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Ten-year Evaluation of the Regional Core Health Data Initiative

Introduction

The Regional Core Health Data and Country Profile Initiative (RCHDI) was launched by the Director of the Pan American Health Organization (PAHO) in 1995 to monitor the attainment of health goals and compliance with the mandates adopted by the Member States and the Pan American Sanitary Bureau (PAHO). In addition, it will ensure a basic set of data that would make it possible to characterize and monitor the health situation in the Region of the Americas.[1] In 1997, the XL Directing Council of the Pan American Health Organization adopted Resolution CD40.R10 [2] on the Collection and Use of Core Health Data to evaluate the health status of the population and health trends, providing an empirical basis for identifying the population groups with greater health needs, stratifying epidemiological risk, determining critical areas, and examining the response of the health services to provide input for policy-making and setting priorities in this field. This resolution, after the diverse resolutions issued on the subject by the Governing Bodies that have formed part of PAHO's institutional memory since 1911, is the mandate for institutionalizing the RCHDI.[3]

Background

Since the period 1994-1995, in response to decentralization and the new functions and responsibilities assigned to the different levels of the health services, PAHO has recognized the importance of having data and indicators on the health situation to orient its technical cooperation programs,[4] and it has widely promoted the development of core data as a comprehensive set of basic health indicators to quantitatively characterize the situation of a country or region. It was anticipated that once established, this process would reduce the number of requests to the Member States for health information and facilitate monitoring and differential analysis of the health situation. At the same time, the technical programs at Headquarters and the PAHO Representative Offices in the countries were given responsibility for the selection, collection, organization, maintenance, and use of the data and information, putting coordination in the hands of the Program on Health Situation Analysis (HDA), currently the Health Analysis and Information Systems Area (DD/AIS).

In 1996, several meetings were held to discuss the definition, collection process, and categories for the core data, their use in the preparation of country profiles, and the methodologies for health situation analysis. An Interprogrammatic Consultative Group on Core Data and Health Analysis was formed to implement the regional plan of action and stipulate the content, definitions, and sources of the indicators. The Group also set up mechanisms for collecting and validating the data and for studying and monitoring the implementation of the process in general. Visits were also made to all the PAHO countries, Representative Offices to consult with and inform them about the Regional Initiative.[5]

In 1997, given the political support required, the Executive Committee and the Directing Council of PAHO respectively adopted Resolutions CE120.R7 and CD40.R10 on the Collection and Use of Core Health Data and recognized the regional effort to consolidate an automated technical information system on health that would facilitate speedy access, expanded and basic information on the health situation of the countries of the Region. They also recommended that the indicators be used in the formulation, modification, and evaluation of health policies and programs.

Since that time, it has been recognized that the RCHDI has the following goals:[2]

a) to orient strategic policy management;

b) to facilitate the setting of priorities for action in the health sector;

c) to improve the evaluation and adaptation of technical cooperation in each of the countries and programs, redefining priorities, strategies for action, and resource allocation;

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d) to assist the countries in devising investment strategies or special programs for health policy or health services development, as well as the prevention and control of specific health problems;
e) to facilitate the mobilization of financial resources;
f) to orient research priorities;
g) to periodically distribute reports on health trends in each country and the Region as a whole, using the analytical frameworks stipulated in their mandates, such as Health for All and the Renewal of Health for All.

It should be noted that since its revival in 2000, the Regional Advisory Committee on Health Statistics of PAHO (CRAES in Spanish) has backed efforts to improve the quality, criteria for validity, and consistency of core data through specific recommendations.

Results of the Regional Core Health Data Initiative (RCHDI)

The goal of the RCHDI is to increase the capacity of PAHO and the countries to generate the knowledge that will make it possible to describe and explain the health situation and health status of the population of the Americas and to select health interventions that are both equitable and effective.[2] The combined efforts of the Member States and the Secretariat to implement the RCHDI over the past 10 years have been satisfactory in terms of meeting the goal; however, this joint effort must be renewed to expand and institutionalize the initiative at the local level.

The following are application examples of the RCHDI in several categories and situations.

Strategic Management and Planning

The RCHDI has shown that it is possible to create a database of essential, standardized, valid, consistent, regular, and timely information, which is critical for health situation and trend analysis required in the management and strategic planning in PAHO. The basic indicators have also been used at the country level in the ministries of health to develop national health plans and intersectoral policies.

The use of these indicators by national authorities and other entities has raised awareness about the need for valid, consistent information for decision-making. It has also led to a critical review of the processes involved in the production, collection, integration, and dissemination of health information in both the Member States and the Secretariat. This awareness is also reflected in recognition of the need to upgrade systematic national information systems and interconnect and coordinate them to ensure a better response to information needs. In this regard, with respect to indicators and information, Brazil's experience with its Interagency Health Information Network (RIPSA)[6] based on the RCHDI model, is one of the most successful institutionalized examples of consensus, standardization, collection, coordination, and availability for different types of users, accessible on the Internet. RIPSA brings together national institutions with responsibilities in the production and analysis of health data. This effort has earned the recognition of Brazil's Ministry of Health, which is allocating the additional resources necessary for the coordination, production, and dissemination process. Canada is another successful example of concerted action in the definition, measurement, and use of health indicators in setting priorities and gearing health system plans and programs to respond to needs and decisions in health. To this end, it has made public health the frame of reference for selecting the work areas and series of indicators for collecting information and monitoring. The collection, standardization, analysis, and dissemination of information are coordinated by the Canadian Institute for Health Information (CIHI) and serve as a complement to the activities of Health Canada and Statistics Canada.[7]

Another strategic aspect of the RCHDI has been its use in monitoring compliance with mandates and commitments and the progress of regional and global health initiatives. One of the most important global initiatives is the Millennium Development Goals (MDGs).[8] The MDGs were adopted by 189 member states of the United Nations in 2000 and are to be met by 2015 in each of the seven designated areas, which include health. In this regard, it should be pointed out that in the RCHDI are 20 MDGs indicators related to health. Other important examples of the applications use of these indicators have been the monitoring and evaluation of the *Health for All by the Year 2000* strategy and the monitoring of the goals set at the *1990 World Summit for Children*.

Technical Cooperation

One of the basic values of PAHO is equity in health. The first step in the search for equity is to measure and monitor inequalities in health. The RCHDI has made it possible to measure the health situation and the changes in health status through a standardized database. The availability of basic indicators disaggregated at the subnational level since 1999 has made it possible to introduce a change of paradigm in data analysis consisting of the exclusive use of national averages in the distributions, making it possible to show health inequalities and their territorial distribution patterns. The dissemination of specific methodologies for documenting inequalities, identifying health needs, and setting priorities through the reports mentioned above has made it possible to boost national analytical capacity, promoting similar efforts within the countries.

PAHO has decided to intensify its activities, focusing them on the countries, especially those with greater technical cooperation needs. In setting priorities, the core health data and country profiles have been essential for identifying key and priority countries and areas for cooperation. For example, the current priority countries for PAHO cooperation—Bolivia, Guyana, Haiti, Honduras, and Nicaragua—are in the group with the greatest health problems and the least resources to address them.[9]

The impact of the RCHDI has spread far beyond the WHO Regional Office for the Americas (PAHO). Several WHO

Regions have requested technical assistance to develop their own core data initiatives. For example, since 1999, the WHO Regional Office for Southeast Asia (SEARO) publishes a Brochure of basic indicators based on the PAHO model. PAHO transferred and adapted the RCHDI table generator to SEARO. Similarly, since 1999 the WHO Regional Office for the Eastern Mediterranean (EMRO) publishes its Brochure of basic indicators, based on the same PAHO model.

Considering the model and experience of PAHO, the WHO Headquarters, through its Department of Measurement and Health Information Systems (EIP/MHI), and in a joint effort with all its regions, is working on a framework of basic health indicators for short-term implant at the global level.

Mobilization and Use of Resources

In the targeting of investment resources, the donor agencies have used the basic indicators and country profiles to identify the areas with the greatest need and priority countries. In many cases, the monitoring of improvements in the basic indicators is used to evaluate the success of programs set up with donor funds. The use of basic indicators, instead of employing an exhaustive approach, allows for better utilization of resources. Since the standardized data and basic indicators are collected annually, this has cut down on the waste of resources, duplication of efforts, and requests to the countries for information.

Results of the RCHDI in the Countries

Between December 2003 and January 2004, with assistance from the PAHO Representative Offices, the technical area DD/AIS conducted a special survey to evaluate the impact of the RCHDI in the Region of the Americas. Information was obtained from 37 countries, including the French departments.

The results of the survey indicate the following:

- With respect to adoption of the RCHDI, 30 countries have a National Core Data Initiative, with national groups actively participating in its construction and updating.
- Sixteen countries mentioned that they currently use or have used the RCHDI for measuring inequalities; 21 use them for measuring needs and setting priorities; and 12 for program evaluation, which indicates the wide range of its impact.
- With respect to coherence between RCHDI monitoring efforts and those of other initiatives, 17 countries cite coordination with the MDG.
- Following the regional example, 24 countries indicate that they update and periodically distribute a Brochure/folder or other printed material with basic indicators, or else use electronic distribution methods (CD-ROM, Web-based information systems, tables in websites, etc.). Between 1995 and 2002, the number of countries with some related product tripled.
- In 25 countries, 90% of the indicator definitions in the last publication of national core data are consistent with the RCHDI glossary, reflecting the impact of the RCHDI and the consensus around it.
- Among the most significant problems mentioned in terms of implementing and maintaining the RCHDI were lack of human resources, limited access to information or data, and an absence of political backing and financing.

Among the countries' most frequent recommendations for strengthening activities in connection with the RCHDI were improving the flow of information between the countries and PAHO Headquarters and greater promotion and dissemination of information about this initiative in the ministries of health. They also pointed out that DD/AIS can help consolidate the national RCHDI.

Specific Products of the RCHDI

Regional Brochure "Health Situation in the Americas: Basic Indicators"

In 1994, work began to prepare and assist the Member States and PAHO Representative Offices in the production of the first regional brochure of basic indicators, published in 1995. The brochure has been published every year since 1995, without exception. The 2003 version contains 58 indicators (10 demographic, 8 socioeconomic, 15 on mortality, 12 on morbidity, and 13 on resources, access, and coverage). In 1995, more than 70% of the countries had indicators in each category, except mortality, where only 20 out of the 48 countries had them. In 2003, in contrast, this information was available for 40 countries. Between 1995 and 2003, the number of basic indicators in the regional Brochures increased from 7 to 12 in the morbidity category, while the number of subregional indicators increased from 33 to 51. The 2003 version contained population pyramids for the subregions and a theme map showing the unequal distribution of infant mortality at the subnational level in countries of the Americas that have national core data initiatives; this was the first time that these were included. The 2004 version included graphs with trends in some MDGs and a thematic map for cases of rubella reported in 2002 at the first subnational level.

Health Information System: Database and Data Collection Process

The content of the RCHDI database was defined after extensive consultations between the Member States and the PAHO technical units and Representative Offices and discussions with groups of national experts. A total of 117 national indicators were selected, broken down into five categories[2]: demographic (10), socioeconomic (10), mortality (31), morbidity and risk factors (30), and resources, access, and health services coverage (36). Some

of the indicators are disaggregated by age, sex, and urban-rural distribution, for a total of 401 items of data for each of the 48 countries and territories of the Region. Users tap into the RCHDI database through a table generator developed by DD/AIS, which can be accessed electronically on the Web.[10]

In terms of completeness, there is significant variation in the database with respect to the number of indicators available by country and year. A study in early 2004 indicates that the database has barely 49% of them. It has been more difficult to obtain indicators in some categories, especially because national information systems are either not operating in a relevant and timely manner or are not available. This is true mainly for the morbidity, health services, and mortality indicators. At the country level, the median coverage of indicators is 49%, with a range of 12% to 90%. At the regional and subregional level, the average availability of indicators for the period 1995-2004 is 47.6% (105, 806 values available) Table 1. This shows that, notwithstanding the commitment assumed by the countries, there still is room for improvement.

Glossary and Technical Notes for Indicators

In 1995, work began on the compilation of a glossary and technical notes for indicators. In 2003, after several revisions, standard definitions were developed, with a glossary for all the indicators that includes a description of the indicator, technical notes, the type and unit of measurement, categories, and subcategories. The definitions are complemented with additional technical notes on the interpretation, use, and calculation of the indicators. The glossary and technical notes are also available on the PAHO website.[11]

It should be mentioned that among the countries of the Region, Brazil has made real progress in this direction, publishing Indicatores Básicos de Saúde no Brasil: Conceitos e Aplicações[12] (Basic Health Indicators in Brazil, Concepts and Applications), a manual on the use of the indicators that includes technical notes for each of them. Canada's CIHI has done something similar with the indicators contained in its reports.[7]

Atlas of Basic Indicators

In 1996, the first Atlas of Health in the Americas, based on data from the Basic Indicators Brochure of 1995, was produced and put up on the web. The Atlas was conceived to document the territorial distribution of heath inequalities in the countries through 55 maps, accompanied by graphics showing the countries in the most difficult situation. In 2003, a new, more dynamic version of the Atlas was developed

Table 1: Availability of values for the RCHDI indicators, disaggregated by subregion for the period 1995-2004. Percentages of availability in terms of the expected value of 100%

Subregion	Number countries	All indicators (363) (no. for the period =3,630)			Demographic (38) (n=380)	Socioeconomic (18) (n=180)	Mortality (235) (n=2,350)	Morbidity (38) (n=380)	Resources, access, and coverage (34) (n=340)
		%	*Available*	*Total*	%	%	%	%	%
North America	3	60.8	5,956	9,801	100.0	38.3	55.1	30.1	28.4
Latin America	22	55.6	39,965	71,874	100.0	64.2	44.4	37.9	39.4
Central American Isthmus	7	56.8	12,981	22,869	100.0	66.5	45.5	39.5	39.6
Latin Caribbean	4	56.3	7,357	13,068	100.0	51.0	48.0	32.5	34.2
Andean Region	5	48.8	7,976	16,335	89.7	56.6	25.8	37.0	38.1
Southern Cone	4	59.3	7,750	13,068	100.0	66.8	49.5	36.3	39.9
Non-Latin Caribbean	23	31.7	23,821	75,141	91.3	24.5	18.6	24.2	23.8
Americas	**48**	**47.6**	**105,806**	**222,156**	**95.8**	**43.6**	**32.7**	**30.9**	**31.3**

The subregions are defined as follows:
- **North America:** Bermuda, Canada, and the United States of America
- **Latin America:** the Andean Region, Brazil, the Central American Isthmus, the Latin Caribbean, Mexico, and the Southern Cone.
- **Central American Isthmus:** Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama.
- **Latin Caribbean:** Cuba, Dominican Republic, Haiti, and Puerto Rico.
- **Andean Region:** Bolivia, Colombia, Ecuador, Peru, and Venezuela.
- **Southern Cone:** Argentina, Chile, Paraguay, and Uruguay.
- **Non-Latin Caribbean:** Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Cayman Islands, Turks and Caicos Islands, Virgin Islands (UK),Virgin Islands (USA), Dominica, French Guiana, Grenada, Guadeloupe, Guyana, Jamaica, Martinique, Montserrat, Netherlands Antilles, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago.

with data from Basic Indicators 2002. Some indicators have maps with graphic overlays to show trends, the distribution in population groups, or a related indicator. The Atlas has direct links to the data and health profiles of each country.

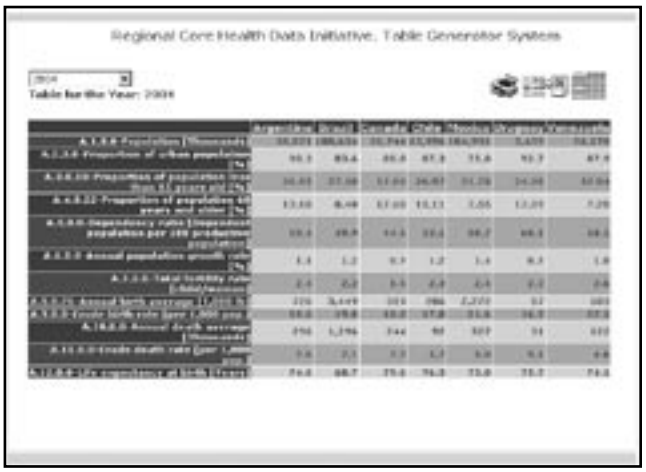
Country Health Profiles

In 1999, taking advantage of the release of Health in the Americas, 1998 Edition, summaries from this report, based on the country chapters, were published on the Internet. These were accompanied by a selection of indicators from the core data system. Although they had a somewhat uniform structure, comments from different types of users indicated the need to summarize them even further to facilitate their use. Even though the indicators were updated annually in subsequent years, the summaries were not. In 2003, the profiles were updated and made more uniform and compact. These more selective summaries highlight the health inequalities in the countries. In addition to the indicators mentioned, this version includes standard graphics for selected indicators. The profiles illustrate the health situation and trends in particular. However, they do not describe special situations that need to be described at particular times.

Web-based RCHDI Information Systems

When the RCHDI was created, the need for developing an information system to support it became clear. Providing interactive access to the data over the Web was made a priority, enabling users to obtain necessary information.

From 1996 to 1997, with support from the regional health library (BIREME), PAHO HDA program set up a Web-based system to facilitate access to the indicators for the latest available year. From 1998 to 1999, HDA developed a Web-based table generator that works with three dimensions of the indicators (indicator, country, and year), which can be manipulated to produce tables for analyzing the trend of an indicator or the overall situation of a country, or for comparing the indicators of several countries in a single year. This system was launched by the Special Program for Health Analysis (SHA, previously HDA) in 1999 with data from 1990 to 1999 and included the glossary and country health profiles.[13] From 2000 to 2002, new components were developed to facilitate the interpolation of data and the adjustment of rates, as well as the preparation of reports. In 2003, the user interface was redesigned to make it consistent with the PAHO corporate identity and facilitate use. During this time an instrument was developed to directly generate the Excel grid for the Basic Indicators Brochure from the database.



Specific Products of the RCHDI in the Countries

Brochures and National and Subregional Information Systems

In 1995, only five of the 48 countries—Bolivia, Costa Rica, Guatemala, Honduras, and Mexico—published a brochure with national core data. Eight years later, 24 countries have published at least one brochure of basic indicators. The countries/territories that have published such brochures are: Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, United States of America, Uruguay, and Venezuela. It should be pointed out that 10 of these countries have been publishing brochures of basic indicators for over four years.

In 2002, the *Folleto de indicadores básicos de salud de Centroamérica y la República Dominicana 2002* (Brochure of Basic Health Indicators for Central America and the Dominican Republic, 2002) was published, constituting the first example at the subregional level, with subnational information for 34 indicators. This brochure is the product of the joint efforts of the Central American countries under the Project of Communication and Information of Health (INFOCOM), and it was published after several consultations and subregional workshops with the national authorities.

In 2003, the Brochure Basic Indicators 2003; Health Situation on the U.S.-Mexico Border was published. This contains a set of basic indicators for the sister communities of the U.S.-Mexico border that was born of the efforts of the PAHO Field Office for the U.S.-Mexico border and the Governments of Mexico and the United States at different levels. It presents information comparing data from the national level with data from the border states and the 29 sister *municipalities* along the border.

At least 15 countries have developed information systems or have core data information published on the Internet. Significant among these efforts is the work of Brazil, which has an Internet-accessible system developed by Departamento de Informática do SUS (DATASUS) that includes a time series of several years for subnational indicators in different categories.[14]

Outlook and Challenges

The RCHDI is a process that provides valid information for health sector planning and evaluation. This process should be consolidated and expanded to the subnational level in every country in the Region of the Americas. It is the only comprehensive, integrated health information initiative that covers the entire population in the health sector of the Americas. PAHO's experience with the RCHDI in the Secretariat and the countries has been fundamental for guaranteeing current support and the improvement of the process as a whole in the immediate future and the medium-term.

At the country level, it is recommended that more human resources be allocated to this activity, promoting access to information and its analysis and dissemination, and providing greater political and financial support for the RCHDI. At the same time, efforts should be made to boost national technical capacity in the areas of measurement, information use, and health situation analysis.

It is recommended that additional efforts be encouraged and undertaken to collect data and information disaggregated to the country level, in general, as well as information on gender and especially vulnerable groups (e.g., indigenous populations, ethnic groups, the elderly) in particular. This will facilitate better monitoring of compliance with regional and global mandates (especially the MDGs), analysis of inequalities in health, and the targeting of selective health interventions to the most disadvantaged groups.

It is suggested that support be provided for developing and upgrading the countries' health information systems, and that information flows between the countries and PAHO be improved by promoting and disseminating information to the ministries of health and other sectors connected with health. It is also recommended that the countries use their routine information and records systems for decision-making in health, considering the use of surveys as a complement. At PAHO Headquarters, it is proposed that DD/AIS continue supporting the RCHDI to help consolidate and sustain the initiative in the future.

In order to make progress in developing and undertaking national data collection processes, it is recommended that the countries put mechanisms and instruments in place to foster greater consensus and participation on the part of the institutions responsible for producing and collecting data, indicators, and information in health, with a view to facilitating the validation, harmonization, and dissemination of national core data. The suggested mechanisms include the creation of a General Coordinating Committee for political and administrative matters; an Interagency Task Force for technical coordination; interdisciplinary technical committees for methodological and operational analysis; committees for the production and coordination of indicators; and a Technical Secretariat for determining processes, proposals, and monitoring. Other suggested mechanisms include a Matrix of Indicators and Technical Notes; operational planning of products; a database of common indicators; and interoperational information systems.

Finally, better coordination with government institutions, such as national statistics offices and institutes and civil society organizations, international banks, international organizations, and networks like the Health Metrics Network, is recommended to strengthen international public health on the basis of results, ensuring equity, quality, and effectiveness.

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Source: Summary document prepared for 45º Directing Council (CD45/14) by Enrique Loyola, Jaume Canela, Manuel Vidaurre, Gabriela Fernández, Andrea Gerger and Carlos Castillo Salgado Health Analysis and Information System Area of OPS (DD/AIS).

Peru

General situation and trends

Peru is divided into 25 departments, 193 provinces and 1,828 districts. In 2000, the country had an estimated population of 25,661,690 (an average density of 20.0 population/km2). Up until 1997, the abatement of violence in the country, fiscal austerity with restructured public spending, a deregulated market, and incentives for private investment stimulated the national economy. Starting in 1998, economic activity was severely contracted due to delays in implementing State reforms for public administration, State modernization and consolidation of the democratic system; flight of capital in connection with international financial crises; effects of the El Niño weather phenomenon; falling export prices; and the political crisis that ended in removal of the elected president in 2000 and installation of the Constitutional Transition Government in July 2001.

The average annual population growth rate has declined from 2.8% in 1961-1972 to 1.7% in 2000. The global fertility rate declined from 3.4 children/woman in 1993 to 2.9 in 2000 (2.3 urban and 4.6 rural; 5.1 for women without schooling). In 2000, 72% of the population was urban; 33.4% were under 15 years and 7.2% 60 years and over (Figure 1).

The real GDP per capita was US$ 2,180 in 2000 (Figure 2). That year, 10.2 % of the economically active population (11.9 million) was unemployed and 50.8% were underemployed. From 1993 to 2000, the per capita social spending increased from US$ 91.30 (3.9% of the GDP) to US$ 180.20 (7.9%). In addition, extreme poverty decreased from 26.8% of the population in 1991 to 14.8% in 2000, while the poor population fluctuated from 57.4% in 1991 to 50.7% in 1997 and to 54.1% in 2000. Between 1997 and 2000, the income distributive inequality, expressed by the ratio of the richest quintile to that of the poorest quintile, increased from 4.9 to 7.8.

Literacy in the population aged 15 and over increased from 90.9% in 1994 to 92.8% in 2000, and the greatest improvement was among women living in rural areas, whose rate increased from 69% to 77%. Even so, the overall literacy rate for women, at 89.2% in 2000, remained lower than the rate for men, which was 96.7%. That same year, the average years of schooling completed by the population over 15 was 8.5 years.

There has been a steady drop in the crude death rate, from 21.6 to 6.5 per 1,000 population between the 1950-1955 and 1995-2000 periods, while life expectancy at birth increased from 43.9 to 68.3 years in the same period. Nevertheless, living conditions reflect the persistence of inequalities: the risk of dying was three times higher in Huancavelica (13.0 per 1,000) than in El Callao (3.6 per 1,000). Worse yet was the 21-year difference in life expectancy at birth, which was 56.8 years in Huancavelica and 78.0 years in El Callao. It is estimated that nearly 50% of the deaths in Peru go unregistered. The adjusted estimated communicable disease mortality dropped from 247.5 to 146.4 per 100,000 population between 1987 and 1997. Mortality from cardiovascular diseases and from perinatal conditions decreased to a lesser extent; in contrast, mortality from external causes and neoplasms increased (Figure 3).

Specific health problems

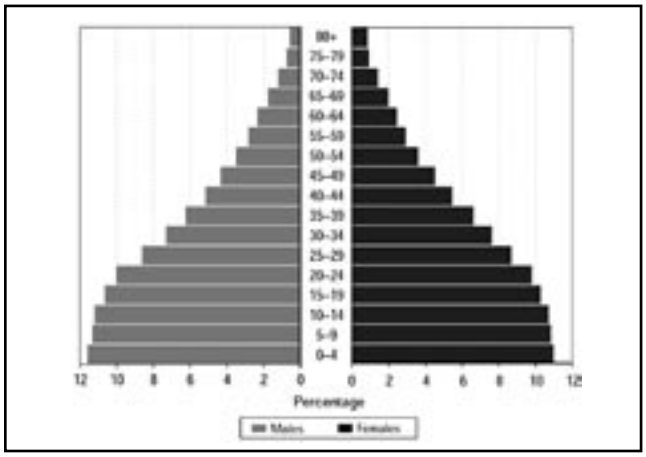
Analysis by population groups

Health of children (0-4 years): The infant mortality rate fell from 88.2 per 1,000 live births in 1987 to 45.0 per 1,000 during the period 1995-2000. In 1998, diseases preventable by immunization, acute respiratory infections, intestinal diseases, meningitis, septicemia, malaria, and nutritional deficiencies all targeted by the Integrated Management of Childhood Illness (IMCI) strategy, caused 42% of all deaths in children less than 5 years-old (2.9 million). The risk of dying from acute diarrheal disease, septicemia and malnutrition was 8-10 times higher among children living in the highest poverty stratum.

Health of adolescents (10-19 years): Fertility among women aged 15-19 years of age decreased by 16 % between 1986-2000; in 2000, 15% of them were already mothers or were bearing a child for the first time.

Health of adults (20-59 years): External causes among males and cancer of the uteri and breast among females were the main causes of death in the 20-59 year-olds. Between 1996 and 2000, the use of modern contraceptive methods among childbearing-aged women increased from 41.3% to 50.3%. Coverage of partum by trained professionals was 59.3% in 2000 (28.7% rural). Maternal mortality was estimated to be 185 deaths per 100,000 live births.

Figure 1. Population structure, by age and sex, Peru, 2000.



Analysis by type of health problem

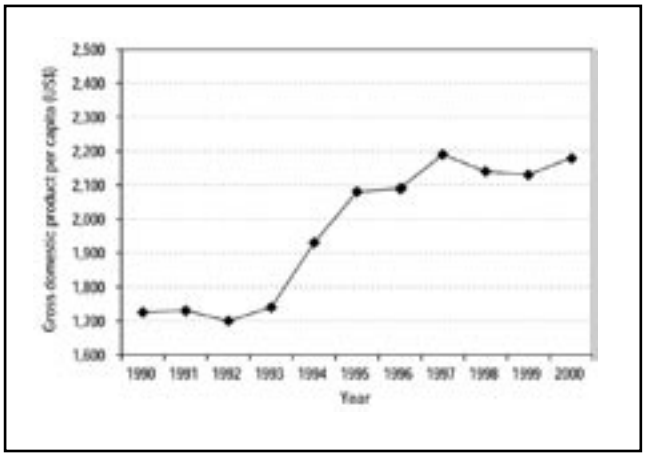
Diseases preventable by immunization: In 2000, 102 cases of acute flaccid paralysis (1.2 per 100,000 population under 15 years) were reported. Since the epidemic in 1992, there have been no reported deaths from measles; of the 5,256 suspected cases of measles-rubella reported through the integrated surveillance system in 2000, only one measles case was confirmed. That year 10 cases of neonatal tetanus were reported, compared with 94 cases in 1995. Also, 41 suspected cases of jungle yellow fever (7 confirmed; 4 fatal) and 1,148 confirmed cases of hepatitis B were reported in 2000. Since 1990, vaccination coverage under the Expanded Program on Immunization (EPI) has maintained levels of over 90%.

Intestinal infectious diseases: In 2000, the prevalence of diarrhea in children under 5 years was 15.4%, compared with 17.9% in 1992 and 31.9% in 1986. In 2000, 68% of children with diarrhea received oral rehydration therapy. Cholera continued declining steadily from 42,000 suspected cases during the El Niño phenomenon (case fatality 0.09%) to 934 in 2000.

HIV/AIDS: Up to 2000, the country had a cumulative total of 11,310 reported cases of AIDS (1,189 in 1996); the male-female ratio declined from 11:1 in 1990 to 3:1 in 2000. In the historical series, sexual transmission accounted for 95.7% of the cases, 70% among young adults (20-39 years). In 1999 the number of HIV carriers was estimated at 76,000 (18,000 women). HIV seroprevalence in sexual workers increased from 1% in 1994 to 2% in 2000; among homosexual males the seroprevalence rate was 11% in 2000, while in pregnant women the rate was 0.3% in 1999.

Sexually transmitted infections: In 2000, 629 cases of congenital syphilis were reported in the country; 266 in 1999. The seroprevalence of syphilis was 1.0% in the blood banks of the Ministry of Health in 2000.

Figure 2. Gross domestic product per capita, Peru, 1990-2000



Vector-borne diseases: It is estimated that 2.5 million inhabitants live in areas at risk for malaria transmission; in the year 2000 the annual parasite index was 2.7 per 1000 population (10.0 in 1998). The proportion of *P. falciparum* cases increased from 19.7% in 1995 to 30.2% in 2000 (41.6% in 1999). The population in areas of dengue transmission risk is estimated at 3.4 million. In 2000, all four serotypes of the dengue virus were isolated and the cumulative incidence was 21.7 cases per 100,000 population. In the first 26 weeks of 2001 a total of 23,454 cases of dengue were reported, including the country's first cases of hemorrhagic dengue (206 cases; 3 deaths). A total population of 600,000 is estimated to live in areas of Chagas disease transmission. In 1999, the screening of donated blood yielded a rate of 0.8% positive results. In 2000, a total of 9,588 cutaneous and 863 mucocutaneous cases of leishmaniasis were reported.

Chronic communicable diseases: Tuberculosis has been on the decline since 1992 to an incidence of 155 per 100,000 population in 2000 (133 pulmonary; 88 with positive bacilloscopy). The proportion of tuberculosis cases with HIV coinfection was 1.3%, or a rate of 2.2 per 100,000 population. The annual risk for tuberculosis infection in children aged 5-6 years old fell from 2.0%-2.5% at the beginning of the 1990s to 0.9% in 1997-1998. Primary resistance to at least one of the antituberculosis drugs occurred in 17.8% of the cases reported, while primary resistance to the multidrug scheme was 3.0 % (acquired: 13.5 and 12.3%, respectively) in 1999. Also in 1999, there were 180 prevalent and 7 new leprosy cases under treatment. All were in persons over 15 years of age, had grade-2 disability and were reported in the jungle region.

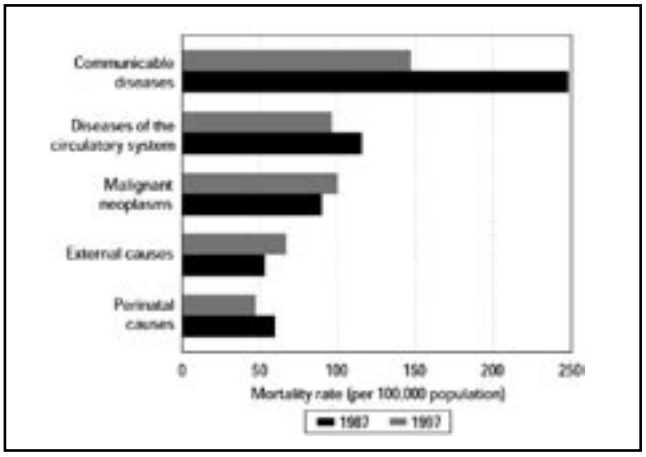
Zoonoses: Eight cases of canine-transmitted human rabies and 302 cases of rabies in dogs were reported in 1997; in 2000, the figures were 2 and 54, attributed to broader canine vaccination coverage, from 51.4% in 1996 to 73.9 % in 2000. Laboratory-confirmed cases of plague fell from 55 in 1997 to 17 in 2000, an improvement credited to the use of metal silos in the endemic zones. The incidence of human brucellosis decreased from 2,525 cases in 1996 to 1,085 in 2000.

Nutritional and metabolic diseases: The prevalence of anemia among children under 5 years was 50% in 2000 (57% in 1996); among women 15-49 years it was 30% (34% in 1996). The prevalence of vitamin A deficiency among children under 5 years was 50% in 1996-1997 and that of low serum retinol 20%. Iodine deficiency has been brought under control; urinary iodine excretion levels remained above 100 mg/L during 1997-2000.

Diseases of the circulatory system: Between 1986 and 1997 the mortality rate for diseases of the circulatory system fell from 132.7 to 104.9 per 100,000 population. In 1998-1999, the prevalence of hypercholesterolemia was 30.2% in men and 24.2% in women, and for arterial hypertension 17.5% and 9.2%, respectively.

Malignant Neoplasms: Mortality from malignant neoplasms did not change significantly between 1987 and 1997, but the proportion of deaths from cancer increased from 9.0% to 14.2%, and the potential years of life lost from tumors increased 33.4%, indicating more premature death. In the mortality profile for women the leading sites of malignant tumors are the uterus, stomach, and other digestive organs, while in men the primary sites are the stomach, lung, and prostate.

Figure 3. Estimated mortality, by broad groups of causes and sex, Peru, 1987 and 1997.



Accidents and violence: Subversive violence has declined considerably, from 2,779 acts in 1990 to 144 in 1999, and the number of victims from 1,477 to 55. There was an increase in motor vehicle transport accidents from 52,633 in 1990 to 79,695 in 1999. The rate of physical assaults was 2.5%; after food pension disputes, family violence and abuse was the second leading reason for consultation at the Municipal Children and Adolescent Defense Leagues in Metropolitan Lima.

Oral health: The prevalence of dental caries was 84% and the DMFT index 5.6 for children 12 years of age in 2000; the prevalence of periodontal disease was 85% and that of malocclusion 70%.

Natural disasters: Between 1993 and 1997, a total of 1,478 natural disasters occurred, with 1,667 deaths, 872,750 people affected, 38,360 houses affected and 131, 855 destroyed, 254,000 agriculture hectares damaged and US$ 100.4 million of direct economic loss.

Response of the health system

National Health Policies and Plans

The Ministry of Health (MINSA) actions were guided by the 1995-2000 Health Policy Guidelines, which defined the bases for the sector's reform process. The 5 directing principles were: universal access to public health services and individual care; modernization of the sector; re-structuring functions of financing, provision and regulation; prevention and control of priority health problems; and, promotion of healthy living conditions and life styles.

Sectoral reform

The Basic Health Program for All promoted the offer of basic health care packages for children, adolescents, women of childbearing age, and adult population, defined by MINSA since 1994. The project for Health Services Strengthening was aimed at shoring up infrastructure and delivery related operational systems in its own services. Since 1997 the School Health Insurance program was implemented, and in 1998 a pilot program for Maternal and Child Health Insurance was initiated to cover mothers during pregnancy, delivery, and the puerperium, as well as children up to the age of 2 years. Participative processes based on the model of local health administration committees (CLASs), in which health facilities are administered jointly by Ministry of Health authorities and members of the community, are in place in nearly 20% of the Ministry's health centers and health posts. An emphasis was made on decentralization of basic health care and recovery of the resolutive capacity of the primary level, in particular in areas of higher poverty. In 1997, 62 % of the health public subsidy went to health centers and posts. The distribution of this expenditure by income quintiles followed a progressive pattern at the primary care level. The institutional coverage of care to individuals with symptoms of disease or accident increased from 32.2% in 1994 to 43.5% in 1997 and 49.3% in 2000.

Institutional organization

The public subsector is comprise by MINSA, the Social Security system (EsSalud), and the health services of the armed forces and police. Altogether, it has 51% of the country's hospitals, 69% of the health centers, and 99% of the health posts. There are several subsystems with limited functional coordination. Social security coverage was reduced from 40.7% of the economically active population in 1987 to 23.4 % in 1995. In 2000, 32% of the population suffering from a disease, other health condition, or accident had no access to any subsystem. In 1997, the public monopoly for provision of health care to those covered by EsSalud was modified, allowing the enrollment in private provider institutions (Entidades Prestadoras de Servicios de Salud) for low complexity health care needs.

Developments in health legislation

MINSA is the regulatory entity in the health sector; the Ministry of the Presidency regulates sanitation services.

Health care of populations

The country is carrying out the following priority strategies: "Stop Tuberculosis," using DOTS (directly observed treatment, short course) and DOTS-Plus; eradication of polio and measles; elimination of neonatal tetanus; Integrated Management of Childhood Illness (IMCI); "Roll Back Malaria"; elimination of leprosy; elimination of *Triatoma infestans* from household environments and interruption of the transfusion transmission of Chagas disease; elimination of urban canine rabies; surveillance of antimicrobial resistance; safe blood supply; and surveillance, prevention, and control of other emerging and re-emerging diseases. The national epidemiological surveillance system includes 3,500 notification units. The public health laboratory network consists of 16 regional laboratories with diagnostic capability for priority diseases; the National Institute of Health (INS) is the national reference center. Information on morbidity from outpatient care and hospitalizations is processed in each facility and centralized periodically. MINSA is responsible for processing mortality information. There is a limited development of health situation analysis capability functions at the local level. In 2000, the coverage of homes with water supply and sanitation was 88.6% (78.1% rural) and 80.8% (53.0 % rural), respectively. Food assistance programs benefited 11 million people (investment of US$ 260 million; 90% from the public treasury). In 2000, 2.33 million households (46.6%; 72.7% in the poorest decile) received food assistance.

Individual health care services

The institutions in the public sector organize their services by levels of complexity. Adequate referral mechanisms between the different levels of complexity are lacking, health facilities do not share resources, nor are they organized into networks, and the allocation of resources at the different levels of complexity is unbalanced. In 2000 there were 144 collection centers and 100 blood processing centers registered, which together received 332,800 units of blood (1.7% from paid donors); 100% was screened. In 2000 the country had 1.2 hospital beds per 1,000 population.

Health supplies

In 1999 the pharmaceutical market had a total of 11,241 drugs on the official register (65% imported; 5.6 % generic).

Human resources

Between 1992 and 1996 the supply of professionals increased in all categories: the rate of physicians per 10,000 population rose from 7.6 to 10.3; professional nurses, from 5.2 to 6.7; dentists, from 0.7 to 1.1; and obstetricians, from 1.1 to 2.1, with a persistent centralist and inequitable distribution. In 1999 the Ministry of Health employed 11,157 physicians (7,557 in 1992), and EsSalud 5,237 (3,476 in 1992). In 2000 there were 27 schools of medicine (14 in 1990) and 43 schools of nursing; there were also 21 Master-level Public Health programs with 11 major areas.

Health sector expenditure and financing

In 1998 the country spent 4.3% of its GDP on health. The main sources of financing were household spending, employer contributions, and the national budget. In 1998-1999 a total of 102 health projects were financed by international technical cooperation, for a total sum of US$ 452 million

Venezuela

General situation and trends

The Bolivarian Republic of Venezuela, located in the north of South America, has 23 states, a capital district and federal dependencies.

It has a land area of 916,446 km2, a population estimated at 24,896,379 inhabitants in 2000; 33.2% of the population is under the age of 15 and 6.5% is over 60 (Figure 1). The annual demographic growth rate was 2% from 1996-1999. In 1999, the general mortality rate was 4.7 per 1,000 population. The birth rate dropped gradually from 25.6 per 1,000 population in 1996 to 24.3 per 1,000 population in 1999. The total fertility rate fell slightly, from 3 children per woman in 1996 to 2.8 in 1999. Net migration was positive in 1996 (74,099) and negative the following two years, with figures of -306,574 and-730,107, respectively. According to the last census of the indigenous population (1992) and forecasts for 2000, the indigenous population numbered 371,815 people (1.5% of the total population).

Economic performance over the last decade has been slow in terms of growth, marked by a recurrence of inflationary recessive episodes. GDP was estimated in US$ 2,647 per capita in 1998 (adjusted for purchasing power parity); Figure 2 shows the GDP annual growth. 30% of the national budget was earmarked to pay the foreign debt. The population living in poverty, according to the index of unmet basic needs, stood at 49% between 1996 and 2000, and the percentage of the population living in extreme poverty, at 21.7%. The global unemployment rate fell from 14.5% in the second semester of 1999 to 13.2% during the same period of 2000; male unemployment in the same semester and years fell from 16.1% to 14.4%, while female unemployment fell from 13.6% to 12.5%. Formal employment slid from 50.1% in the second semester of 1998 to 47.0% in the same semester of 2000. Lack of security for citizens and petty crime are priority problems for the Government and society alike. In 2000, 7,908 people died due to assaults. In 1997, Venezuela ranked 48th in the human development index, and 61st in 1999. Life expectancy was of 74.7 years for women and 68.9 years for men in the period 1990-1995, and in 1995-2000, it was 75.7 and 69.9, respectively. In 1998, there was a difference of nearly 10 years of life expectancy between the most developed and the least developed states (73.6 in the Federal District and 63.9 in Amazonas). A political, legal, economic, and social transition was initiated in 1999, aimed at implementing a new development model intended to strengthen the democratic system, create a fairer society, and consolidate an efficient economy within the framework of globalization.

Only 25% of the eligible population is enrolled in intermediate, diversified, and professional education. Illiteracy among people over 10 years of age in 1998 was 6.2% (5.5% for males and 7.0% for females).

From 1995-1999, the mortality rate by broad groups of causes was 162.3 per 100,000 population for diseases of the circulatory system, 63.8 per 100,000 for malignant neoplasms, 55.3 per 100,000 for external causes, 53.6 per 100,000 for communicable diseases, and 22.4 per 100,000 for certain conditions originating in the perinatal period. Figure 3 shows the estimated mortality by groups of causes and sex.

Specific health problems

Analysis by population group

Health of children (0-4 years): Infant mortality is on a downward trend: from 121.7 per 1,000 live births in 1940 to 17.3 per 1,000 in 2000, though the rate of decrease was slower in the 1990s. The leading causes of mortality recorded in 1999 were: perinatal diseases (57%), birth defects (15%), and intestinal disorders (12%). In 1999, 12 % of children had low birth weight. In children under 3, a high prevalence of anemia (around 50%) was recorded.

Health of adults (20-59 years): Maternal mortality declined between 1940 and 2000, dropping from 172.4 per 100,000 live births to 59.0 per 100,000 in 2000. Nevertheless, the

Figure 1. Population structure, by age and sex, Venezuela, 2000.

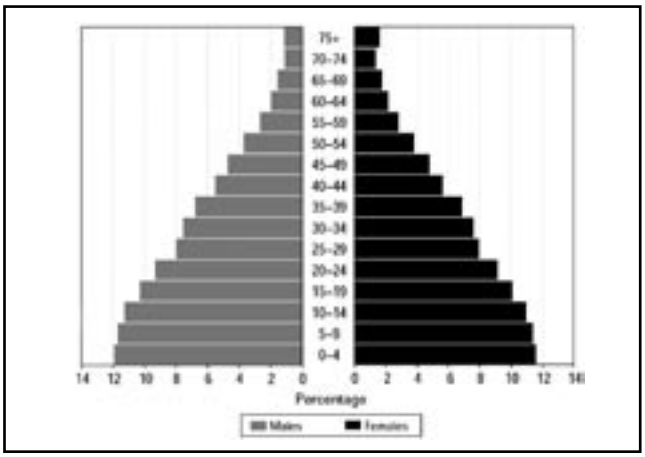
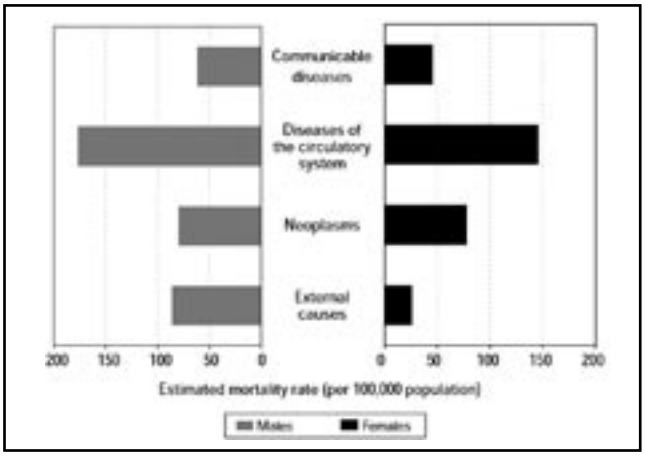


Figure 2. Gross domestic product, annual growth (%), Venezuela, 1990-2000

Figure 3. Estimated mortality, by groups of causes and sex, Venezuela, 1995-2000



1980s saw a reversal in the maternal mortality trend. The most important causes of death were complications of pregnancy, childbirth, and the puerperium (50%); edema, proteinuria, and hypertensive disorders (35%), and pregnancy ending in abortion (14%). Most of the causes are avoidable, considering that over 90% of deliveries occur in institutional settings.

Health of the elderly (60 years and older): This population accounted for 6.5% (46% men) of the total population in 2000. The population in this group is expected to triple by 2025. In 1998, the leading causes of mortality in this group were heart diseases (32%), malignant neoplasms (18%), cerebrovascular diseases (12%), and diabetes (8%). The risk of death due to these causes is higher in men, except in the case of diabetes.

Health of the workers: Occupational hazards in the 1990s have increased as a direct result of informal employment, the use of inadequate premises, and because homes are used as centers of production. The most frequent occupational diseases are industrial deafness (work-related hypoacusis), and other conditions associated with noise and vibrations, chemical poisoning, and musculoskeletal disorders. It is estimated that 10% of the population has some degree of physical or mental disability or handicap.

Health of indigenous groups: The indigenous peoples live in conditions of vulnerability, social exclusion, and extreme poverty. In 1992, more than 50% of these communities lacked potable water and excreta disposal services; 65% lacked access to schools and 72.8% of the rural outpatient ambulatory services in the indigenous villages had no physician. The leading conditions are tuberculosis, malaria, parasitosis, malnutrition, diarrheal and respiratory disorders.

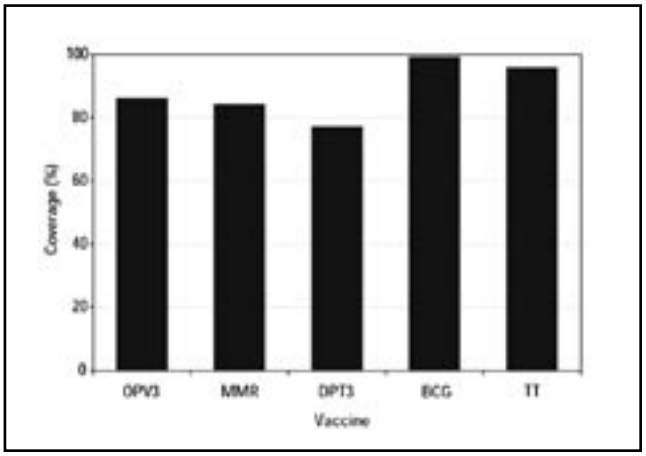
Analysis by type of health problem

Natural disasters: The disasters with greatest impact (earthquakes, floods, mudslides) have occurred mainly in the northern coastal region, which is the most densely populated. There have been technological disasters of chemical origin, mainly in the petroleum and petrochemical sector. In 1999, torrential rain and mudslides caused a national tragedy that revealed the inadequacies of the country's urban planning and the limitations of its institutional response capacity.

Vector-borne diseases: The malaria transmission zone covers 23 % of the country's surface area. It is inhabited by 720,000 people. In 2000, 30,234 autochthonous cases of malaria were reported, 38.3% more than in 1996 (21,852). They were primarily concentrated in Sucre, Bolivar and Amazonas states, which accounted for 91.5% of the cases. Classic dengue and hemorrhagic dengue fever behaved endemo-epidemically nationwide. Serotypes 1, 2, and 4, have circulated simultaneously in recent years; serotype 3 has circulated since 2000. The highest incidence was recorded in 1998 with 37,586 cases reported; in the following years the number of cases gradually declined reaching 21,101 cases in 2000 (18,915 dengue classic and 2,186 hemorrhagic dengue fever). In 2000, indices of infestation by *Aedes aegypti* in dwellings and warehouses remained high (20.7% and 10.3%, respectively). No cases of yellow fever between 1980 and 1997 were reported. However, in 1998; there was an outbreak in a Yanomami village that led to 15 cases and four deaths. Chagas disease is considered a risk for some 6 million people living in 198 municipalities in 14 federal entities, in a territory of 101,488 km2. Insecticide application and improved dwellings conditions reduced the prevalence of Chagas disease, which was around 45% in the 1950s, to less than 10% in the 1990s. Some 18.3% of the population at risk of contracting onchocerciasis in the Region lives in Venezuela, which is the country with the third highest incidence of the disease. Cutaneous leishmaniasis is endemic throughout the country, and is more frequent in male agricultural workers aged 15-44 years. In 2000, 92% of the 2,528 cases recorded were the localized cutaneous form.

Diseases preventable by immunization: The last confirmed case of poliomyelitis was reported in 1989, and immunization against polio achieved coverage of 86% in 2000 (Figure 4). Although no cases of measles had been recorded since 1997, in 2000, an outbreak was reported in Zulia state with

Figure 4. Vaccination coverage among the population under 1 year of age, by vaccine, and tetanus toxoid coverage among women of childbearing age, Venezuela, 2000.



22 confirmed cases. In 2000, 12,609 cases of rubella and 6,044 of mumps were reported. In 2000, an 84 % coverage was attained in children under 1 year of age with the MMR (against measles, mumps and rubella) vaccine.

Intestinal infectious diseases: In 1997, there was a Cholera epidemic with 2,551 cases, for an incidence rate of 11.2 per 100,000 population. In 1988, the incidence dropped to 1.3 per 100,000 population and, in 1999, it was 1.6 per 100,000 population.

Chronic communicable diseases: Bacillary pulmonary tuberculosis and the other forms of tuberculosis have varied little in recent years. The respective rates recorded were 15.6 and 26.1 per 100,000 population in 1991 and 15.0 and 25.2 per 100,000 in 2000, respectively. Leprosy ceased to be a public health problem in 1997. Its prevalence in 2000 was 0.6 per 10,000 population. The problem persists in Cojedes, Portuguesa, Barinas, Apure, and Trujillo states.

Zoonoses: Between 1991 and 2000, the annual average of human rabies cases dropped from three to one case. The cases recorded in those years occurred in the metropolitan area of Maracaibo.

HIV/AIDS: During 1983-1999, 8,047 cases and 4,726 deaths were reported, and underreporting was estimated at around 80%. According to information from UNAIDS, 62,000 people throughout the country were HIV carriers in 1999. In analyzing the cumulative incidence, clearly the most frequent mode of transmission is sexual, which account for 90.3% of the cases, followed by transmission by blood, accounting for 4.3%. There is a marked predominance of HIV/AIDS cases among males, although the proportion of females is rising.

Nutritional and metabolic disorders: The groups most affected by general malnutrition in 2000 were children under two years of age (11.7%), 2-6 years (22.4%) and 7-14 years (24.4%). Twenty-four percent of the preschool-age children attending public schools have a nutritional deficit. The prevalence of overweight in the population under 15 years of age rose from 8.5% in 1990 to 11.3% in 2000. The prevalence of iron deficiency anemia in pregnant women was 41% and in children under 3 years it was 51%. Mortality due to nutritional deficiencies affected the age group of children under 1 year the most, at a rate of 60.3 per 100,000 live births. In 1999, *Diabetes mellitus* was the fifth leading cause of death overall (5.5%), but fourth (7.4%) for women. The mortality rate that year was 23.8 per 100,000 population (22.9 for males and 26.9 for females).

Diseases of the circulatory system: Diseases of the circulatory system were the leading cause of death in 1999 (21%); over half were due to acute myocardial infarction. One in 10 deaths was due to hypertensive diseases. Ischemic diseases have been increasing. The highest-risk group is 40 to 60 years old.

Malignant neoplasms: Malignant neoplasms were the second leading cause of death in 1999 (14.3%), with malignant neoplasms of the digestive system, mainly the stomach, predominating in both sexes. In women, cervical cancer is the second leading cause (13.1 per 100,000 females), and the highest risk is in women aged 25-64 years (202.6 per 100,000 females). The second leading cause is breast cancer (8.8 per 100,000 females). In men, cancer of the bronchus and lung ranked second (11.4 per 100,000 males), followed by prostate cancer (11.0 per 100,000 male).

Accidents and violence: In 1999, accidents and violence accounted for 12.5% of total deaths. Accidents (all types) were the fourth leading cause of death (7.5%) that year, with a rate of 32.8 per 100,000 population (51.0 for males and 16.1 for females), including 60% of motor vehicle accidents. In 1999, 5% of deaths were due to suicides and homicides, making them seventh in general mortality and fourth for males. Mortality due to this cause is increasing, mostly due to homicides (16.9 per 100,000 population in 2000).

Foodborne diseases: Between 1996 and 2000, a 63% increase could be seen in the number of outbreaks, and foodborne cases of diseases quadrupled. In 56.4% of cases, the contaminating agent was identified (*Staphylococcus aureus* in 72.8% of cases and high levels of histamine in 14.7% of cases). In 2000, half the cases occurred in homes and 22.8% in schools.

Response of the health system

Policies and national health plans

The legal framework established by the Constitution has led to the drafting of a Health Bill, which is awaiting approval by the National Assembly. It contains policy guidelines and establishes the standards for their institutionalization. Government policy, and health policy in particular, is implemented by the specific government agencies and the Federal Council of Government, the entity in charge of planning and coordinating policies and actions aimed at decentralizing and transferring the competencies of the central government to the states and municipalities. A process was initiated in 1990 to decentralize the then Ministry of Health and Social Welfare to the states; at the end of 2001, 17 federal entities had been decentralized. In 1999, the Ministry of Health and Social Welfare was merged with the Ministry of Family Services, and the Ministry of Health and Social Development was created. This new Ministry is the body governing the health sector and its functions include regulation, formulation, design, evaluation, control and monitoring of health and social development policies; programs, and plans; integration of sources of financing and allocation of the resources of the National Public Health System; comprehensive health care for all sectors of the population, especially low-income groups, and promotion of citizen participation.

Health sector reform

With a view to promoting social development, comprehensive health, and citizen participation, in particular by socially excluded groups, funding for 2001 was directed at several areas. The priorities are maternal and child health care, disease control and eradication; and accessibility to hospital services, social infrastructure, and care during social emergencies. The goal of the Health Bill is to expand and enforce the constitutional right to health. It states that in order

to guarantee the constitutional right to health, the National Public Health System must be governed by the following principles: universality; equity; solidarity; uniqueness and social integration; services free of charge; participation; comprehensiveness; cultural and linguistic pertinence; quality, efficacy and efficiency.

Health system

The public health sector is composed of the Ministry of Health and Social Development (MSyDS), the Venezuelan Social Security Institute (IVSS), the Social Welfare Institute of the Ministry of Education, the Armed Forces Institute of Social Welfare, and the Central Mayoralty (formerly the office of the Federal District Governor). The network of public health establishments has different levels of care and operates throughout the country. In Venezuela, more than 2,400 institutions work in the area of health. They belong to the public as well as the private sectors, including nongovernmental organizations. The public sector bears the greatest responsibility for providing health services to the general population. There are serious shortcomings in health services coverage and the network ability to respond to health care is insufficient. The Constitution lays the groundwork for improving the legal nature and organizational model of the health sector. Article 83 states that health is a fundamental social right and an obligation of the State that must be guaranteed. To that end, Article 84 stipulates the creation of a National Public Health System, under the leadership of the Ministry of Health and Social Development, which will be intersectoral, decentralized, and participatory; integrated with the social security system; and governed by the principles of universality, comprehensiveness, equity, and social integration and solidarity, as well as being free of charge. In 1997, 65% of the population had some kind of insurance. The IVSS provides the broadest coverage (57% of the insured population, including those directly insured and beneficiaries). The MSyDS and the federal entities are obliged to protect those population groups that lack any other kind of public insurance (35%); however, in practice, the Ministry's outpatient network serves approximately 80% of the population.

Organization of the sanitary regulation actions

Importation, manufacture, processing, transportation, storage, marketing, and supply, even donated regulated goods, comes under the control of the MSyDS as far as matters regarding the safeguarding of collective health are concern. Protection, being responsible for the analysis and evaluation of the quality and safety of foods, drugs, cosmetics, reagents, and materials for diagnosis and treatment purposes, and of any other product of human consumption, with a potential effect on health.

Organization of the public health services

Environmental health surveillance is incipient and must be strengthened, as it lacks sufficient capacity in the area of laboratories, trained human resources, and research. The national health information system gathers and analyzes information on epidemiology, health programs, and services, costs, and expenditures. Potable water coverage increased from 77% in 1996 to 84% in 2000; the areas not covered are mainly rural, indigenous, and unincorporated urban areas. However, the quality of the water distributed is questionable. In 2000, 73 % of the population had adequate sewerage services, the deficit being concentrated, as in the case of potable water, in the rural, indigenous, and unincorporated urban areas. Only 10% of the estimated 76 m3/sec of total sewerage dumped is treated. Annual public investment in the sector has not exceeded 0.2% of GDP in the last five years. By 2001, with additional resources in the order of US$ 88.9 million, which amounted to a budget increase of 26.7% for the sector, the National Sanitation Plan was consolidated. Seventy-two percent of the municipalities have no solid waste disposal infrastructure and the country has no safe landfills for hazardous materials, including hospital waste.

Organization and operation of the individual health care services

All the public health establishments must be part of a network. The outpatient and hospital establishments belonging to the National Public Health System are organized according to their level of complexity and problem-solving capacity. At the primary level there are 4,804 public outpatient establishments, 96% of which belong to the MSyDS. There are 296 hospitals in the network of public establishments and 344 hospitals in the private sector (315 for-profit institutions and 29 charitable foundations). In 2000, there were 40,675 public hospital beds in the governmental sector (17.6 beds per 10,000 population).

Health supplies

National drug production as a percentage of total supply dropped from 95% in 1995 to 45% in 2000. Total spending on drugs increased in recent years, from US$ 1,200 million in 1998 to US$ 1,600 million in 2000.

Human resources:

In 1999, there were 19.7 physicians and 7.9 nurses per 10,000 population.

Research and health technology

The National Council for Scientific and Technological Research (CONICYT) coordinates scientific and technological promotion and management at the national level. Science and technology foundations that operate in 10 states come under CONICYT but are autonomously managed.

Health sector expenditure and financing

The National Public Health System financing is provided through national, state, and municipal fiscal budgets for health, states and municipal revenues earmarked for health, transfers from other social security subsystems, specific tariffs, resources obtained from costs recovery for registration services, and the Comptroller for Public Health. Public spending on health's share of the national budget increased from 8.6% in 1995 to 11.6% in 2000. Total spending on health as a percentage of GDP was 3.0% in 2000 and public spending per capita was US$ 62.2 in 2000. The MSyDS was assigned 6.6% (US$ 2,108,150,100) of the Nation's Fiscal Budget for 2001.

External technical and financial cooperation in health

The total contribution of external cooperation to the health

budget in 2001 was US$ 82.6 million, equivalent to 3.9% of the MSyDS budget; of that, US$ 72.3 million (88%) loans and US$ 10.3 million (12%) donations and multilateral cooperation, specifically from the United Nations and Inter-American System. The loans were for modernizing and strengthening the health sector, supporting the social management initiative (IDB), reforming health services, and strengthening and modernization of the health sector in Caracas (World Bank), investment and social development (Andean Development Corporation), hospital waste handling (Plan Hispano- Venezolano), and social investment and urban development (Foreign Debt Bonds). Contributions from multilateral cooperation in 2001 amounted to US$ 10.3 million, to which the United Nations contributed US$ 9.3 million.

XV Summer Session in Epidemiology

The XV Session of Summer in Intermediate Epidemiology is sponsored by the Area of Health Analysis and Information Systems of the Pan American Health Organization (PAHO) and the University South of Florida (USF). The Session will be carried out in the College of Public Health, University of South Florida, in Tampa, Florida, USA. From 25 July to 12 August, 2005.

Courses offered in Spanish:

INTERMEDIATE METHODS IN EPIDEMIOLOGY
Description of the course
The course in Intermediate Methods in Epidemiology, through conferences, discussion of readings and especially with exercises, covers fundamental subjects of the epidemiological method utilized in research of problems and health status. Among others the following topics will be treated:
- Principal measures of frequency and effect on population studies;
- Characteristics of the principal designs in epidemiology, especially cohort studies and cases and controls;
- Methodological objectives of the studies, biases, and determinants of the precision and validity and forms of control in the design or in the analysis
- Principles of statistical analysis of the epidemiological studies;
- Meta-analysis.

STATISTICS APPLIED FOR EPIDEMIOLOGY AND COMPUTER SOFTWARE
Description of the course
The course is designed for professionals with interest in the description of epidemiological problems. It covers, through conferences, discussion of readings and with exercises in the area of computation, fundamental topics of applied Statistics in research of problems and health status. The treated topics will be:
- Descriptive statistics;
- Probabilistic and principal probability distributions;
- Inferential statistics uni and bivariate;
- Simple and multiple linear regression;
- Simple and multiple logistic regression;
- Other applications of the multivariate statistics.

USE OF EPIDEMIOLOGY IN PROGRAMMING AND EVALUATION OF HEALTH SERVICES
Description of the course
In this course the concepts and methodological instruments used by epidemiology are presented in the programming and evaluation of the health services. The course integrates epidemiological methodology with health services research. Included are the health situation analysis and quantification of the levels of risk of vulnerable human groups. The criteria and useful epidemiological measures are presented in the identification of health priorities, determination of needs for health care and policy-making and health strategies. Special emphasis is placed on the utilization of the research designs for the assessment of impact of programs, actions, and interventions of health.

General requirements:
An introductory course of epidemiology or at least two years work experience in the area of epidemiology and basic courses of statistical analysis or skill in statistical data management, including the realization of hypothesis testing. It is advisable to have basic computer skills.

Be able to read articles in English.

Available space: 32 students

Deadline to receive applications:
Applications will received up to 18 March, 2005.
The coordinator of the session will communicate after 30 March of 2005 regarding the acceptance or decline of the application. In the acceptance of candidates, the arrival order of each application will be considered.

Registration and fees:

Registration: US $700.00
It includes registration, materials of teaching and computation, use of the laboratory and certificates to participants who complete the evaluations.

Fees: US $1,200.00
It includes 20 nights of hotel, double room. 20 breakfasts and 20 lunches, including taxes. Transportation: Hotel-University-Hotel.

For more information, contact:
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Epidemiological Calendar 2005

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

As in previous years, we are including the Epidemiological Calendar for easy reference and use. The Epidemiological Calendar includes the 365 days of the year, which are grouped in 52 weeks.

Its use during surveillance activities is important because by standardizing the time variable, it provides a means to compare events that occur in a given year or during a specific period to others occurring at a later time or in other countries.

The 2005 Epidemiological Calendar begins on 2 January 2005. This is due to the fact that 1) the epidemiological weeks all start on Sunday and finish on Saturday, and 2) to determine the first epidemiological week of the year, we must choose the first Saturday in January that include four or more days in January.

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http://www.paho.org/English/DD/AIS/beindexe.htm

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