

Recommended Minimum Data Elements

Case-based data (to be linked using the unique identifier to specimen-based data for analysis): (I) unique identifier; (II) geographical area (district and province); (III) name; date of birth (IV); date of rash onset (V); date of notification (VI); date of case investigation (VII); date of specimen collection (VIII); date when specimens were sent to the laboratory (IX); number of doses of measles-containing vaccine received (X); (XI) date of last doses of measles-containing vaccine; (XII) if source of infection was identified; (XIII) results of serology; (XIV) results of viral isolation; (XV) final classification and (XVI) name of investigator.

Specimen-based data (to be linked to case-based data for analysis): (I) unique identifier (MESS number when available); (II) specimen number; (III) date of rash onset; (IV) date of blood (or urine, nasopharyngeal secretion) specimen collection; (V) date specimen sent to laboratory; (VI) date specimen received in laboratory; (VII) results of serology; (VIII) results of viral isolation.

Principal Uses of Data for Decision-Making

- Track measles/rubella virus circulation (in an eradication process, one case must be considered as an outbreak).
- Detect and investigate outbreaks to ensure proper case management and determine reasons for its occurrence. Efforts should be made to determine sources of measles virus introduction, transmission patterns and specific risk factors for acquiring measles.
- Monitor routine coverage for immunizations in all municipalities and focus efforts in high-risk municipalities (those where vaccination coverage is lower than 95%) for planning mopping up and other immunization activities.
- Identify when next follow-up campaign is due.
- Monitor performance of surveillance using standard indicators and strengthen surveillance in low performing areas.
- Provide evidence for measles-free certification.

Main Surveillance Indicators

- % of reporting sites that report each week.
- % of reported suspected cases investigated within 48 hours of rash onset.
- % of suspected cases with complete report form.
- % of suspected cases with blood specimen collected within 30 days of rash onset (nonetheless, when outbreaks occur, cases epidemiologically linked to laboratory-confirmed case are confirmed without needing blood specimens).
- % of blood specimens for which results were received within 7 days of receipt of the sample by the laboratory.

Publication
Health Statistics from the Americas. 1998 Edition

PAHO. Washington, D.C., 1998, 476 pp., ISBN 92 75 11567 1
Code: SP 567, US $34 / $24 in developing countries.

Also available in Spanish: *Estadísticas de salud de las Américas. Edición de 1998.* Washington, D.C.: OPS, 1998.
484 pp., ISBN 92 75 31567 2, Código: PC 567

Health Statistics from the Americas, 1998 Edition, is the fourth in a series begun in 1991 to complement the quadrennial publication *Health Conditions in the Americas* (now titled *Health in the Americas*). This edition is the first to include a section devoted to a special topic—health during early childhood—which comprises Part I of the book and represents the collaborative efforts of several technical programs, specialized centers, and divisions of PAHO.

Part II of the volume contains data on registered mortality in specific age groups, by sex and cause of death, by country and year. As in previous editions the book also includes, in Part III, the mortality data received and processed in PAHO, following publication of the 1995 edition. These data are presented by country and year, and by age and sex, using the PAHO 6/61 list of groups of causes of death. The PAHO Special Program for Health Analysis (previously named the Health Situation Analysis Program) had overall responsibility for the technical content of the book, and prepared all the material in Parts II and III as well as several of the chapters included in Part I.

As a contribution to the study of health during early childhood, a new PAHO tabulation list was developed for summary presentation of causes of death among children under 5 years old. This list—called the 8/30 list—was used for the first time in Part II of the book. Mortality data for several age groups immediately following early childhood were also included in Part II: 5 to 9 years of age, 10 to 14, and 15-19 years. These data were tabulated using the six broad groups of the PAHO 6/61 list.

Selection of the subject-matter areas included in the special topic was made on the basis of their relatedness to the goals of the World Summit for Children and of Health for All by the Year 2000; their inclusion in resolutions of the Governing Bodies of PAHO; their relevance to the child health areas that are the purpose of programs in the countries and the Organization; the availability of useful, detailed statistical information that had not been disseminated previously; and the possibility of producing information that is deemed essential for analysis of mortality during early childhood. The chapters included are: *Population Dynamics in the Age Group under 5 Years Old; Mortality among Children under 5 Years Old, by Groups of Causes;* and *Selected Health Topics of Importance during Early Childhood.* The latter contains the following sub-chapters: *breast-feeding, nutritional status, prevalent childhood illnesses, diseases preventable by immunization, cancer, AIDS,* and *accidents*. It should be pointed out that the chapter on mortality among children under 5 years old by groups of causes includes trends in estimated quinquennial death rates for children under 1 year and children 1-4 years of age, by broad groups of causes and by sex and country.

The large number of country-years included—121 data years from 29 countries—not only complements the series published in earlier editions, but once more shows the wide availability of detailed mortality data in the countries of the Americas.

This book represents another step in PAHO's efforts to bring the full richness of the statistical information about health that is available in the Region of the Americas to the attention of analysts, researchers, and policymakers everywhere.

This book may be purchased through the PAHO/WHO Representative in any country, local sales agents, or directly from PAHO Headquarters, by fax: (301) 206-9789 or e-mail: paho@pmds.com. Direct purchases may be made via the Internet at the PAHO site: http://publications.paho.org.

Epidemiological Calendar 2000

EW	Mo	Su	M	T	W	Th	F	Sa	Mo
1	Jan	2	3	4	5	6	7	8	Jan
2	Jan	9	10	11	12	13	14	15	Jan
3	Jan	16	17	18	19	20	21	22	Jan
4	Jan	23	24	25	26	27	28	29	Jan
5	Jan	30	31	1	2	3	4	5	Feb
6	Feb	6	7	8	9	10	11	12	Feb
7	Feb	13	14	15	16	17	18	19	Feb
8	Feb	20	21	22	23	24	25	26	Feb
9	Feb	27	28	29	1	2	3	4	Mar
10	Mar	5	6	7	8	9	10	11	Mar
11	Mar	12	13	14	15	16	17	18	Mar
12	Mar	19	20	21	22	23	24	25	Mar
13	Mar	26	27	28	29	30	31	1	Apr
14	Apr	2	3	4	5	6	7	8	Apr
15	Apr	9	10	11	12	13	14	15	Apr
16	Apr	16	17	18	19	20	21	22	Apr
17	Apr	23	24	25	26	27	28	29	Apr
18	Apr	30	1	2	3	4	5	6	May
19	May	7	8	9	10	11	12	13	May
20	May	14	15	16	17	18	19	20	May
21	May	21	22	23	24	25	26	27	May
22	May	28	29	30	31	1	2	3	Jun
23	Jun	4	5	6	7	8	9	10	Jun
24	Jun	11	12	13	14	15	16	17	Jun
25	Jun	18	19	20	21	22	23	24	Jun
26	Jun	25	26	27	28	29	30	1	Jul
27	Jul	2	3	4	5	6	7	8	Jul
28	Jul	9	10	11	12	13	14	15	Jul
29	Jul	16	17	18	19	20	21	22	Jul
30	Jul	23	24	25	26	27	28	29	Jul
31	Jul	30	31	1	2	3	4	5	Aug
32	Aug	6	7	8	9	10	11	12	Aug
33	Aug	13	14	15	16	17	18	19	Aug
34	Aug	20	21	22	23	24	25	26	Aug
35	Aug	27	28	29	30	31	1	2	Sep
36	Sep	3	4	5	6	7	8	9	Sep
37	Sep	10	11	12	13	14	15	16	Sep
38	Sep	17	18	19	20	21	22	23	Sep
39	Sep	24	25	26	27	28	29	30	Sep
40	Oct	1	2	3	4	5	6	7	Oct
41	Oct	8	9	10	11	12	13	14	Oct
42	Oct	15	16	17	18	19	20	21	Oct
43	Oct	22	23	24	25	26	27	28	Oct
44	Oct	29	30	31	1	2	3	4	Nov
45	Nov	5	6	7	8	9	10	11	Nov
46	Nov	12	13	14	15	16	17	18	Nov
47	Nov	19	20	21	22	23	24	25	Nov
48	Nov	26	27	28	29	30	1	2	Dec
49	Dec	3	4	5	6	7	8	9	Dec
50	Dec	10	11	12	13	14	15	16	Dec
51	Dec	17	18	19	20	21	22	23	Dec
52	Dec	24	25	26	27	28	29	30	Dec

In order to carry out epidemiological surveillance activities, disease outbreaks or epidemiological events must be grouped around a given period of time. Ordinarily, this is a seven-day period known as the epidemiological week. Likewise, the 365 days of the calendar year are divided into epidemiological weeks, known as the epidemiological calendar, which is a standardization tool of the time variable for the purpose of epidemiological surveillance.

The importance of these divisions, especially the epidemiological week, is that they provide a means to compare the epidemiological events occurring in a given year, or period within a year, with those of previous years. Moreover, because the international community has officially adopted this methodology, epidemiological data can be compared between countries.

The epidemiological week begins on Sunday and ends on Saturday. The first epidemiological week of the year ends on the first Saturday of January, provided that it falls at least four or more days into the month. Therefore, the first epidemiological week may actually begin in December of the previous year. To illustrate this point, the following correspond to the first epidemiological weeks of recent and future years:

1998	January 4 – 10
1999	January 3 – 9
2000	January 2 – 8
2001	December 31 – January 6
2002	December 30 – January 5

For the reference and practical use of the reader, an upcoming issue of the *PAHO Epidemiological Bulletin* will include the epidemiological calendar for the year 2001 in its norms and standards section.

Basic Indicators 1999: Selected basic indicators by country: Population; health resources, access and coverage

	total population (%) 1999	annual pop growth rate (%) 1999	urban population (%) 1999	life expectancy at birth 1999	literate population (%) (15 + years old) 1995	pop with access to services (%), 1996-98, lay* drinking water	pop with access to services (%), 1996-98, lay* excretal disposal	gross national product (US$ per capita) 1997, ppp value	national health expenditure as a % of GDP** 1994	population below poverty line (%) 1989-94, lay*	physicians per 10,000 pop c1997	hospital beds per 1,000 pop c1995	birth attended by trained personnel (%)
Anguilla	8	1.3	11.8	74.3 a	95.4	…	…	…	…	…	17.5	...	100.0 c
Antigua & Barbuda	67	0.5	36.6	74.3 a	88.5	…	…	8,720	5.4	12.0	11.5	...	…
Argentina	36,577	1.2	89.1	73.3	96.2	78.1	84.3	10,100	9.7	25.5	26.8	4.6	97.2 g
Aruba	98	4.5	…	77.2 a	97.0	…	…	…	…	…	12.8	3.7	98.0 a
Bahamas, The	301	1.7	88.1	74.2	98.2	96.4	93.3	10,080	4.2	…	16.3	3.6	99.9 c
Barbados	269	0.4	49.5	76.7	97.4	100.0	99.0	10,220	6.8	…	13.7	7.4	…
Belize	235	2.3	46.5	75.1	70.3	76.0	40.3	4,110	8.0	35.0	7.4	2.5	…
Bermuda	64	0.8	100.0	75.0 a	98.5	…	…	…	3.5 b	…	17.7	...	…
Bolivia	8,142	2.3	63.9	62.2	83.1	73.5	63.5	2,810	6.5	…	3.2	1.1	42.7 a
Brazil	167,988	1.3	80.7	67.2	83.3	90.4	57.9	6,350	6.8	17.4	12.7	3.5	96.8 h
Canada	30,857	1.0	77.0	79.2	99.0	…	…	21,750	9.2 c	11.7	22.9	6.7	99.4 c
Cayman Islands	37	3.5	100.0	77.0 a	98.0	…	…	…	4.1	…	21.5	2.2	99.8 a
Chile	15,019	1.3	84.5	75.2	95.2	91.6	78.4	12,240	7.9	23.2h	13.0	3.1	99.6 c
Colombia	41,564	1.8	74.4	71.0	91.3	76.4	52.2	6,570	7.4	17.7	9.3	1.1	89.2 a
Costa Rica	3,933	2.3	51.4	76.3	94.8	72.2	49.6	6,510	8.5	11.0	15.0	1.6	97.5 a
Cuba	11,160	0.4	77.5	76.0	95.7	92.1	92.0	…	…	…	56.8	5.5	99.9 a
Dominica	71	0.0	70.7	77.3 a	82.0	…	…	4,470	6.3	33.0	4.9	3.6	95.0 a
Dominican Republic	8,364	1.6	64.5	71.1	82.1	71.4	89.5	4,690	5.7	20.6	10.2	1.0	…
Ecuador	12,411	1.9	61.7	69.9	90.1	70.3	58.0	4,700	5.3	35.0	13.2	1.6	70.9 c
El Salvador	6,154	2.0	46.3	69.6	71.5	59.3	68.3	2,860	5.9	48.3	11.8	1.3	58.0 a
French Guiana	174	4.1	77.8	76.4 a	83.0	…	…	…	…	…	13.9	...	…
Grenada	93	0.4	37.5	71.4 a	98.0	…	…	4,760	5.2	20.0	8.1	5.5	100.0 a
Guadeloupe	450	1.3	99.6	77.7	90.1	…	…	…	…	…	13.8	...	…
Guatemala	11,090	2.6	40.1	64.6	64.2	67.4	71.9	4,060	3.2	58.0	9.6	0.7	78.4 a
Guyana	855	0.7	37.6	65.1	98.1	91.6	84.7	2,890	5.2	43.0	1.8	3.1	…
Haiti	8,087	1.7	34.3	54.1	45.0	…	…	1,260	3.6 d	65.0f	2.5	0.8	…
Honduras	6,316	2.6	46.3	69.8	72.7	81.1	49.4	2,260	5.6 e	50.0	8.3	0.7	63.7 a
Jamaica	2,560	0.9	55.6	75.2	85.0	86.0	89.0	3,330	4.9	34.2	14.0	2.1	…
Martinique	392	0.8	94.6	79.0	92.8	…	…	…	…	…	19.7	...	…
Mexico	97,365	1.5	74.2	72.5	89.6	86.5	72.5	8,110	4.7 c	34.0	15.6	1.2	64.0 c
Montserrat	11	-0.2	18.0	76.0 a	97.0	…	…	…	…	…	1.8	...	…
Netherlands Antilles	215	1.0	70.2	75.8	95.2	…	…	…	4.8 b	…	14.0	...	…
Nicaragua	4,938	2.7	64.2	68.5	65.7	53.0	60.0	1,820	8.6	50.3	6.2	1.2	71.2 c
Panama	2,812	1.6	57.3	74.0	90.8	86.9	93.2	6,890	6.7	0.2	12.1	2.2	89.5 a
Paraguay	5,358	2.5	55.3	70.0	92.1	43.6	41.0	3,860	5.1	21.8	4.9	1.5	84.7 c
Peru	25,230	1.7	72.4	68.9	88.7	78.5	73.7	4,580	3.7	49.0i	10.3	1.8	56.4 h
Puerto Rico	3,839	0.8	74.8	74.2	89.6	…	…	…	…	…	17.5	...	…
Saint Kitts & Nevis	39	-0.7	34.1	67.6 a	97.3	…	…	7,730	5.3	15.0	11.7	6.4	…
Saint Lucia	152	1.4	37.7	70.4 a	81.5	…	…	5,030	3.8	25.0	5.8	3.3	…
Saint Vincent & the Grenadines	113	0.7	53.5	73.4 a	96.0	…	…	4,320	7.0	17.0	8.8	...	98.0 a
Suriname	415	0.4	51.6	70.5	93.0	85.0	60.0	2,740	4.0	…	5.0	3.1	95.0 h
Trinidad & Tobago	1,289	0.5	73.6	74.2	97.9	97.0	79.0	6,460	3.4	21.0	7.5	3.8	99.0 c
Turks & Caicos Islands	16	3.5	44.9	75.0 a	98.5	…	…	…	…	…	7.3	...	…
United States of America	276,028	0.8	77.0	77.0	99.5	99.4	99.9	29,080	14.1 c	19.1	27.9	5.2	98.3 g
Uruguay	3,313	0.7	91.1	74.3	96.8	97.8	94.4	9,110	8.5	14.5	37.0	4.5	98.0 c
Venezuela	23,706	1.9	87.1	72.8	93.5	75.9	59.1	8,660	7.5	31.3	24.0	2.0	95.7 c
Virgin Islands (UK)	21	2.6	60.1	72.8 a	98.2	…	…	…	…	…	11.5	...	100.0 a
Virgin Islands (US)	94	-0.8	46.1	75.0 a	…	…	…	…	…	…	16.5	...	…

(a) 1998 figure (b) 1992-94 figures (c) 1997 figure (d) 1990-94 figures (e) 1991-94 figures (f) 1987 figure (g) 1995 figure (h) 1996 figure
* lay: latest available year ** GDP: gross domestic product ... data not available

Source: PAHO, Health Situation in the Americas. Basic Indicators 1999. Special Program for Health Analysis, PAHO/SHA/99.01

Basic Indicators 1999: Selected basic indicators by country: Mortality

Country	maternal mortality (100.000 lb) rate	infant mortality (1.000 lb) rate	deaths from ill-defined cause (%)	mortality under-registration (%) 1990-97	mortality rates (100.000 pop) (1990-94, lab*) general (all causes) estimated	general (all causes) adjusted	from communicable diseases estimated	from communicable diseases adjusted	from malignant neoplasms estimated	from malignant neoplasms adjusted	from diseases of the circulatory system estimated	from diseases of the circulatory system adjusted	from external causes estimated	from external causes adjusted
Anguilla	– b, m	35.5 b, m	12.5 m	...	771.6	...	103.6	...	124.3	...	370.3	...	31.1	...
Antigua & Barbuda	…	…	13.4 k	...	...	...	...	...	...	...	...	...	...	...
Argentina	38.0 b, m	18.4 b, m	3.5 l	4.1	804.6	706.5	53.1	47.9	157.3	138.2	361.2	302.6	55.6	51.6
Aruba	…	…	20.4 n	–	...	...	...	...	...	...	...	...	...	...
Bahamas, The	63.0 b, m	12.1 b, m	1.4 m	...	546.8	700.2	35.6	47.1	84.6	119.1	144.8	207.8	57.1	59.2
Barbados	…	11.8 c, n	2.6 k	–	902.6	683.0	46.8	34.1	179.5	138.1	375.8	258.9	40.3	36.6
Belize	142.8 b, m	28.4 c, n	5.1 m	12.3	...	...	...	...	...	...	...	...	...	...
Bermuda	…	…	…	...	...	...	...	...	...	...	...	...	...	...
Bolivia	390.0 b, j	73.0 b, n	… n	...	1,012.6	1,230.2	...	...	...	...	...	...	...	...
Brazil	44.4 b, l	37.5 b, l	16.2 k	18.4	701.9	921.3	81.7	110.7	93.8	125.1	245.3	334.2	85.4	86.8
Canada	5.5 b, m	5.5 b, m	1.5 k	0.7	698.0	492.9	30.3	20.0	199.4	143.2	275.1	180.4	46.4	39.7
Cayman Islands	19.3 a	9.1 b, n	3.0 n	–	...	...	...	...	...	...	...	...	...	...
Chile	22.3 b, m	10.0 b, m	5.3 j	0.9	542.0	602.2	62.6	69.7	118.3	132.7	163.9	184.4	65.3	68.5
Colombia	78.2 b, j	28.0 b, k	6.5 j	24.8	583.6	779.9	44.1	64.1	82.8	122.6	178.8	276.2	151.3	131.5
Costa Rica	15.6 b, n	12.6 b, n	2.1 k	–	357.7	507.4	23.9	32.6	75.0	112.9	111.2	173.4	41.5	46.9
Cuba	26.5 b, n	7.1 b, n	0.5 l	–	665.9	593.2	46.4	42.9	127.6	114.1	282.7	241.4	79.3	72.3
Dominica	– b, n	14.5 b, n	8.7 n	...	...	...	...	...	...	...	...	...	...	...
Dominican Republic	…	33.2 c, n	15.0 f	48.0	544.9	755.6	...	...	...	...	...	...	...	...
Ecuador	59.6 b, m	29.4 b, m	15.9 k	26.4	614.5	789.9	115.9	144.0	78.3	107.0	141.7	197.6	88.3	85.6
El Salvador	62.6 b, n	35.0 b, n	17.5 i	18.6	629.2	790.1	80.4	106.5	58.0	76.6	141.2	190.2	121.6	125.4
French Guiana	…	…	…	...	...	...	...	...	...	...	...	...	...	...
Grenada	– b, n	19.5 b, n	22.3 n	...	...	...	...	...	...	...	...	...	...	...
Guadeloupe	…	8.8 c, n	…	...	...	...	...	...	...	...	...	...	...	...
Guatemala	100.8 b, n	35.7 b, n	9.6 n	...	604.9	830.4	...	...	...	...	...	...	...	...
Guyana	…	56.6 c, n	2.7 j	...	...	...	...	...	...	...	...	...	...	...
Haiti	457.0 b, g	66.6 c, n	42.6 n	...	1,114.5	1,427.9	...	...	...	...	...	...	...	...
Honduras	147.0 b, m	36.0 b, k	58.9 n	52.1	544.9	758.3	...	...	...	...	...	...	...	...
Jamaica	110.0 b, n	21.6 c, n	5.0 n	...	...	...	...	...	...	...	...	...	...	...
Martinique	…	7.0 c, n	…	...	...	...	...	...	...	...	...	...	...	...
Mexico	47.0 b, m	23.9 b, m	1.7 k	7.2	511.7	702.9	63.5	83.6	57.1	82.9	111.4	168.7	72.7	79.3
Montserrat	…	…	4.4 j	...	...	...	...	...	...	...	...	...	...	...
Netherlands Antilles	…	3.8 c, n	…	...	...	...	...	...	...	...	...	...	...	...
Nicaragua	139.0 b, m	45.2 b, d	4.7 j	47.1	652.8	870.6	148.8	161.9	58.6	93.4	143.5	242.3	88.2	103.7
Panama	60.0 b, m	17.2 b, m	4.5 m	20.0	517.8	649.1	...	...	...	...	...	...	...	...
Paraguay	101.8 b, m	40.0 b, m	19.1 m	43.7	607.0	854.6	86.6	111.6	75.1	107.6	246.3	379.8	53.9	58.4
Peru	265.0 b, l	43.4 c, n	23.9 m	42.0	676.1	867.8	...	...	...	...	...	...	...	...
Puerto Rico	…	11.8 c, n	0.8 h	...	747.1	625.2	52.3	42.3	123.1	101.1	244.6	191.6	69.2	64.2
Saint Kitts & Nevis	…	…	2.2 k	...	...	...	...	...	...	...	...	...	...	...
Saint Lucia	…	…	7.6 k	...	...	...	...	...	...	...	...	...	...	...
Saint Vincent & the Grenadines	– b, n	17.2 b, n	1.6 n	...	...	...	...	...	...	...	...	...	...	...
Suriname	31.9 b, l	16.4 b, l	14.8 h	...	494.7	649.6	62.9	76.1	63.8	88.7	173.1	254.9	55.9	60.1
Trinidad & Tobago	38.9 b, l	16.2 b, l	2.1 j	–	696.9	800.7	42.0	47.4	92.2	106.8	...	318.9	...	55.3
Turks & Caicos Islands	…	…	8.8 k	...	489.0	579.0	46.6	53.0	29.9	50.5	179.6	218.0	56.6	62.2
United States of America	8.4 b, m	7.3 b, m	1.1 l	2.8	851.6	584.8	44.1	28.5	206.2	142.5	363.5	228.5	57.6	50.8
Uruguay	29.3 b, m	17.7 b, n	6.5 m	2.3	1,000.9	724.9	...	...	...	...	...	...	...	...
Venezuela	59.6 b, m	21.4 b, m	1.5 j	2.4	465.2	670.7	57.1	71.6	63.8	103.9	147.8	257.6	70.8	73.6
Virgin Islands (UK)	– b, n	10.8 b, n	2.3 n	...	...	1,072.3	...	62.6	...	213.7	...	430.3	...	91.1
Virgin Islands (US)	…	e, b, m	… m	...	...	...	...	...	...	...	...	...	...	...

(a) 1989-1998 pooled figure (d) 1989-1998 averaged rate (f) 1985 registered figure (i) 1993 registered figure (l) 1996 registered figure
(b) country-estimated or registered rate (e) 26 infant deaths (rates not calculated (g) 1991 registered figure (j) 1994 registered figure (m) 1997 registered figure
(c) UN estimated rate it fewer than 30 events registered) (h) 1992 registered figure (k) 1995 registered figure (n) 1998 registered figure

* lab: latest available biennium - magnitude zero ... data not available
Source: PAHO, Health Situation in the Americas. Basic Indicators 1999. Special Program for Health Analysis, PAHO/SHA/99.01

Health Situation in the Americas: Basic Indicators 1999

For the fifth consecutive year, a cooperative effort has produced the brochure *Basic Indicators*, as part of the PAHO Core Health Data Initiative. This initiative aims to increase the capability of Member States to collect and analyze health information that, while showing who benefits and where the gains in health are to be found, highlights disparities in health that may be inequalities and identifies the results of interventions aimed at their reduction.

Previous versions of this brochure have circulated widely in the Americas and have become a major reference on health indicators for health ministries, universities, research centers, and nongovernmental and international organizations. A growing number of countries is producing and disseminating their brochures of Basic Indicators, with data disaggregated at the subnational level, which is a major contribution to the analysis of their health situation and to public health surveillance.

The 1999 edition contains quantitative information of a set of indicators that is divided into two sections. The first is descriptive, and contains 58 indicators grouped into five categories, namely: demographic; socio-economic; mortality; morbidity; and resources, access, and coverage. The second section is analytical, and shows secular trends for 38 of the indicators, aggregated at the subregional level.

The material presented herein was produced under the technical coordination of the Special Program for Health Analysis (SHA), using the information provided by the national health authorities to the PAHO regional programs and the PAHO/WHO Country Offices, as well as from other international specialized agencies. Selection of the indicators is part of an ongoing consultative process; the term "basic" refers to their essential nature for characterizing the health situation and to their strategic importance for planning collective actions for improving health. The sources of data are in the public domain and have been selected carefully, adhering to the principle of comparability.

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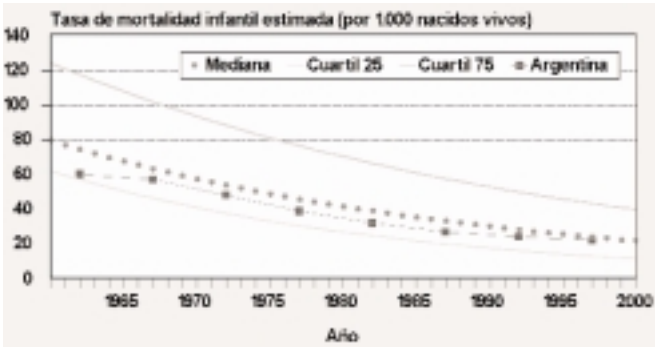
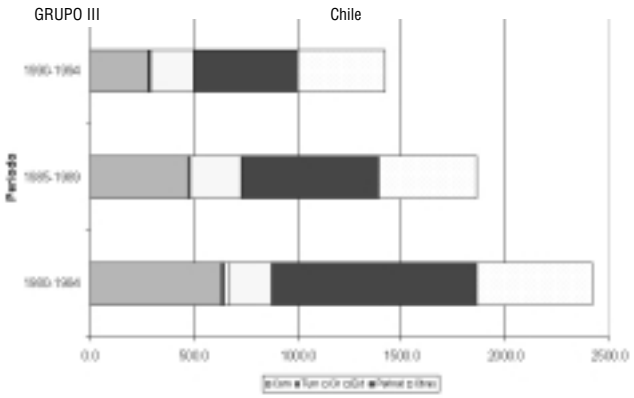
Figure 4: Estimated infant mortality rates
Latin America, Caribbean and Argentina, 1960–2000



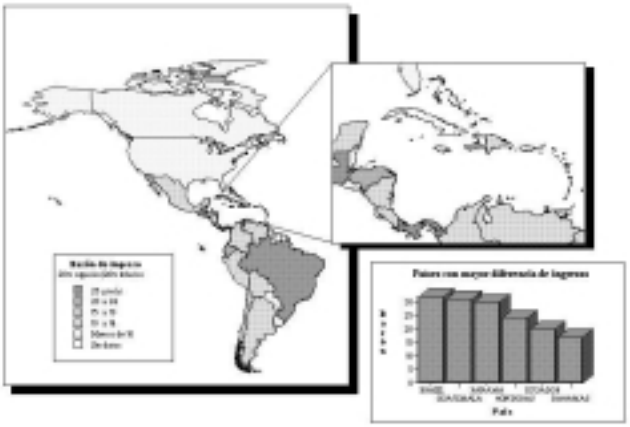
Source: Technical Information System. PAHO / SHA

Figure 5: Mortality in children younger than 1 year, by broad groups of causes, in countries grouped according GNP. 1980–1984, 1985–1989 and 1990–1994



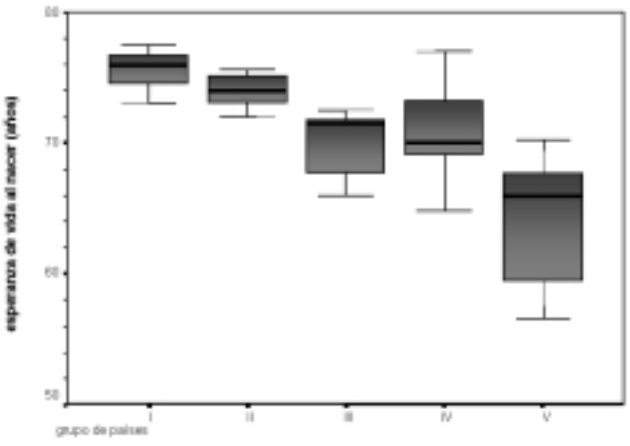
Note: *Rate per 100,000 children under 1 year old.
Source: PAHO. *Health in the Americas. 1998, Vol. 1.*

Figure 6: Highest 20% / lowest 20% income ratio by countries, Region of the Americas, 1993–1996*



Note: *Latest available year
Source: PAHO. *Health Situation and Inequities Atlas. 1997*

Figure 8: Inequalities in life expectancy, Region of the Americas, summary distribution of frequencies, 1994



Source: Basic Indicators 1996. Health Situation in the Americas.