INTRODUCTION

The Bolivarian Republic of Venezuela is a federal republic consisting of the capital district, 23 states, federal dependencies that comprise 311 islands and keys, 335 municipalities, and 1,123 parishes (1, 2). It has a land area of 912,446 km$^2$ and a population of 28,883,845 (as of 2010), 88% of whom live in urban areas. It has a masculinity ratio of 1.0 and a population density of 31 people per km$^2$ (3, 4).

Venezuela is experiencing the demographic changes characteristic of societies in transition, characterized by its aging population (Figure 1). Life expectancy at birth was 72.7 years from 2000 to 2005, increasing to 74.1 years in 2010, with a difference of 6 years between women (77.2) and men (71.2). The average annual growth rate is 1.7%, the birth rate is 20.6 per 1,000 population, and the total fertility rate is 2.5 children per woman (3, 4). In 2009 the total death rate was
474.7 per 100,000 (363.3 for women and 585.3 for men) (5).

The average annual growth in gross domestic product (GDP) from 2006 to 2010 was 3.8%. However, this growth fluctuated significantly over that period, with an 8% rise for 2006–2008, and a decline of 3.2% in 2009 as economic activity contracted. This downward trend continued in 2010, with GDP falling by an additional 1.5% due mainly to the global economic crisis and the consequent decline in oil prices. At its peak, social investment amounted to 22% of GDP in 2006, falling to 15.4% by 2010 (6).

From 2006 to 2010, household poverty, as measured by income, fell slightly from 33.1% to 32.5%; the proportion of households in extreme poverty fell from 10.2% to 7.1% (7). The human development index (HDI) was 0.788 in 2006 and 0.755 in 2010. The Gini coefficient index showed a decline in inequality, falling from 0.4422 in 2006 to 0.3928 in 2009. The nation saw improved income distribution over the period: in 2006 the poorest 20% of the population received 4.73% of national income and the richest 20% received 49.37%, while in the first half of 2009 the poorest 20% of the population received 6.01% of national income and the richest 20% received 45.56% (7). In 2006 the inflation rate was 13.7% and in 2009 it was 28.6% (5). In 2009 the economically active population was 64.9%, with an employment rate of 92.4% (19.3% in the public sector and 80.7% in the private sector); the informal employment rate was 43.4% (7).

The main achievements in health during the 2006–2010 period were:

- Availability of services was improved and public access to the National Public Health System was increased. The Maternal and Child Hospital and three other hospitals were built, increasing to 218 the number of hospitals administered by the Ministry of Health. The Latin American Children’s Cardiology Hospital was also established for comprehensive medical and surgical treatment of congenital or acquired cardiovascular diseases among children and adolescents from Venezuela and abroad. The number of primary care clinics increased by 153%, from 1,433 in 2006 to 3,630 in 2009.
- The number of outpatient care centers in the network of neighborhood clinics (Misión Barrio...
Adentro II) increased by 90% between 2006 and 2009, from 529 to 1,006 establishments. A total of 477 new centers were built and equipped, bringing the number of comprehensive diagnosis centers to 466, comprehensive rehabilitation centers to 509, and advanced technology centers to 31.

- The rotavirus, seasonal influenza, and 23-valent pneumococcal polysaccharide vaccines were introduced into the national system, for a total of 10 vaccines that protect against 14 diseases. Likewise, 1,732 establishments joined the National Vaccination Program, bringing to 5,916 the total number of vaccination sites open in 2010. In 2010 transmission of measles and rubella remained interrupted and polio remained eradicated.

- In 2010 the onchocerciasis focal region in north-central Venezuela was declared to be in the post-treatment surveillance phase.

- From 2006 to 2010 Venezuela made significant progress in implementing the WHO Framework Convention on Tobacco Control through a strategy for smoke-free environments, smoking-cessation advice in health services, a tobacco advertising ban, and an increase in the tax rates on cigarettes and chewing tobacco amounting to 70% of the retail sale price.

- Universal access to antiretroviral therapy for people living with HIV/AIDS continued. In 2010 a total of 35,893 people had undergone treatment.

- The supply of special medications made it possible for mortality among patients with cystic fibrosis to drop to 0%.

- As part of its constitutional commitment to ensure access to free treatment, Venezuela joined the PAHO Regional Revolving Fund for Strategic Public Health Supplies (the Strategic Fund) in December 2010.

- In 2010 Venezuela initiated the National Public System for the Treatment of Addictions, which is integrated into the National Public Health System at three levels: (1) family and community centers, (2) centers that specialize in preventive and comprehensive care, and (3) socialist therapeutic communities.

### HEALTH DETERMINANTS AND INEQUALITIES

In 2009, public investment in education as a percentage of GDP was 6.42% (5). During the 2009–2010 school year, the net enrollment rate was 70.8% in preschool, 92.9% in primary education, and 72.1% in secondary school (diversified and professional) (7).

In 2009 women made up 41.96% of salaried employees in non-agricultural sectors (7). Women enjoyed ever greater participation in elections for public office throughout the country. Sixty-one women were elected mayor in 2008, or 18.2% of all mayors; women held 21% of government ministerial positions (2, 8). In 2010 two women were elected as governor and 15 women were members of the National Assembly, or 13.8% of the total (8, 9).

In 2007, 4.19% of children under age 5 were underweight; this was the lowest level in the reporting period, owing to Venezuela’s progress in food and nutrition policies (9, 10).

### THE ENVIRONMENT AND HUMAN SECURITY

#### Access to Clean Water and Sanitation

From 2006 to 2009 drinking water and wastewater collection coverage rose to 95% and 84%, respectively. In 2009 the proportion of wastewater treated was 32% (11, 12, 13).

#### Persistent Organic Pollutants

Venezuela ratified the Stockholm Convention for the progressive elimination of certain chemical products such as persistent organic pollutants. In 2008 the country consumed 721 tons of herbicides, 3,770 tons of insecticides, and 4,651 tons of fungicides. Forty-seven sites that are potentially contaminated with persistent organic pollutants were registered (11, 12).
**Natural Disasters and Climate Change**

The El Niño phenomenon affected Venezuela from November 2009 to April 2010, creating a critical loss of volume in rivers and in reservoirs such as the Guri. Consequently, crops were lost, less water was available for human consumption, and because 74% of Venezuela’s total energy production is hydroelectric, the electricity supply was affected. Forest fires affected 40,923 hectares in the national parks of Mochima, Waraira Repano, Guatopo, Henry Pittier, Dinira, Canaima in the Great Savannah, El Guácharo, and other areas in the eastern and western parts of the country (14, 15).

In the second half of 2010, the La Niña phenomenon, characterized by sustained rain of variable intensity, affected 75% (18) of the federal states. Intense and sustained rainfall averaged 1,657.5 millimeters per square meter, resulting in 38 deaths and 31,000 collapsed homes; there were nearly 400 roads damaged and 39 bridges and 3 reservoirs were destroyed. Some 50,000 hectares of crops were lost (14). The most severely impacted states were the Capital District, Miranda, Falcón, and Zulia, with 323,266 people affected, of whom 121,059 (38%) were served in 993 temporary shelters (16).

**Food and Nutritional Security**

Food has been prioritized as an inalienable and fundamental human right through the Ministry of Nutrition. In 2008, a total of 659,419 tons of food products were acquired for the Mercal network (which supplies subsidized food products) and to conserve food inventories in order to achieve coverage and establish and maintain the strategic food reserves. Nationwide, 627,761 tons of food products were distributed through 16,626 commercial points of sale. About 9,386,100 Venezuelans benefited from the Mercal network in 2009, providing them with savings of up to 52% when compared to prices for regulated products and 74% compared to private supermarkets and other national suppliers. There were 1,987 community-based food committees in 2007 and 3,050 were established and registered in 2008, for a total of 5,037, an increase of 53.5% (17, 18).

**Health Conditions and Trends**

**Health Problems of Specific Population Groups**

**Maternal and Reproductive Health**

The Proyecto Madre (Mother Project) was initiated in 2006 and reviewed, updated, and reintroduced in 2009 with the launch of the Misión Niño Jesús (Christ Child Project). The objective has been to implement organizational changes in comprehensive maternal and neonatal care aimed at ensuring access to family planning, emergency obstetric care, transportation services for women about to give birth, prenatal check-ups, and quality care in obstetric services.

From 2006 to 2009 maternal mortality averaged 63.3 per 100,000 live births. In 2006, 82.8% of all maternal deaths were attributed to four causes: other obstetric conditions (ICD-10 codes O95–O99) (29.7% of deaths); edema, proteinuria, and hypertensive disorders (O10–O16) (24.4%); pregnancy ended by abortion (O00–O08) (15.5%); and complications of labor and delivery (O60–O75) (13.2%). The highest proportion of deaths (74.7%) in 2006 were among women 20–39 years old (19). In 2009, 83.7% of maternal deaths were attributed to the same four main causes (5).

**Children (under 5 years old)**

This group represented 10.1% of the total population in 2010 (20). Health care for this age group is guided by official standards on comprehensive care of the child. Historically, mortality among infants (under 1 year of age) has steadily decreased (1940–2009). The estimated infant mortality rate was 14.2 per 1,000 live births for the 2006–2009 period. The leading causes of death in 2006 were certain conditions originating in the perinatal period (P00–P96),...
accounting for 59.2% of deaths, and congenital malformations, deformations, and chromosomal abnormalities (Q00–Q99), accounting for 18.2% of deaths; the same causes were cited in 61.8% and 18.2% of infant deaths, respectively, in 2009. Neonatal mortality accounted for about 71% of infant deaths (5, 19).

The mortality rate per 100,000 children under age 5 declined from 350.8 in 2006 to 346.6 in 2009. Certain conditions originating in the perinatal period (P00–P96) and congenital malformations, deformations, and chromosomal abnormalities (Q00–Q99) continued as leading causes of death for children under 5 in 2006 (49.5% and 17.7%, respectively) and 2009 (52.8% and 17.7%) (5, 19).

Schoolchildren (5–9 years old)

In 2010, the 5–9-year age group accounted for 9.8% of the total population (20). From 2006 to 2009, child mortality among this age group fell from 30.5 to 27.3 deaths per 100,000. External causes (V01–Y98) and neoplasms (C00–D48) were the two main causes of death, accounting for 42.8% and 16% of deaths, respectively, in 2006, and 41.5% and 16.9% of deaths in 2009 (5, 19).

Children and Adolescents (10–19 years old)

One of five Venezuelans is an adolescent. In general, this group enjoys good health and care is guided by official standards for comprehensive care of adolescents. From 2006 to 2009 mortality among 10–14-year-olds declined from 39.2 deaths per 100,000 to 35.3, mainly due to a decline in diseases of the nervous system (G00–G99). The main causes of mortality were external (V01–Y98), neoplasms (C00–D48), and diseases of the nervous system (G00–G99), all of which accounted for 73.3% of mortality in this age group in 2006 and 73% in 2009. From 2006 to 2009 the mortality rate among 15–19-year-olds increased from 146.9 to 178 deaths per 100,000. External causes (V01–Y98) accounted for 80.6% of deaths, and 61.5% of those deaths were violent. Tumors (C00–D48) and diseases of the nervous system (G00–G99) followed, accounting for 4.4% and 2.7% of deaths, respectively. These three causes of death accounted for 87.7% of mortality in this age group. Disaggregating by sex, in 2006 mortality among 10–14-year-old males was 1.5 times greater than it was among females. In the 15–19-year age group, it was 4.4 times higher in males. In 2009, mortality in 10–14-year-old males was 1.7 higher than in females, and in the 15–19-year age group it was 5.1 times higher, owing to increased numbers of motor vehicle accidents among females and violent acts among males (5, 19).

Adults (20–59 years old)

Adults in the 20–59-year age group comprised 51.4% of the estimated population in 2006 and 52.5% in 2010 (20). Mortality in this age group rose from 314.7 per 100,000 in 2006 to 332.4 in 2009. In 2006 male mortality was 2.5 times greater than female mortality in this age group (451.8 men compared with 177.6 women per 100,000).

The leading cause of death (32.1%) among women in this age group in 2006 was neoplasms (C00–D48); by 2009 that figure had fallen to 30%. Among men the leading cause of death was due to acts of violence (X60–Y36), which accounted for 36.5% of mortality in this group in 2006 and 38.2% in 2009. Among men in this age group, neoplasms (C00–D48) accounted for 8.3% of deaths in 2009. Among women, diseases of the circulatory system (I00–I99) accounted for 22.6% of deaths in 2006 and 21.6% in 2009; among men of this age, 17% of deaths were attributable to this cause in 2009 (5, 19).

The Elderly (60 years old and older)

From 2006 to 2009, the older adult population (60 years and older) increased by 19.5% and it is estimated to have increased by 8.74% in 2010 (20). In 2006 the mortality rate was 2,937.4 per 100,000 population; the rate fell to 2,845.7 in 2009. In 2006 the mortality rate among men of this age was 3,309 per 100,000 and among women it was 2,606.6; in 2009 the mortality rate was 3,207 among men and 2,523.1 among women. The structure of mortality for that age group and by sex is quite similar. In 2009
the leading causes of death in this age group were diseases of the circulatory system (I00–I99), accounting for 45.1% of deaths; neoplasms (C00–D48), accounting for 18.5% of deaths; and diabetes (E10–E14), accounting for 9.7% of deaths. Leading causes of death were the same for both sexes, with the respective rates for each disease group as follows: 45.4%, 17.7%, and 10.9% among women, and 44.8%, 19.2%, and 8.6% among men (5, 19).

**Workers**

In 2006, a total of 2,066 cases of occupational illnesses were diagnosed and classified as follows: 1,580 musculoskeletal disorders (76.5%), 131 conditions caused by psychosocial factors (6.3%), 90 other occupational diseases (4.4%), 81 respiratory tract conditions (3.9%), 32 voice pathologies (1.5%), 26 hearing conditions caused by noise (1.3%), 21 pathologies related to chemical risk (1%), 17 work-related skin conditions (0.8%), 3 radiation-related conditions (0.1%), 1 work-related zoonosis (0.0%), and 84 unspecified cases (4.1%). In 2007, 57,646 work-related accidents were reported, of which 6,401 (11.1%) were among women and 51,240 (88.9%) were among men. Fatal accidents accounted for 0.66% of total reported accidents (21).

**Ethnic or Racial Groups**

In 2007 the Ministry for Indigenous Affairs was established by Presidential Decree No. 5103. Two projects have been launched by the Ministry; the first aims to provide prompt medical care and a continuum of care for the most vulnerable indigenous populations and the second strengthens social participation and empowers indigenous communities. In 2008 the Comprehensive Plan for the Defense, Development, and Strengthening of Border Municipalities in the State of Zulia was approved and the Caura Plan was created to serve the indigenous communities affected by mining in the State of Bolivar. By 2010, a total of 2,886 indigenous communities were registered and 1,186 indigenous leaders were enrolled in the Comprehensive Community Medicine degree program. In 2012 they will complete their studies and become community physicians in health facilities in indigenous communities. In 2010, capacity was expanded through 28 facilities providing health care and counseling services for the indigenous population in the following states and the Capital District: Amazonas (1 facility), Anzoátegui (4), Apure (2), Aragua (1), Barinas (2), Bolívar (6), Capital District (2), Delta Amacuro (1), Monagas (2), Sucre (2), and Zulia (5) (9).

**Mortality**

From 2006 to 2009 the 10 leading causes of death remained the same for the population, except for accidents of all types (V01–X59), which in 2009 moved from fifth to fourth place, displacing cerebrovascular diseases (I60–I69). At the end of this period, all the unadjusted rates per 100,000 population increased for each disease group, except for chronic lower respiratory diseases (J40–J47) among women and suicides and homicides (X60–X89), accidents of all types (V01–X59), and cerebrovascular diseases (I60–I69) among men. Underreporting of mortality in the country is 10%. Differences by sex stand out for deaths caused by acts of violence (14 times higher among men) and accidents of all types (3 times higher among men), which are trending upward. With regard to mortality due to diseases of the liver (K70–K77), the difference between the sexes has declined: in 2006 the rate among men was 3 times that of women and in 2009 the rate was 1.5 times greater (5, 19).

**Morbidity**

**Communicable Diseases**

**Vector-borne Diseases**

Conditions for transmission of dengue (A90–A91) exist in all 23 federal states. There were two outbreaks between 2006 and 2010, the first in 2007 and the second in 2010 with rates of 293.2 and
433.1 per 100,000 population, respectively. During the 2010 outbreak, 10,278 cases (8.2% of cases) were confirmed as dengue hemorrhagic fever, primarily affecting children under 1 year of age (124 per 100,000), while classical dengue affected children under age 15. There is evidence that all four types of the virus circulate in Venezuela, with serotype 2 being the most common (22, 23, 24, 25).

In 2006, an estimated 23% of the population was at risk of contracting malaria (B50–B54) in Venezuela, a figure that fell to 19% in 2010, despite the fact that the annual parasite index (API) rose from 5.92 to 8.30. The most-affected states in 2010 were Amazonas, Bolivar, and Delta Amacuro, with indices of 25.2, 24.2, and 8.3, respectively. The predominant species was Plasmodium vivax. It is noteworthy that 1,068 cases were reported in Anzoategui in 2008 and after interventions the figure declined steadily to 103 cases in 2010, while in Bolivar the number of cases increased from 70.5% in 2006 to 88% in 2009 (26, 27).

With regard to Chagas’ disease (B57), although prevalence of the infection at the national level was 4.31% in 2010, reinfection pressure from sylvatic Rhodnius prolixus and the tendency of sylvatic species such as Panstrongylus geniculatus to adapt to the human domicile have posed new epidemiological challenges. From 2006 through 2010, three outbreaks caused by oral transmission occurred in three Venezuelan states: 2007 in Miranda, 2009 in Vargas, and 2010 in the Capital District (28).

From 2006 through 2009 American cutaneous leishmaniasis (B55.1) was diagnosed on average 2,400 times per year. The greatest number of cases (2,553) occurred in 2006 at a rate of 9.4 cases per 100,000 population. An annual average of 21 cases of visceral leishmaniasis (B55.0) were reported during the same period, with the highest number of reported cases (36) also occurring in 2006, a rate of 0.13 cases per 100,000 population (29, 30).

**Vaccine-preventable Diseases**

In 2007 the last confirmed cases of imported measles and indigenous rubella were reported. In 2008 two cases of yellow fever were confirmed. From 2007 to 2008 more than 125,000 cases of mumps (474 per 100,000 population) were reported and confirmed (by laboratory or epidemiological link) throughout the country. In 2010, the mumps rate was 11.6 per 100,000. From 2006 to 2010, whooping cough was diagnosed at a rate of 2.6 per 100,000, with outbreaks reported at both ends of the age spectrum (children under 1 year and older adults). Four cases of neonatal tetanus were reported in 2006, one each year from 2007 to 2009, and two in 2010 (31).

**Zoonoses**

One case of human rabies (A82) resulting from a bat bite was reported each year in 2006, 2007, and 2009, while in 2008 and 2010 none was reported. With respect to urban rabies, 28 cases were recorded in 2006, 19 in 2007, 39 in 2008, 34 in 2009, and 3 in 2010 (22, 23, 24, 25). There were no cases of plague (A20) during the reporting period.

**Neglected Diseases and Other Infections Related to Poverty**

From 2006 to 2010 an average of 650 new cases of leprosy were detected each year. More than 70% of the cases were multibacillary, 95% of cases were in people over age 15, and grade II and III disabilities affected between 4.5% and 5.8% of the cases (32). According to announcements at the 2010 Inter-American Conference on Onchocerciasis, the north-central focus of the disease was in the post-treatment surveillance phase and onchocerciasis transmission was interrupted. The northeastern focus eliminated transmission and the southern focus had ongoing transmission, where treatment coverage remained above 95% (33).

**HIV/AIDS and Other Sexually-transmitted Infections**

In 2006, 1,567 deaths from HIV/AIDS were reported (ranking twelfth of the 25 leading causes of death), for a rate of 5.8 per 100,000 population. In 2009, 1,733 deaths were reported (fourteenth of 25 leading causes of death), for a rate of 6.1 per 100,000 population, or 1.29% of total deaths. From 2006 to 2009 1,252 HIV-positive pregnant women were
treated, for an annual average of 313 women. In 2009, 32,302 patients were reported to be on antiretroviral therapy, accounting for expenditures of more than 495 million bolívares fuertes (Bs.F. 2.15 per US$ 1) (11, 12).

**Tuberculosis**

In 2010, some 91,589 patients with respiratory symptoms of tuberculosis were diagnosed and 3,252 new cases were diagnosed using positive sputum-smear microscopy. Free medications were distributed to these patients through the DOTS strategy and 248 relapses were reported. Tuberculosis especially affected males age 15 or older and females under age 15. In all, 1,077 cases of extrapulmonary tuberculosis were reported (11, 12).

An average of 81 cases of congenital syphilis were reported annually from 2007–2009, while 115 were reported in 2010.

**Emerging Diseases**

In all, 12,667 suspected cases of influenza A(H1N1) were reported in 2009. Of these, 2,800 (22.1%) were confirmed, for a rate of 10.4 per 100,000 population, and 1,561 cases (55.8%) were in women. The age range of people infected was from 3 months to 85 years; 51.4% of those infected were 10–29 years old. Each case was treated; 19.3% (542) required hospitalization and the rest were treated on an outpatient basis. Pregnant women represented 6.3% (175) of the total and comorbid conditions were present in 70% of these cases. There were 130 confirmed deaths due to this cause, resulting in a case fatality rate of 4.6%. Of 2,685 suspected cases in 2010, 71 (2.6%) were confirmed, for a rate of 2.5 per 1 million people. Sixty-one percent of the cases (43) were among women. Most cases (42.3%) were among adults age 20 to 34. All received treatment, with 28 (1.04%) requiring hospitalization. Eight pregnant women (11.27% of all cases) were infected and two of them died. Comorbidity was present in 60% of the cases (34).

No cases of cholera were reported during this period, although 32 foodborne disease outbreaks were investigated (22, 23, 24, 25).

**Antimicrobial Resistance**

Venezuela's surveillance network is coordinated by the country's national reference laboratory (Rafael Rangel National Institute of Hygiene) and Hospital Vargas, with a network of 34 laboratories throughout the country. According to the network's 2007 performance evaluation, there was 86% agreement on identification at the genus and species levels and 74% agreement on size of the halo or inhibition zone in antimicrobial susceptibility testing (antibiogram) within the reference range. With regard to interpretation of sensitivity, the evaluation showed agreement on 96% of sensitive, 93% of resistant, and 100% of intermediate antibiogram results (35).

**Chronic, Noncommunicable Diseases**

In 2006, diseases of the circulatory system (I05–I09, I11, I13, I21–I51) caused 24,977 deaths (20.5%), a rate of 92.4 per 100,000 population (19). In 2009, deaths related to heart disease rose to 27,353 (20.3%), a rate of 96.4 per 100,000 (5). Malignant neoplasms were the second leading cause of death in the country. There were 18,543 deaths (15.3%) from this cause in 2006 and 20,288 (15.1%) in 2009. Unadjusted mortality rates for these causes rose for all groups, except for cervical cancer, which fell, and breast cancer in men, which did not change (5, 19). Diabetes was sixth among the leading 25 causes of death for 2006–2009. In 2006 it caused 7,181 deaths (5.9%), for a rate of 26.6 per 100,000 population, and in 2009 deaths due to diabetes increased to 8,822 (6.5%), for a rate of 31.1 per 100,000, with no significant difference between the sexes (5, 19).

**Nutritional Diseases**

The nutritional deficit (weight-for-age) in children under 5 declined 21.6% between 2006 (4.5%) and 2008 (3.7%) (10, 11).
Other Health Problems

Oral Health

*Misión Sonrisa* (Mission Smile) was created through Decree No. 4248, of 30 January 2006. As of 2010, a total of 110,514 consultations were completed and 40,258 prostheses were placed.

Risk and Protection Factors

Smoking

Venezuela is a pioneer in the use of the Youth Tobacco Survey (EMTAJOVEN), which has been carried out nationwide among 13–15-year-old schoolchildren. The survey conducted in 2010 showed a significant decline in the number of young people—both male and female—who had ever smoked, from 21.9% in 1999 to 13.2% in 2010. Current use of other tobacco products also fell during the period, from 8.7% in 1999 to 5.1% in 2010, representing a significant change for girls but not for boys. With regard to exposure to second-hand smoke, from 1999 to 2010 boys and girls maintained a high level of acceptance of the ban on smoking in public spaces: 87.3% in 1999 and 87% in 2010. The number of young people exposed to cigarette advertising on billboards in the previous month fell from 80.2% in 1999 to 73.7% in 2010; the difference was significant among boys but not girls. The proportion of youth exposed to cigarette advertising in newspapers and journals also fell significantly, from 80.4% in 1999 to 66.7% in 2010. Likewise, the share of young people who used objects sporting cigarette names or logos fell from 14.9% in 1999 to 6.2% in 2010. Survey results reflected a significant increase in the number of students who received antismoking education at schools—from 42.1% in 1999 to 76.4% in 2010.

Physical Activity

Several governmental and nongovernmental organizations implemented routine physical activity programs with the involvement of civil society.

HEALTH POLICIES, THE HEALTH SYSTEM, AND SOCIAL PROTECTION

HEALTH POLICIES AND THE HEALTH SYSTEM’S STEWARDSHIP ROLE

In December 2006 the new organizational structure of the Ministry of Health was approved. It consists of three vice-ministerial offices: Health Services Networks, Public Health Networks, and Resources for Health. The reorganization of the public health system management structures and of the Government health care networks has made it possible to institutionalize the *Misión Barrio Adentro* as the strategy to overcome health exclusion. The strategy has four phases:

- *Barrio Adentro I*, which comprises community health clinics established nationwide at the first level of care, serves as the entry point to primary health care and the national health system.
- *Barrio Adentro II* includes comprehensive diagnosis centers, comprehensive rehabilitation centers, advanced technology centers, and community clinics. The purpose is to ensure free access to appropriate, high-quality technology and strengthen the capacity and efficacy of the entire primary care network.
- *Barrio Adentro III* consists of village hospitals that provide intensive care and surgical and emergency hospital services.
- *Barrio Adentro IV* refers to highly specialized centers such as the Gilberto Rodríguez Ochoa Latin American Children’s Cardiology Hospital. This phase of the strategy includes construction of new hospitals to respond to the growing demand for third- and fourth-level services to excluded areas. Specialty areas provided include ophthalmology, neuropsychiatry, pulmonology, gastroenterology, infectious diseases, nephrology, urology, endocrinology, and plastic surgery (9).

THE HEALTH SYSTEM’S PERFORMANCE

The health services system in Venezuela has been characterized by its complexity and segmentation.
It comprises the public and private subsectors, as well as multiple stakeholders who fulfill regulatory, financial, insurance, and service delivery functions (9).

In 2008 the Household Survey was conducted to determine people’s level of satisfaction with the health services. Results showed that 93.5% of users of the public-sector services provided by Barrio Adentro were satisfied with them: 75.4% were satisfied with outpatient services or public dispensaries and 71.2% were satisfied with the services provided in public hospitals. Reasons given for dissatisfaction related to a lack of specialized doctors and problems with medicines (9).

**Health Legislation**

The National Health Plan was developed within the framework of the Constitution of the Bolivarian Republic of Venezuela and of the guidelines, approaches, policies, and strategies of the Plan for Economic and Social Development of the Nation for 2007–2013 (the National Simón Bolivar Project).

The responsibilities of the Venezuelan State as the steering entity and regulator in health are performed through the Ministry of Health as described in the decree entitled “Organization and Operation of the National Civil Service,” in the Official Gazette No. 6,732 of 2 June 2009. Article 17 of the decree establishes functions relating to design and implementation of policies for the guarantee, promotion, and protection of public health, as well as regulation and oversight in sanitation, epidemiological, and environmental areas (9).

**Health Expenditures and Financing**

Public health expenditures are managed through a series of entities headed by the Ministry of Health and participating institutes, the Venezuelan Institute for Social Security, the governments of the federal states through national allocations, the Institute of Welfare and Social Assistance of the Ministry of Education, the Ministry of Energy and Petroleum, the Ministry of Defense, the Institute of Social Welfare, and the medical services of other ministries and public agencies.

Funding for public and social programs, including health programs, has increased considerably due to contributions to budgetary allocations from oil revenues. From 1997 to 2007, public social investment rose 17.4 times, of which 13.8% represented contributions from the Ministry of Energy and Petroleum (9).

**The Health Services**

The Barrio Adentro strategy is central to the national Government’s social policy and forms the backbone of the National Public Health System. The Barrio Adentro model of care restores the comprehensive, community approach (health promotion, prevention, and recovery) starting from the concept of social territories, and ensures the continuity of quality care with a sense of humanity, addressing the whole family’s needs and problems. The strategy includes health professionals who specialize in general and family medicine, including universal access to free medications (9).

**Knowledge, Technology, Information, and Human Resource Management**

In 2009 the Ministry of Science, Technology, and Industry and the Ministry of Telecommunications and Information merged, with the aim of supporting large-scale, inclusive access to information and communications technologies, further strengthening technological sovereignty and independence. This includes making the state bureaucracy more accessible and capable of empowering the population. The idea stems from the use and application of information and communication technology as a development tool and from an inclusive communication model as articulated in the National Plan for Science, Technology, and Innovation for

**Information Management and Scientific Production in Health**

From 2006 to 2009 the number of personnel in science and technology in Venezuela increased by 47%. There are 6,829 researchers, of whom 54.52% are women and 45.48% are men. The researchers work in institutions for higher education (88.79%) and in government (9.85%). Medical sciences account for 22.16% and social sciences for 36.23% of researchers. There were 1,400 articles indexed in the Science Citation Index (SCI), 317 in MEDLINE, 38 in the Institute for Information and Documentation on Science and Technology index (ICYT), and 352 in the Latin American and Caribbean Health Sciences Index (LILACS). In 2008, 1,535 articles were indexed in SCI, representing 0.11% of scientific publications worldwide and 5.49 publications per 100,000 inhabitants (37).

**Technology and Health**

The Organic Law for Science, Technology, and Innovation (2005) has facilitated increased financing for projects relating to science, technology, and innovation (38). Investment in science and technology rose from 1.78% of GDP in 2006 to 2.69% in 2007, making Venezuela’s contribution as high as or higher than other countries that invest heavily in science and technology, such as Canada (1.88%) and the United States (2.69%), as well as other countries that traditionally invest in science and technology, such as Brazil, Spain, and Portugal (39).

**Health and International Cooperation**

To comply with provisions in the National Plan for Economic and Social Development (2007–2013), the Office for Technical Cooperation and International Relations of the Ministry of Health has taken action in international forums to advance progress in the health arena, to promote international integration, and to meet Millennium Development Goals. The country supports the advancement and strengthening of existing international cooperation agreements, with an emphasis on research, training, education, exchange, technology transfer, and the development of resources for the national public health system (40).

**Synthesis and Prospects**

In Venezuela, as in the rest of the countries of the Region, there is a need for professional health care workers and technicians and there is fragmentation among publicly funded institutions that provide health care. This presents barriers to developing a strong national public health system, and decreased fragmentation and segmentation among entities that provide health services is needed. Two strategies for strengthening the national public health system should be highlighted: 1) functionally integrating health facilities in the context of comprehensive community health areas (*Areas de Salud Integral Comunitaria*—ASIC), and 2) increasing the number of health professionals through creative training programs.

Comprehensive community health areas allow interaction between the health services system that makes up *Barrio Adentro I* and *II* and social networks and other services; a social territory serves as the base from which the primary health care services network links with social networks in the community and other social initiatives.

The network of services provided in comprehensive community health areas uses a comprehensive and intersectoral model of a continuum of free, universal health care for families and communities. *Barrio Adentro* has also incorporated an innovative human resource health education strategy into the comprehensive community health areas. The academic standards are high and participants are socially committed. The initiative began by training...
specialists in general comprehensive medicine through three years of postgraduate training. By 2010, a total of 984 specialists had been trained. At the same time, 837 comprehensive community dental specialists were trained and a 6-year undergraduate training program was launched for comprehensive community physicians focusing on primary care. The program to train community physicians occurs at the municipal level, training future doctors who have ties to the community and their place of origin, in an exercise based on solidarity and humanism. Training is carried out in primary health care centers (Barrio Adentro I and II) under the guidance of professionals from the Cuban Medical Mission in Venezuela, and in hospitals through clinical internships in various specialties (medicine, surgery, pediatrics, gynecology and obstetrics, etc.) under the supervision of Venezuelan physicians.

In 2010, the first class of comprehensive community physicians (nearly 9,000) completed the fifth year of their academic careers. In total, 20,578 medical students have been added at different levels of care, demonstrating the advantages of providing training in the same impoverished communities from which most of the doctors come and in which they will work upon graduation.

REFERENCES


