
DOMINICAN REPUBLIC

OVERVIEW

The Dominican Republic shares the island of Hispaniola, located between the Caribbean Sea and the Atlantic Ocean, with Haiti and occupies 74% of the island on its eastern side. The country has a land area of 48,442 km², and its population in 2000 was an estimated 8,396,164, making for a density of 173.3 inhabitants per km². There are 30 provinces plus the National District.

In May 2000 the Dominican Revolutionary Party (the opposition of the party then in office) won the presidential election by a plurality in 97% of the townships, and it also won the majority of seats in the legislature. The new government was inaugurated in August of that year. The transfer of power has been a slow process in all spheres of activity, but nevertheless some important steps have been taken. These include the enactment of the General Law on Health and Social Security; passage of fiscal and tax legislation enhancing the State's capacity to spend and collect monies; an increase in national budget allocations for education and health; creation of a social cabinet and implementation of measures for social compensation; the establishment of three new Secretariats—one for the Environment, another for Culture and Higher Education, and the third for Science and Technology—and integration as a full participant into the Caribbean and Central American subregional free trade agreements.

For decades the country's economy was based on agriculture, but mining began to take on importance in the 1970s with growing demand for the country's ferronickel, gold, and silver. At the same time, free export industry zones and tourism were developing infrastructure along the northern coast and in the far eastern part of the country. The exchange rate went from 13.6 Dominican pesos per U.S. dollar in 1996 to 16.3 in 2000. In September 1998 the country was battered by Hurricane Georges, causing losses estimated at US\$ 2,024 million. The country has also been servicing a foreign debt that represented 18.6% of GDP in 2000.

Macroeconomic indicators showed overall economic growth during the period 1996–1999, with an average annual increase in GDP of 7.8%, followed by 6.8% in 2000 (Figure 1). This growth

was seen especially in mining (16.4%); hotels, bars, and restaurants (16.1%); communications (14.1%); transportation (13.9%); trade (13.3%); manufacturing (12.3%); electric power and water (10.4%); agriculture (6.8%); and construction (6.4%). Thus it can be seen that the economy has developed on the bases of services and light industry, tourism, financial services, communications, construction, free zones, and trade. Annual per capita GDP has been rising since 1996, and in 1999 it was US\$ 1,887 (\$73,990 Dominican pesos), or 17% higher than it had been the year before. The inflation rate ranged from 4.0% in 1996 to 5.1% in 1999. The central government had a budgetary deficit in the first half of 2000, due mainly to lower tax revenue as a result of the higher cost of oil.

During 1996–1999 social spending as a proportion of public expenditure averaged 39%, and the proportion relative to GDP was 6%. On average, spending on health represented 8.9% of total public expenditure and 22.8% of all social spending. Public investments in social development (health, education, and social welfare) represented 5% of GDP. In 1999 the real minimum wage (in constant US dollars) was 20% higher than it had been in 1980. Unemployment fell from 16.7% of the economically active population (EAP) in 1996 to 13.9% in 2000, and 61% of the increase in employment during 1996–1999 corresponded to the informal sector. In 1997, the proportion of EAP working in microenterprises was 28.4%, and this figure rose to 34% in 1998. The Central Bank reported that in 1998, 43.9% of the EAP was self-employed, 33.5% was working in the private sector, 10.8% was in the public sector, 5.3% consisted of unpaid workers, and 3.4% was engaged in domestic service. Women predominated in domestic service, the public sector, and unpaid labor.

According to the National Survey of Household Expenditure and Income (ENIGH), the ratio of the highest income quintile to the lowest quintile decreased from 12.1 in 1992 to 10.4 in 1998, for a concomitant reduction in the Gini index from 0.482 to 0.456. In 1998, 25.8% of the Dominican population (21.5% of the households) was below the poverty line (monthly income of US\$ 60 per capita), which represented a reduction relative to 1992 (31.7% of the households), but it still meant that 2.1 million peo-

ple were living in poverty, 3.9% of them under 10 years of age. The same survey, when repeated in 1999, showed that 45% of the poor households did not have piped water to their homes, 64.8% used latrines for the elimination of excreta, 64.2% did not have the benefit of refuse collection services, and 50% lived in homes with walls made of wood or thatched palm leaves.

In 1999, 66.5% of the poor people lived in cities, compared with 47.9% in 1992. Between 1992 and 1999 the proportion of female heads of household rose from 21.7% to 24%, while the proportion of heads of household with less than eight years of schooling declined from 77.4% to 70.9% and the proportion of poor households with seven or more members dropped from 24.2% to 13.2%. In 1999 the poverty rate was 12.5% in the National District, compared with 33.5% in rural areas and 18.6% in other urban areas. The worst living conditions in rural areas were found in households headed by agricultural workers. For homes in which the head of household had no schooling at all the poverty rate was 37.8%, compared with 2.8% for those in which the head of household had a university education. There was a positive correlation between poverty level and number of household members: households with more than six members had a poverty rate nearly four times greater than those with fewer than three members (37.5% and 10.3%, respectively).

A study on patterns of poverty revealed considerable heterogeneity between one health region and another in the interior of the country. In 1996 all the regions saw a reduction in the proportion of poor households relative to 1993. In 1996 more than 75% of the poor households were located in the Enriquillo and El Valle regions, and the latter had the highest level (47%). There were also great contrasts within the provinces that make up the regions, except in El Valle, where the proportion of poor households was higher than 80% in all the provinces. In the Yuma region the proportion of poor households ranged from 90% in the province El Seibo to 50% in La Romana. One poverty belt was identified along the Haitian border and another one ran from north to south in the central part of the country, while the situation was heterogeneous in the eastern half, where high levels of poverty in Sánchez Ramírez, Monte Plata, Samaná, and El Seibo contrasted sharply with low levels in the National District, San Pedro de Macorís, and La Romana on the Caribbean coast. In absolute numbers, the National District and Santiago have the largest concentrations of poor households. There is also heterogeneity between municipalities in all but the poorest provinces (Elías Piña, Bahoruco, and El Seibo), which are relatively homogeneous. In the city of Santo Domingo (the urban part of the National District), the neighborhoods have poverty levels ranging from 70% in Domingo Savio and La Zurza to 2% in Piantini, La Esperilla, San Gerónimo, and Los Cacicazgos.

In 1998 the literacy rate was 84.4% among adults over the age of 15 (83.9% in women and 85% in men). The gross matriculation rate (at the primary, secondary, tertiary, and baccalaureate levels) was 73.5% (74.3% for girls and 72.7% for boys), while

13.5% of the population aged 15 to 45 had a university-level education (18.4% in urban areas and 4.3% in rural areas). At the same time, 15.6% of the population over the age of 15 was illiterate, and the figure was nearly three times greater in rural areas (25.6%) than in the cities (9.9%).

Of the persons interviewed in the household survey who had sought medical and dental care, 46.8% used public services and 53.2% went to private establishments. For 32% of the respondents the cost of medical and dental care, as well as drugs, came out of the family budget, constituting an especially heavy burden for the poorer households.

According to national population projections for 2000 of 8,396,164 inhabitants, 60.2% resided in urban areas and 39.8% in rural areas. The natural growth rate declined from 20.6 per 1,000 in 1990–1995 to 18.6 per 1,000 in 1995–2000, and in the same time span the crude birth rate fell from 26.9 per 1,000 to 24.5 per 1,000. In terms of age distribution, children and youth under 15 years represented 36.4% of the population in 1990–1995, and this proportion was down to 33.5% in 1995–2000, while the group aged 60 and over increased from 6% to 6.5% in the same periods (Figure 2). Life expectancy at birth in 2000 was estimated at 70.1 years (67.8 for men and 72.4 for women). In that same year the general fertility rate was estimated at 2.7 children per woman, and net migration was calculated at –1.4.

Mortality

Figure 3 shows estimated mortality by sex and broad groups of causes for 1995–2000. The estimated crude mortality rate for 1995–2000 was 6 per 1,000 population; however, underregistration is believed to be as high as 42%, which limits the usefulness of mortality rates in understanding the evolution of specific causes and their geographic and social distribution. In 1998 the crude rate of registered mortality was 3.3 per 1,000 population. Ill-defined conditions declined from 57.4 per 100,000 population in 1995 to 31.1 per 100,000 in 1998. That same year, 83.8% of the registered deaths were physician-certified. Registered proportional mortality by age groups was 21% for the period 1994–1998, and in 1998 registered mortality by age groups was as follows: 1–4 years, 2.4%; 5–14 years, 2.1%; 15–49 years, 23.8%; 50–64 years, 16.3%; and 65 and over, 43.9%.

HEALTH PROBLEMS

By Population Group

Children (0–4 years)

In 1998, underregistration of deaths in infants under 1 year of age was estimated at 60%, and it was even higher for neonatal mortality (mainly associated with premature births), which in

1999 represented more than 80% of all infant deaths. According to the standards adopted as part of the Infant Mortality Surveillance System in 1997, all deaths in infants under 24 hours old must be reported and investigated. Estimated infant mortality declined from 47 per 1,000 live births in 1990–1995 to 40 per 1,000 in 1995–2000, with much of the reduction in postneonatal mortality. This improvement was the result of fewer deaths from communicable diseases; between 1994 and 1998 the proportion of registered infant deaths from this group of causes fell 34%. During the same period, conditions arising in the perinatal period increased 31%, external causes were up from 1.4% to 2.5%, and neoplasms remained at 2%. In 1998, conditions arising in the perinatal period accounted for 64.5% of the deaths reported to the surveillance system; communicable diseases, 13%; and acute diarrheal diseases, 9.4%.

In 1998, registered mortality in children 1 to 4 years was 2.4%. The leading cause of death was communicable diseases (40%), followed by external causes (24.6%).

According to the Secretariat for Health and Social Welfare, in 1999 the five leading causes of morbidity in infants under 1 year old were acute respiratory infections (668.8 per 1,000 infants in that age group), acute diarrheal diseases (329.3 per 1,000), parasitoses (138.5 per 1,000), anemia (66 per 1,000), and dermatitis (50.8 per 1,000). In children aged 1 to 4 years the primary causes of morbidity were acute respiratory infections (221.2 per 1,000) and acute diarrheal diseases (69.4 per 1,000).

According to the latest Demographic and Health Survey (ENDESA-96), which covered the period 1993–1996, 47.8% of all children under 5 years old had had at least one episode of acute respiratory infection in the two weeks prior to the interview. The survey also found a 10.7% prevalence of chronic malnutrition, while that of global malnutrition was 5.9% and acute malnutrition was 1.2%. Data from the National Epidemiological Surveillance System indicate that the age groups most affected by dengue in 1999 were infants under 1 year, followed by children 1 to 4 years old, with rates of 45.2 and 28 per 100,000, respectively.

Schoolchildren (5–9 years)

Registered proportional mortality in the group aged 5 to 14 years remained stable. External causes headed the list of causes of death, with an increase of 35.8% between 1986 and 1998, and the second leading cause was communicable diseases, which rose 7.8% relative to 1986.

This age group is at greatest risk for dengue, followed by the 1–4-year-old group and infants under 1 year. In 1999 the reported rate of dengue in children 5 to 9 years old was 27.3 per 100,000 children in that age group, and in adolescents 10 to 14 years old the rate was 18.4 per 100,000.

Adolescents (10–14 and 15–19 years)

According to the results of ENDESA-96, 12.5% of the male population aged 10 to 19 years had no education, 34.3% of them

had one to four years of primary school, and 37% had five to eight years of primary school, while among girls of the same age 7.7% had no education, 29.4% had 1 to 4 years of primary school, and 41.4% had five to eight years of primary school. Estimated fertility in adolescents aged 15 to 19 was 87 per 1,000 in urban areas and 160 per 1,000 in rural areas. The proportion of adolescents who had initiated procreation increased from 18% in 1991 to 23% in 1996 (18.4% in urban areas and 30.6% in rural areas), and the rate was higher among those without education (58.3%) than among those with secondary (11.4%) or higher (5.2%) education. The newborn children of girls under 18 years with an interval between pregnancies of less than 24 months were four times more likely to die than were those of older mothers with longer intervals between pregnancies. It was also found that 32.7% of adolescents 15 to 19 years old had already initiated sex activity, as had 12.2% of those under the age of 15.

Adults (20–59 years)

In the year 2000, 60% of the population was between 15 to 59 years old. In 1998 registered proportional mortality was 23.8% (14.4 per 1,000), and the most frequent causes of death were external causes (36.2%) and communicable diseases (20.7%), due basically to increased registered mortality from tuberculosis and AIDS (10.8 per 100,000: 8.4 in women and 13.9 in men). In 1998 the leading causes of death in women of reproductive age were AIDS (12.3% of the deaths), transport accidents (6.2%), and cardiovascular diseases (5.8%), while in men the most frequent causes were transport accidents (17.5%), other external causes (12.4%), homicide (11.1%), and AIDS (10%).

In the group aged 50 to 64, registered mortality ranged from 16.7% in 1994 to 16.3% in 1998. Diseases of the circulatory system, the leading cause of death, declined from 41.1% in 1994 to 37.7% in 1998, while neoplasms ranked second, at 19.1% in 1994 and 18.3% in 1998.

ENDESA-96 found that the highest fertility rate was in the group aged 20 to 24 years, with 199 births per 1,000 women (170 per 1,000 in urban areas and 261 per 1,000 in rural areas), followed by the group aged 25 to 29, with 157 per 1,000 women (143 per 1,000 in urban areas and 186 per 1,000 in rural areas). The general fertility rate was 2.3 births per woman (2.8 in urban areas and 4 in rural areas). Among women of reproductive age, 85% had used contraceptives at some time (61% modern methods and 24% traditional methods). The most frequently used modern methods were the pill (43%) and female sterilization (29%).

Among the respondents to ENDESA-96, 98.5% of the pregnant women had prenatal checkups, 98% of them with a physician; 93% received prenatal care during the first six months of their pregnancy, and 88% had four or more visits. In 96% of the cases, delivery took place at a health center (75% public and 25% private). The maternal mortality rate fell from 110 per 100,000 live births in 1990 to 80 in 1999, and the leading causes of death were toxemia, hemorrhage, and sepsis.

The Elderly (60 years and older)

The population over 60 represented 6.5% of the nation's total in 2000, with a masculinity index of 97.5%. Mortality data are tabulated for the elderly starting at age 65. The leading cause of death was diseases of the circulatory system, which accounted for 52% of the deaths in this age group in both 1994 and 1998. All other causes declined from 30% in 1994 to 22% in 1998, and neoplasms were 14.9% and 15.7%, respectively. The people in this population group live for the most part in multigenerational households (fewer than 10% live alone), and 90% of them are self-sufficient. This age group has the highest illiteracy rate (41.8%) and the lowest social security coverage (less than 10%).

The Bureau for Protection of the Elderly in the Secretariat for Public Health coordinates a network of 28 residences for seniors (4 of them government institutions and 24 of them subsidized) and 2 public and 13 private centers that offer daytime elder care. Most of them operate under precarious technical and financial conditions. The initiative "For a Dignified Old Age" brings together nongovernmental organizations that work in the areas of prevention and health education, promotion, and care. In the country's hospitals there is only one complete geriatric unit, which is not readily accessible to the poor population, and three other hospitals have staff specialized in geriatric care. In 1998 a law was enacted on the protection of persons over 65 which might provide support for those not covered by social security, and its enabling regulations are currently being written.

Family Health

According to ENDESA-96, 27% of the households are headed by women (one in every three in urban areas, and one in every five in rural areas). Eight percent of the households consist of only one person; 66% have between two and five members, and 25% have six or more. Most children and adolescents under the age of 15 (56%) live with both parents, 22% live with the mother, 5% with the father, and 14% with neither the mother nor the father. Of the last-mentioned, 30% are 0–2 years old, 40% are between the ages of 3 and 5 years, 16% belong to the 6–9 years group, and 18% are between 10 and 14 years old.

Workers' Health

The Dominican Social Security Institute (IDSS) reported 6,083 work-related accidents in 2000, and of this number, 5,233 were in the National District and 77% required hospitalization. The largest number of accidents occurred in the manufacturing and construction industries. Workers with less than one year on their particular job were at greatest risk for accidents. That same year 1,504 cases of occupational disease were reported, and the most frequent causes were heavy metal poisoning (21.5%), occupational dermatoses (14.8%), arterial hypertension (14.7%), and exertion-related low back pain (12.6%).

Border Populations

The country's greatest concentration of poverty forms a belt along the Haitian border. The report on patterns of poverty considered the following measures to address unmet basic needs, quantified on the basis of data from the 1993 census: improve the material conditions of housing; reduce overcrowding; improve the availability of potable water, household wastewater disposal, and the collection of solid waste or refuse; and increase the availability of electric energy, productive jobs, schools, education subsidies, and adult education programs.

By Type of Health Problem*Natural Disasters*

The country is exposed to hurricanes because of its geographical location and to earthquakes because of its proximity to a geological fault in the central mountain range. The most frequent natural disasters are floods, and the most vulnerable areas are the outskirts of the cities. The greatest damage in recent years was inflicted by Hurricane Georges, which battered much of the country in September 1998 and caused economic losses estimated at US\$ 2,193 million. The rains resulted in floods and other types of damage that affected almost the entire population either directly or indirectly. Some 49,000 homes were completely destroyed and 121,714 were partially destroyed; 28% of the schools, 87 health establishments, and 6,000 hotel rooms or other tourist accommodations were affected to some degree; and more than 500,000 people were evacuated from their homes, 301,266 of them temporarily housed in 584 shelters erected for the purpose. The surveillance system registered 239 hurricane-related deaths.

Vector-borne Diseases

Malaria saw an upswing in 1998 and 1999 following Hurricane Georges. In 1997 there were 816 cases, with a slide positivity rate (SPR) of 0.18 and an annual parasite index (API) of 100 per 100,000 population. Then in 1998 the number of cases rose to 2,006, the SPR was 0.44, and the API was 240 per 100,000, and in 1999 the cases peaked at 3,589, with an SPR of 0.52 and an API of 42.7 per 100,000. By 2000 the number of cases was back down to 1,233, the SPR was 0.21, and the API was 14.7 per 100,000.

Two epidemiological patterns of malaria have been identified. The first involves endemic transmission, which occurs in 34 municipalities in 6 provinces inhabited by 10% of the country's population and has accounted for 80% of the cases in the last 10 years. The pattern in these areas is seasonal and is related to agricultural production cycles and the movement of temporary migrant workers. The other pattern is characterized by endemic outbreaks associated with the construction industry in areas experiencing rapid economic development which have attracted large numbers of migrant workers from the endemic areas of the

island. It affects the remaining 124 municipalities, where 90% of the population lives.

Since 2000 there has been increased coordination with Haiti in this area. A joint proposal for the elimination of malaria has been developed and international cooperation has been requested.

Dengue is endemic in the Dominican Republic. In 1995 steps were initiated to organize surveillance, including serologic testing and isolation of the virus, and in 1997 the active case-finding strategy was incorporated. In 1998 a total of 2,923 probable cases were identified (35.7 per 100,000 population), and 1,118 of these (38.2%) were confirmed. In 2000, 3,462 probable cases were reported and 798 of these (23%) were confirmed, including 58 cases of hemorrhagic dengue, 6 of which were fatal. Incidence peaks between the months of June and October, at the time of the rainy season, and remains low during the rest of the year. The dengue-1, -2, and -4 serotypes had been circulating simultaneously, but starting in July 2000, dengue-3 became predominant. *Aedes aegypti* infestation indexes are high in urban areas (60%). Studies conducted by the Tropical Disease Control Center found that tanks used to store water in urban homes were the primary breeding ground for the vector. Laboratory studies conducted by the Center showed the ovicidal effect of "oiled" chlorine applied to the inside walls of the water storage tanks.

In 2000 a dengue prevention strategy was launched in which the community was enlisted to apply chlorine to the inside walls of the household water tanks. The use of insecticides at the community and household level has been reserved for emergency epidemiological situations.

Lymphatic filariasis is the target of a control program launched in 1999, which includes the identification of foci through school surveys conducted at the municipal level and mass treatment of the population once a year. Foci of schistosomiasis and cutaneous leishmaniasis have been identified, but the frequency of these diseases is very low.

Diseases Preventable by Immunization

The last confirmed case of polio was registered in 1985. During 1994–1999 a total of 147 cases of flaccid paralysis were reported, all of which were determined not to be polio. In October 2000 there was an outbreak caused by a poliovirus derived from the Sabin type 1 vaccine virus. Between July 2000 and June 2001 a total of 104 cases of acute flaccid paralysis (3.4 per 100,000 population under 15 years of age) were detected: 14 of these were confirmed by isolation of the virus, 12 were classified as compatible based on clinical data, 62 were ruled out, and 16 were still pending classification. The 14 confirmed cases were from Santo Domingo (3) and the provinces of La Vega (6), Santiago (3), Monseñor Nouel (1), and Espaillat (1). The age of the patients with confirmed or compatible cases ranged from 9 months to 14 years, and the age group most affected was children 1–4 years old (0.9 per 100,000). In 5 of the 14 confirmed cases the family mem-

bers did not know if the children had been vaccinated, and 4 of them were given a single dose of oral polio vaccine (OPV).

National coverage of infants under 1 year old with three doses of OPV has been about 80% over the last five years. In the municipality of Constanza, La Vega Province, where most of the cases in the outbreak occurred, coverage of children under 5 years old had been only 20% to 30%. The national vaccination days had been discontinued five years ago, but three national polio vaccination campaigns were conducted during 2000–2001, with coverage ranging from 97% to 100% (Figure 4).

A case of measles was confirmed in 1997 after two years with no reported cases, and in December 1998 an outbreak occurred in the eastern part of the country which spread to other provinces over the next two years. In 1998 there were 14 confirmed cases; in 1999 the number rose to 274; and in 2000 there were 253. Infants under 9 months were most affected in 1999 and 2000 (14.4 and 15.3 per 100,000, respectively), followed by children between 1 and 4 years old (11.3 and 7.4 per 100,000). Vaccination coverage of infants under 1 year in 1997 and 2000 ranged between 80% and 95%. In 2001 there were 112 confirmed cases of measles, but none of these occurred after the measles vaccination follow-up campaign conducted in the first half of that year.

During 1997–2000 there were 145 cases of diphtheria, with 36 deaths. In 1999 and 2000 the age group most affected was 1–4-year-olds, with incidences of 3.4 and 2.5 per 100,000, respectively. The province of Santiago accounted for 31 (89%) of the cases reported in 1999 and 39 (78%) of those reported in 2000. National coverage of infants under 1 year with three doses of DPT vaccine ranged from 74% to 80% in 1997–2000. Vaccination coverage in the province of Santiago was 67% in 1998, 56% in 1999, and 81% in 2000.

A total of 82 cases of whooping cough and 4 deaths were recorded during 1997–2000. Forty (49%) of these cases were reported in 2000, and 26 (65%) occurred in the province of Santiago, while the age group most affected was infants under 1 year (15.1 per 100,000).

There were no cases of neonatal tetanus in 1997 or 1998; one case was reported in 1999 and four in 2000, all five of them fatal. Two of the mothers did not know their vaccination history, and three had not been vaccinated. With regard to nonneonatal tetanus, 102 cases were reported in 1997 and 2000, and 26% of these were fatal. The age group most affected in 2000 was 1–4-year-olds (1.24 per 100,000), followed by adults between the ages of 30 and 34 (0.8 per 100,000). The extent of Td and TT coverage in adults is unknown.

Epidemiological surveillance of rubella was initiated in 1999. During that year there were 346 confirmed cases, and in 2000 there were 818. The age groups most affected in 1999 were children 5 to 9 years old (7.8 per 100,000) and young adults aged 20 to 24 years (6.4 per 100,000). Again in 2000 the group most affected was children between 5 to 9 years (21.4 per 100,000), and adoles-

cents 10–14 years old (13.3 per 100,000) were in second place. Vaccination against rubella has not yet been introduced.

Surveillance for *Haemophilus influenzae* type b (Hib) infections was begun at sentinel hospitals in 2000. Population-based studies of meningitis conducted in 1998 and 1999 revealed an annual incidence of 14 per 100,000 in children under 5 years old in the National District. Vaccination against Hib was initiated in 2001. No surveillance system has been established for hepatitis B. Third-dose vaccination coverage of infants under 1 year ranged from 46% in 1997 to 68% in 1999.

Intestinal Infectious Diseases

A national survey of the school population was conducted in 1999 to detect parasitoses and followed up with deparasitation campaigns. The results showed that 65.5% of the schoolchildren were infested. The protozoa most frequently found were *Blastomyces hominis* (27%), *Entamoeba coli* (26.7%), and *Giardia lamblia* (17.7%), and among the helminths the most frequent were *Trichuris trichiura* (5.5%), *Ascaris lumbricoides* (4.9%), and *Necator americanus* (2.3%). The survey was repeated in 2000 for evaluation purposes.

Chronic Communicable Diseases

The incidence of tuberculosis in 2000 was 62.4 per 100,000 population, and the rate of cases diagnosed on the basis of positive sputum smear was 34.3 per 100,000 population. Nine cases of tuberculous meningitis were reported that year in children under 5 years of age. It is estimated that more than 10% of tuberculosis patients are HIV-positive.

The National Tuberculosis Control Program has had limited capacity for case-finding and overseeing the full course of treatment. It is estimated that in 1999 only about 60% of the cases were detected and only 49.6% of these were cured; 16% of the cases were resistant to one of the first-line drugs and 4% presented multidrug resistance. The incidence that year varied considerably from one province to another, with the highest rates recorded in San Juan (143.4 per 100,000 population), La Romana (96.9), San Pedro de Macorís (85.2), and the National District (81.7).

In 1999 three services began to offer directly observed treatment, short course (DOTS), and in 2000 the strategy was extended to selected establishments in five provinces, with plans to incorporate it progressively over a period of two years in the primary care services responsible for 60% of the national population at greatest risk. The target is to detect at least 70% of the estimated sputum smear-positive cases and cure 85% of them.

Leprosy has declined considerably: in 2000 overall incidence was lower than 3 cases per 100,000 population. Execution of the control program has been the responsibility of the Dermatology Institute, which is subsidized by the Secretariat for Health. There are few localities left with incidence rates as high as 10 per 100,000, and the trend is for leprosy to disappear as a public health problem in the coming years.

Zoonoses

Rabies is the most important zoonosis. The frequency of rabies in domestic animals and the human population has tended to fluctuate in relation to the annual vaccination coverage of dogs. When coverage is low or there is a long interval between doses, the number of cases in animals tends to increase and human cases begin to appear, traceable either to mongoose foci in the wild or to the large canine population in marginal urban areas. Between 1990 and 1997 a total of 12 human cases were registered, but there were none between 1998 and 2000. In 2000, 64 cases were reported in animals: 32 in dogs, 21 in mongooses, and 11 in other species. Most of the cases in animals (59%) were in the National District, San Pedro de Macorís, and Dajabón. National canine vaccination coverage was very low in 1999 (27%) and 2000 (less than 5%). The country produces vaccines for both human and animal use.

There have been confirmed isolated cases and small outbreaks of leptospirosis. Toxoplasmosis infections have been reported in pregnant women in some areas of the country. Brucellosis infections have occurred on farms.

HIV/AIDS

Between 1995 and 1998 the annual incidence of reported cases of HIV/AIDS fell from 6.4 to 3.9 per 100,000 population, but it is believed that underregistration is high. In 2000 it was estimated that 2.4% of the population of reproductive age was HIV-positive, which means that more than 100,000 adults are living with HIV/AIDS (40% of them women). It is estimated that between 1999 and 2005 about 29,000 new people will become infected, 5,000 of them children under the age of 5 years (Figure 5).

In 1998 AIDS accounted for 3.7% of all mortality diagnosed at the national level. The epidemic, once concentrated in groups traditionally regarded as being at high risk, has now extended to the general population. That same year 80% of the reported cases were in heterosexuals. The male-female ratio is nearly 1. The cases reported between 1991 and 1998 have occurred mainly (61%) in the 25–39 years age group. Transmission via blood transfusion and intravenous drug use is very low.

Sexually Transmitted Infections

Based on information provided by women in surveys, the following annual incidence rates have been estimated for some of the sexually transmitted infections: syphilis, 300 per 100,000 population; genital ulcers, 2,300 per 100,000; genital herpes, 900 per 100,000; venereal verruca, 200 per 100,000; and chlamydia, 620 per 100,000, while the frequency of gonorrhea and chancroid was very low. Of the women interviewed, 26.9% said that they had had a vaginal infection in the last year and 32.9% reported that they had had a sexually transmitted disease.

Nutritional and Metabolic Diseases

The Demographic and Health Surveys of 1991 and 1996 show that the prevalence of malnutrition in children under 5 years old

has declined. In both surveys the percentages of children with –3 or more standard deviations in terms of weight for age and height for age were higher in rural areas. In 1996 the two indicators had improved in both urban and rural areas, as had the difference between them. The largest deficits were in height for age, which nevertheless fell in urban areas from 3.1 in 1991 to 1.6 in 1996, and in rural areas from 9.8 to 4.4. Reductions occurred in all regions of the country, although in 1996 differences were still observed in the interior: Region VI (provinces of San Juan de la Maguana and Elías Piña) and Region IV (Pedernales, Independencia, and Bahoruco) were the most affected (7.4 and 4.3, respectively). The height-for-age deficit in schoolchildren was about 20%.

Acute malnutrition in infants under 1 year seen at health establishments declined from 2.2% in 1994 to 0.75% in 1999; in children 1 to 4 years old it fell from 3.1% to 0.9%; and in those aged 5 to 14 years it decreased from 0.6% to 0.2%. The incidence of low birthweight has been falling steadily, and in 2000 it was 7.3%. ENDESA-96 found that 90% of newborns were breast-fed; the average duration of breast-feeding increased from 1.7 months in 1991 to 10.5 months in 1997; and the proportion of infants breast-fed during the first 6 months of life increased from 50% to 71.5%.

Micronutrient surveys conducted in the population under 15 years of age in 1993 brought to light the following deficiencies: iron, 30%; iodine, 74%; and vitamin A, 19%. School breakfast and lunch programs have been introduced since then, and the coverage of these programs has been steadily increasing. Iodization of salt is compulsory.

Diabetes is a growing problem. In 1986 it accounted for 2.1% of all diagnosed deaths (7.1 per 100,000 population), and by 1998 this proportion had risen to 4.2% (12.3 per 100,000).

Diseases of the Circulatory System

More than 10% of all consultations, more than 6% of emergency visits to the country's health establishments, and 80% of adult nonobstetric hospital admissions were for cardiovascular diseases. Survey results have set the prevalence of hypertension in adults at 24% nationwide. These diseases head the list of broad groups of causes of death, rising from 29.4% (85.3 per 100,000 population) in 1986 to 34.2% (103.56 per 100,000) in 1998. In 1998 the leading diagnosed causes of death in the general population were ischemic heart disease, which rose from 7.1% (23.1 per 100,000 population) in 1986 to 11.3% (19.8 per 100,000), and cerebrovascular diseases, which increased from 6.6% (21.8 per 100,000) in 1986 to 8.8% (15.5 per 100,000). The rate of diagnosed mortality from hypertensive disease was 3.8% (5.1 per 100,000 population) in 1998, up from 2.6% (8.6 per 100,000) in 1986. In 1998 cardiovascular diseases accounted for 37.5% of all diagnosed deaths (112.1 per 100,000 population) in men and 44.2% (95.1 per 100,000) in women. In particular, ischemic heart disease in men increased from 4.1% (13.4 per 100,000 population) in 1986 to 11.3% (19.8 per 100,000) in 1998.

Neoplasms

Between 1986 and 1998 registered mortality due to neoplasms increased from 9.4% (26.1 per 100,000 population) to 13.1% (39.7 per 100,000). The most frequent sites in patients who died in 1998 were the prostate, 1.9% (5.9 per 100,000 population); other digestive organs and the peritoneum, 1.8% (5.8 per 100,000); trachea, bronchus, and lung, 1.4% (4.4 per 100,000); stomach, 0.9% (2.8 per 100,000); breast, 0.8% (2.5 per 100,000); colon, 0.6% (1.8 per 100,000); and uterine cervix, 0.5% (1.57 per 100,000). In that same year, the most frequent sites in males were the prostate, 3.4% (11.8 per 100,000); other digestive organs and the peritoneum, 1.7% (5.9 per 100,000); and trachea, bronchus, and lung, 1.6% (5.5 per 100,000). In women the most frequent sites were other digestive organs and the peritoneum, 2.3% (5.8 per 100,000); breast, 1.9% (4.8 per 100,000); trachea, bronchus, and lung, 1.3% (3.2 per 100,000); and uterine cervix, 1.2% (3 per 100,000).

Accidents and Violence

Mortality in this overall group of causes rose from 16.5% (26.4 per 100,000 population) in 1986 to 19.5% (34.2 per 100,000) in 1998. During the same period the mortality rate from accidents increased slightly (from 23 to 24.8 per 100,000), although the proportion of deaths declined (from 68.5% to 61%). Homicides increased somewhat in terms of their rate (from 5.5 to 8.2 per 100,000) and the proportion rose slightly (from 15.5% to 16.3%), while suicides more than tripled in both respects, from a rate of 2 per 100,000 population and a proportion of 6% in 1986 to 7.5 per 100,000 and 18.5% in 1998. The rate of other unclassified external causes dropped from 9.2% to 0.3% of all external causes because of improvements in certification and coding.

According to National Police records, deaths from traffic accidents in 2000 were up 1% from 1998.

Emerging and Re-emerging Diseases

The reported incidence of meningococcal disease has been rising steadily as the surveillance system launched in 1996 has become stronger and laboratory support has improved. In 1998 the rate was 2.4 per 100,000 population, and in 1999 it was 2.3 per 100,000. Children under 9 years old were at greatest risk in 1999, and that same year 80% of close contacts or probable cases received chemoprophylaxis within 72 hours.

In the National District a specialized epidemiological surveillance system has been implemented for bacterial meningitis, and it detects about 600 probable cases a year, of which about 50% are confirmed. In children under 5 years old *Neisseria meningitidis* accounts for less than 10% of all laboratory-confirmed cases of bacterial meningitis—less than the frequency of *Haemophilus influenzae* type b (60%) or *Streptococcus pneumoniae* (30%). In the cases of meningococcal disease confirmed by isolation of *N. meningitidis*, the serogroup C has predominated (80%).

Foodborne diseases have been increasing in frequency and importance as national and international tourism has grown.

Ciguatera, from the ingestion of marine fish, is the most frequently reported food poisoning in household outbreaks. In institutional outbreaks, on the other hand, *Staphylococcus* in dairy products has been the agent most often involved, especially in schoolchildren.

RESPONSE OF THE HEALTH SYSTEM

National Health Policies and Plans

During the 1996–2000 quadrennium, health policies were tied to the process of State modernization. The principal actions were directed toward decentralization, availability of services, and drug safety, and measures were also taken to address problems related to the coverage, organization, management, and quality of services. In addition, progress was made in a set of strategies that focused mainly on primary care and democratization of the health system in order to achieve greater equity and eliminate exclusions based on purchasing power, place of residence, ethnic group, sex, age, disability, or state of health.

At the same time, the sectoral reform process was addressed in depth, with emphasis on improving organization, reducing poverty, modifying the financing system and the allocation of resources, and revising the functions and responsibilities of health system institutions. The Secretariat for Health adopted the reduction of maternal and child mortality as a high priority, introduced a new health care model, adopted a policy for the deconcentration and decentralization of management, and formulated programmatic and administrative standards, as well as norms for epidemiological surveillance.

Health Sector Reform Strategies and Programs

The Secretariat for Health and the central government have been actively promoting health sector reform, and in 1997 they established a framework for the process based on six guiding principles: universality, equity, integrality, solidarity, participation, and sustainability. That same year the Presidential Commission for Health Sector Reform was created and given the mission to promote and develop the reform process. The Secretariat for Health and the Dominican Health Insurance Institute hold seats on the commission, as do other agencies of the executive branch, health unions, the Congress of the Republic, and representatives of the community and the private sector.

The following steps were taken toward health sector reform during the period: creation of provincial and regional health directorates as a basis for the deconcentration and decentralization of Secretariat for Health management; increased deconcentration of hospital management through the implementation of enabling regulations on this subject; creation of hospital administration councils, maternal and infant mortality surveillance committees,

and committees on improving the quality of care; introduction of a new health care model with emphasis on primary care but also with links to an organized service network; formulation and dissemination of more than 24 standards for health care, including epidemiological surveillance and vector elimination campaigns, especially in connection with the control of dengue and malaria; the strengthening of health promotion, not only through adoption of the healthy municipalities and communities strategy but also with emphasis on tourism and health; and formulation of a decree that standardizes the registration, management, production, distribution, marketing, prescription, and sale of drugs. These measures have given managers increased authority to make local decisions without granting them full autonomy.

The Social Security Reform Law, which separates the functions of financing, care delivery, and insurance, was drafted and approved during the period. According to this new law, health services would be financed by a contribution from the State to cover the indigent population and workers in the informal sector plus compulsory quota contributions paid by public and private employees and employers. These contributions would permit the creation of a family health insurance system in which all citizens would be covered by a compulsory universal basic plan. Care would be provided by a mixed network of providers, paid for on a capitation basis, and evaluated on the basis of improvements in health status and the accessibility, equity, sustainability, and quality of health care. The General Health Law defines the leadership role of the Secretariat for Health and establishes the structure of the National Health System, as well as the bases for its operations and for the execution of essential public health functions. Fulfillment of the provisions of these two laws will entail a reorganization of the health system—a process to be initiated in mid-2001 and completed within 10 years.

It has been proposed to update the procurement, inventory, and distribution of drugs and medical supplies, restructuring the system to better meet the needs of providers. The Essential Drugs Program (PROMESE), which currently comes under the Secretariat for Health, would become a support center for processing requests and purchasing drugs and supplies.

The Health System

The health system comprises two subsectors, the public and the private. The public subsector is made up of governmental institutions, such as the Secretariat for Health and Social Welfare and the Essential Drugs Program; various decentralized institutions that provide health services, such as the Dominican Social Security Institute, the Armed Forces and National Police Social Security Institute (ISSFAPOL), the National Population and Family Council, the National Children's Council, and the municipal governments, which provide environmental health services; as well as certain nonprofit and for-profit health insurance insti-

tutions and service providers, which are governed by the General Health Law, the Social Security Reform Law, and other legislation that relates to specific areas such as the selection and contracting of medical personnel, blood banks, organ transplants, and drugs and pharmacies, as well as various regulations (for example, those that apply to hospitals).

The Secretariat for Health provides leadership for the system and delivers health services to 75% of the population, the majority of them uninsured. Access is free, depending on availability of the services, and no prior insurance is required. Access to the services is not guaranteed, nor is the quality thereof.

The private subsector, on the other hand, concentrates for the most part on serving the upper-income strata. In recent years it has been taking steps to improve its infrastructure, introduce technology, and organize provider networks. The subsector also includes private nonprofit organizations, some of them State-subsidized. In particular, there are beneficent organizations associated with hospitals and centers that offer specialized care in the areas of cancer, rehabilitation, diabetes, cardiovascular diseases, and dermatology.

In the public hospitals patients are expected to make a voluntary contribution toward the recovery of costs, and often they are required to pay for certain supplies and complex medical treatments, even though the Essential Drugs Program provides basic drugs and supplies at no cost for hospitalized patients.

The forms of insurance include worker-employer prepayment schemes such as the IDSS (7%) and the ISSFAPOL (between 2% and 3%) and also prepaid private medical insurance, self-managed insurance, and private providers (15% for the last three types considered together). The prepaid private insurance schemes specify the benefits covered, which are likely to vary depending on the insurer; they require a high copayment; they exclude a number of conditions; and, with no strategies or programs for the management of risks, they often fail to cover catastrophic expenses. The private medical sector operates on the basis of direct fee-for-services at the time they are provided.

The country is a member of the Central American Parliament and the Caribbean forums; it has agreements with the Central American countries on harmonizing the regulation of drugs; and it belongs to various international health organizations.

Organization of Regulatory Actions

The main advances in this area include the formulation of standards, criteria, and parameters for the installation and accreditation of health establishments; regulations and manuals for laboratories and blood banks; standards for good manufacturing practices for pharmaceutical products and medical supplies; and standards governing food production and protection. There is compulsory registration of drugs and food; the food production chain is inspected regularly; and the quality of water for human consumption is monitored. However, regulatory processes are

still needed in order to improve the quality of care, standardize the procedures for quality control, and improve biosafety.

The Bureau of Drugs and Pharmacies in the Secretariat for Health is responsible for the evaluation, registration, and control of drugs and for the accreditation of establishments engaged in the production and marketing of drugs, in connection with which a compendium of national standards has been compiled. Drug quality control and the regulation of inspection are the weakest points, and there is no public health surveillance of drugs that require monitoring, no requirement to report adverse reactions, and no system for the recall or restriction of drugs.

During 1996–2000 there was a major improvement and expansion of the physical infrastructure of the health services network in both the public and private subsectors, with the introduction of new and expensive technologies. However, because three different agencies were taking part in the process (the Secretariat for Health, the National Planning Office of the Presidency, and the National Office of Supervisors of Public Works), there were problems in coordinating regulation, management, and safety guarantees in the procurement and use of health technologies, as well as in the evaluation of these.

The pharmaceutical sector includes 100 private laboratories, which operate mainly with national capital and engage in the final processing of imported raw materials and the fractionation and packaging of products. Quality control is excellent. A government laboratory produces vaccines against rabies and brucellosis (strain 19), diagnostic antigens (PPD, Bang antigen), and avian vaccines.

The initiative of primary environmental care, involving the health, education, environment, and water supply and sanitation sectors, among others, is intended to strengthen environmental action at the local level through the participation of institutions and communities. Environmental health coordinators have been trained in the provincial health directorates of the Secretariat for Health.

The General Law on the Environment and Natural Resources was promulgated in 2000. The Secretariat for the Environment and Natural Resources is responsible for conserving and improving environmental quality by progressively improving the management, administration, and regulation of soil, air, and water pollution. The General Bureau of Environmental Health, under the Secretariat for Health, participates in the management of environmental health risks through the sanitary control of air, water, and soil pollution.

Organization of Public Health Care Services

Health Promotion Services

In 2000 the General Law on Youth and the Law on Tobacco Use were enacted, and the Law on Traffic was amended to make seat

belt use compulsory and regulate the number of passengers in motor vehicles. During 1995–2001 the Bureau of Health Promotion and Education and the Department of Healthy Municipalities were created within the Secretariat for Health, together with an Interinstitutional Committee in Support of the Healthy Municipalities Strategy. In addition, the Schools for Human Development initiative was launched under the Secretariat for Education, as were other Healthy Municipalities activities in various parts of the country, in some cases with the support of universities. A graduate-level university program was developed in the field of health communication, and the Circle of Health Journalists was strengthened.

The Secretariat for Health created the Comprehensive Adolescent Care Program, which in 2000 offered 37 specialized services and enlisted 5,000 adolescent “multipliers,” who will multiply the diffusion of the program’s ideas among their peers and the community. This program works to prevent teen pregnancies, sexually transmitted infections and AIDS, and drug use. The Secretariat for Education created the program Family and Sex Education, the content of which is being gradually incorporated into primary and secondary school curricula.

Disease Prevention and Control Programs

The greatest strides in disease prevention and control have been seen in connection with the following programs: maternal and child care, including Integrated Management of Prevalent Childhood Illness (IMCI) and the Expanded Program on Immunization (EPI); vector-borne diseases; zoonoses; tuberculosis; leprosy; AIDS/STI; and, to a lesser extent, mental health; oral health; and control of noncommunicable diseases.

National standards have been revised or developed for most of the programs, as well as for epidemiological surveillance and surveillance of high-risk newborns and infant and maternal mortality. Training in application of the IMCI strategy has been given to health service workers and personnel from more than 30 nongovernmental organizations that participate in actions at the community level related to this strategy. More than 100 community organizations have taken part in activities aimed at reducing infant and maternal mortality. The first phase of this initiative was executed during 1997–1999 and the second phase covers the period 2000–2001.

Health Analysis, Epidemiological Surveillance, and Public Health Laboratory Systems

The Bureau of Epidemiology has normative responsibility for the surveillance system, which is decentralized and has an epidemiology unit in each of the provincial health directorates and health areas, in each hospital, and in each national program. The central level includes units on surveillance, health situation analysis, and information support. Creation of the National Epidemiology Institute was recently approved. Also, standards have been adopted for the national level itself and have been

adopted by the Secretariat for Health, the IDSS, and the Armed Forces and National Police Social Security Institute.

The epidemiological surveillance system has two components, one general and the other specialized. The first corresponds to the early warning subsystems (compulsory reporting, coverage of ports and airports, word-of-mouth reports), microbiological surveillance, and sentinel surveillance. The second component consists of the surveillance units in the prevention and control programs. The Health Situation Analysis Unit is responsible for the surveillance of infant and maternal deaths and the analysis of vital statistics, and it also produces analytical reports from time to time.

Potable Water, Excreta Disposal, and Sewerage Services

Potable water and sanitation services are provided by the National Potable Water and Sewerage Institute (INAPA) and regional corporations. In addition, the program for the decentralization of rural aqueducts initiated by INAPA in 1997 has created more than 20 rural water supply associations which are responsible for the management of community services. The IDB project Consolidation of Water and Sanitation Reform is aimed at making INAPA and the regional corporations commercially viable.

According to a comprehensive evaluation of water and sanitation services conducted in 2000, 71.4% of the population had access to potable water through a supply system within 500 m of the home in 1998, with an average of 83% in urban areas and 50.4% in rural areas. At the national level, 89.5% of the population was covered with some form of excreta disposal (20.1% by sewerage systems)—78.7% in rural areas and 95.6% in urban areas. However, for only 48% of the population was wastewater treated prior to being discharged.

It is estimated that urban cleanup benefits only 40% of the population in cities, and the quality of the service is rated as inadequate to very poor.

Pollution Prevention and Control

The Bureau of Health and Environment in the Secretariat for Health has responsibility for education, prevention, and training programs on the subject of air quality, and it also has a division that responds to complaints.

Organization of Individual Health Care Services

The public subsector, administered by the Secretariat for Health, has four levels of management: the central level, which is responsible for standards and policies; the regional (with nine health regions), which supervises and supports provincial administration; the provincial, with 30 provincial health directorates that oversee the delivery of care through provincial health networks; and the local, consisting of hospitals and health care centers that directly serve users. The latter establishments are connected to provincial health care networks which receive technical and administrative support from the central and regional levels.

The health services are organized into three levels of care based on complexity: primary care essentially consists of ambulatory and community care; secondary care is of general or intermediate complexity and is offered by municipal or area hospitals that give specialized basic care; and tertiary care is of advanced complexity, provided by regional general hospitals and national referral and specialized hospitals.

At the primary level there are about 1,099 outpatient establishments, 474 of them located in rural areas. They have the capacity to treat basic health problems, and their services are provided by general physicians, nursing auxiliaries, community health promoters, and technicians trained in environmental health and vector control. A new model is being developed to strengthen primary health care by promoting the redistribution of resources and establishing a network of primary health care units, one for every 500 to 700 families in a given area, composed of a general physician, a nursing auxiliary, a supervisor of health promoters, and voluntary promoters. These units are responsible for 25 activities which make up the basic set of health services, including prevention, promotion, disease and emergency care, vector control, and community health education. For each of these activities there is a community health committee. As of 2000, 16 rural provinces were applying this model and benefiting 80,000 low-income families.

The secondary level consists of 126 establishments, each with 40–50 beds and at least an operating room, radiology equipment, a laboratory, a pharmacy, and ambulance service. They cover populations ranging from 20,000 to 50,000. The tertiary level is made up of 42 general and specialized hospitals, including those administered by beneficent organizations.

In all, the public network has a total of 1,267 establishments. The IDSS has 18 tertiary-level hospitals, 3 of which are regional and specialized; 25 polyclinics at the secondary level; and 211 outpatient units. The Armed Forces and National Police Social Security Institute has two complex general hospitals and 57 dispensaries located in places where there are concentrations of its population.

Mental health services were expanded during the period. At least 10 hospitals have set aside beds for mental health patients, and five crisis intervention units, five community centers, and one daytime care hospital were established. Mental health was incorporated into the primary care program, and drugs for the treatment of mental illnesses were included in the basic list. However, people with mental health problems continue to encounter access barriers and difficulties in connection with reinsertion into the workforce.

Care is provided for the disabled in more than 310 public and private establishments and health care centers. Nine public hospitals, most of them located in Santo Domingo, offer physical therapy and rehabilitation services. The Dominican Rehabilitation Association has the most far-reaching organization, with facilities in the provinces, and offers the most comprehensive, ad-

vanced-level services. Legislation has been enacted to protect the disabled and promote their acceptance in society. An estimated 30,000 persons are candidates for cataract removal, but availability of this surgery to the public is very limited.

The country has many laboratories; they offer complex services; and quality has been improving steadily. There has also been improvement in the quality, safety, and availability of blood products, as well as the regulation and supervision of blood banks. Despite these advances, however, of the 60,885 units of blood collected in 2000, only 20% were donated voluntarily. All donations are screened for HIV (incidence: 0.42%), hepatitis B/HBsAg (incidence: 1.2%), hepatitis C/HCV (incidence: 0.64%), syphilis (incidence: 0.86%), and human T-cell lymphotropic virus types I and II (HTLV-I/II).

The State offers free oral health services, especially preventive and low-complexity, low-cost care (such as extractions), with emphasis on the maternal and child population. Other types of care are also provided by the private sector, but coverage is low. An executive decree approved in January 2001 calls for the fluoridation of all salt for human consumption.

The following health services are offered throughout the network: prenatal, delivery, and postpartum care; family planning; screening and treatment for breast and uterine cancer; reproductive health counseling; and treatment of sexually transmitted infections and AIDS.

Although both the public and the private subsectors have specialized hospitals, there are problems with their organization and the quality of care. Table 1 summarizes the installed capacity of institutions in the public and private subsectors.

Health Supplies

The country has 51 hospital pharmacies, 1,937 community pharmacies, 740 popular dispensaries that sell drugs at discounted prices, 100 national laboratories that produce drugs, and 682 warehouses for storage and distribution. In 2000 the government spent US\$ 14.28 million on supplying drugs to hospitals, rural clinics, and popular dispensaries. In 2000 the total amount spent on drugs was US\$ 246,558,000 at wholesale prices to pharmacies. The national pharmaceutical industry contributed 30% of the products and 70% were imported. Pricing is based on free market forces with oversight by the State.

The most recent basic list of essential drugs, issued in February 1997, contains 222 drugs and 392 pharmaceutical forms. The public sector's drug purchasing system is centralized and is carried out through the Essential Drugs Program.

A total of 14,182 registered products are on the market, and 1,760 of these (12.4%) are generic drugs. There is a fee of approximately US\$ 416 to register a pharmaceutical product, and the license is good for five years. The importation, production, and marketing of narcotics and psychotropic substances falls under the responsibility of the National Drug Control Bureau.

TABLE 1. Selected resources available in the health sector, Dominican Republic, 1999.

Sector	Type of resource			
	Beds per 1,000 population	Clinical laboratories (no.)	Blood banks (no.)	Radiodiagnostic machines (no.)
Public	1.6	179	32	110
Private	3.9	1,800	35	21
Total	2.0	1,979	67	131

Source: Secretariat for Health and Social Welfare, Dominican Republic.

National production of drugs, reagents, and equipment is very basic, and most of these supplies are imported.

Human Resources

In 2000 the country had 15,679 physicians (19 per 10,000 population), 2,603 professional nurses (3 per 10,000), 12,749 nursing auxiliaries or technicians (15 per 10,000), 7,000 dentists (8 per 10,000), and 3,346 trained pharmacists. In the Secretariat for Health there were increases in several of the professional categories between 1994 and 2000: the number of physicians went from 5,626 to 8,993; dentists, from 376 to 1,074; nurses and auxiliaries, from 8,600 to 10,969; and pharmacists, from 372 to 496. There is no information on the distribution of human resources by subsector, but in the two main institutions of the public subsector (the Secretariat for Health and the IDSS) the total number of posts in 1999 came to 59,194 for all professional, technical, and administrative categories.

The Higher Education Council recognizes institutions that prepare health professionals, including nine schools of medicine, six schools that train professional nurses and technicians, four that offer career programs in bioanalysis, seven for dentists, and four for pharmacists. In the last five years the State university system graduated 58.4% of the health professionals, an average of 502 a year. The numbers are on the rise, even in nursing, although the figure for this discipline is very low (70 a year) relative to the country's needs.

In terms of advanced education, there are 53 medical residency programs (38% of them university-accredited) in 20 specialties and 6 subspecialties at 15 teaching hospitals. Four universities offer five programs in public health, and three award a master's degree in this field. In addition, there are graduate-level programs in occupational health, health management, maternal and child health, adolescent health, health communications, and bioethics.

Enrollment is down in training programs for health technicians because of the shortage of jobs, despite the deficit, and programs for blood bank technicians, technicians in prostheses and orthotics, and physical therapy technicians have been eliminated.

Health Research and Technology

There is no science and technology council to facilitate policy making and the coordination of national strategies for research development. Most of the research in recent years has been carried out by the Maternal and Child Health Research Center, the Infectious Disease Service in Robert Reid Cabral Children's Hospital, groups working under the aegis of the University of Santo Domingo, the Center for Tropical Disease Control, and the General Bureau of Epidemiology. In general, the research tends to be applied.

The number of educational and health sector institutions that offer access to their technical literature through the Internet is growing exponentially, and use of the methodologies developed by the Latin American and Caribbean Center on Health Sciences Information (BIREME) is being promoted. Also, monographs on health topics produced in the country have been incorporated into the Latin American and Caribbean Literature on Health Sciences (LILACS) database.

The Dominican Association of Biomedical Journal Editors has grown and is taking part in creation of the Dominican Republic Virtual Health Library, as well as in the Scientific Electronic Library Online (SciELO project). Fewer than half of the eight libraries in the Hospital Library Network have access to the Internet.

Health Sector Expenditure and Financing

Total per capita expenditure on health in 1996 was US\$ 111 (6.5% of GDP), of which US\$ 28 was spent in the public subsector and US\$ 83 in the private subsector. Public sector spending amounted to 1.5% of GDP. Since no significant structural changes took place in 1997–2000, it is estimated that the figure remained stable during the period. However, the situation can be expected to change substantially once the new legal framework is implemented.

The private sector predominates in financing of the health system: 55% of the funds come directly from households, 75% of which do not participate in any insurance scheme or prepayment mechanism. According to a study of 1997–1998 national health

accounts conducted by the Central Bank and PAHO, both public and private spending were concentrated in urban areas, and mainly in Santo Domingo, and the monies were spent primarily for specialized and hospital care. Direct spending by households was distributed as follows: outpatient services, 59% (61% of this amount for drugs); hospitalization, 18%; oral care, 13%; and various preventive expenditures, 10%.

An analysis of provider spending by budgetary category showed that the public sector spent the largest portion on salaries (64.5%) and that the focus was more on curative care and administration and less on maintenance, resulting in periodical purchases of equipment. The Secretariat for Health spends 43% of the public expenditure, followed by PROMESE and IDSS. In 1997 budgetary execution of the Secretariat for Health was about 60%, and in 1999 it was 80%. The decentralized subnational units in the provinces and municipalities spend almost nothing on health services, but they do pay for environmental sanitation and the handling of solid waste.

The study of national health accounts showed that for the poorest quintile the government contributed 36% of total per capita spending, compared with 19% for the most affluent quintile. However, the larger proportional contribution to the population most in need has not substantially altered its access to care or its living conditions. Nonprofit organizations spend about US\$ 67 million (7.7% of total expenditure), and their resources come from the central government, international financing, and household spending. The differences in financing, access, utilization,

and expenditure are most marked in terms of place of residence. Two national studies that have examined this situation—namely, the Poverty Map of ONAPLAN and the Central Bank's Family Spending Survey—show that the populations most affected are those living near the Haitian border, in the southern part of the country, and in the Santo Domingo and Santiago de los Caballeros urban poverty belts.

External Technical Cooperation and Financing

International cooperation continues to be very active in the country. The multilateral agencies include PAHO, UNICEF, UNDP, UNFPA, FAO, WFP, and UNAIDS. In addition, the European Union initiated a four-year project in 2000 that has a budget of EU\$ 13.5 million. In terms of bilateral aid, USAID has committed US\$ 25 million for 2000–2004, and JICA has provided support in the form of equipment and professional training. In addition, various nongovernmental organizations, including CARE, CARITAS, Global Links, Medicus Mundi (Spain), Plan International, and Visión Mundial (Venezuela), have collaborated on projects at the local level.

Two very significant projects have been formulated and approved that will help to advance the reform process: the World Bank has set aside US\$ 30 million to support deconcentrated and decentralized management, and the IDB has made US\$ 75 million available to the Secretariat for Health for the purpose of institutional strengthening.

FIGURE 1. Gross domestic product, annual growth (%), Dominican Republic, 1991–2000.

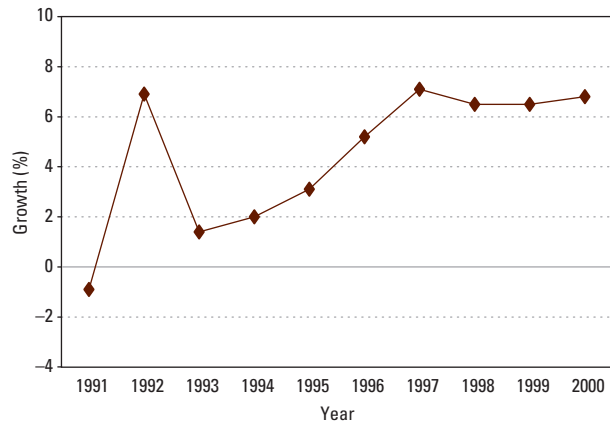


FIGURE 2. Population structure, by age and sex, Dominican Republic, 2000.

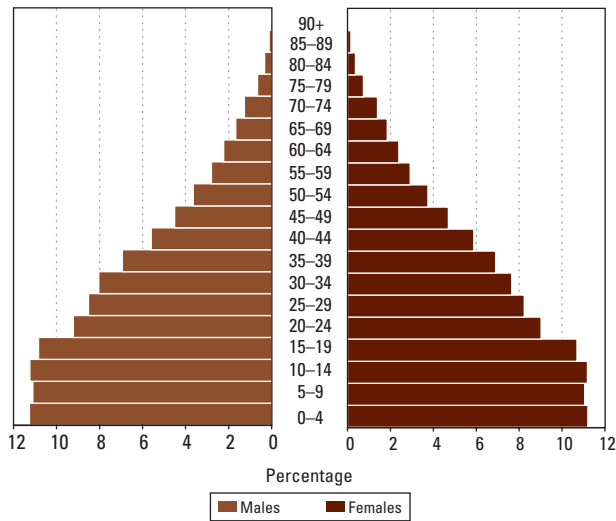


FIGURE 3. Estimated mortality, by broad groups of causes and sex, Dominican Republic, 1995–2000.

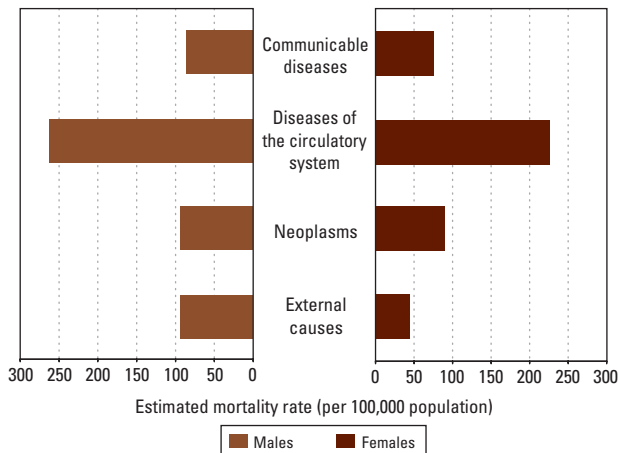


FIGURE 4. Vaccination coverage among the population under 1 year of age, by vaccine, and tetanus toxoid coverage among pregnant women, Dominican Republic, 2000.

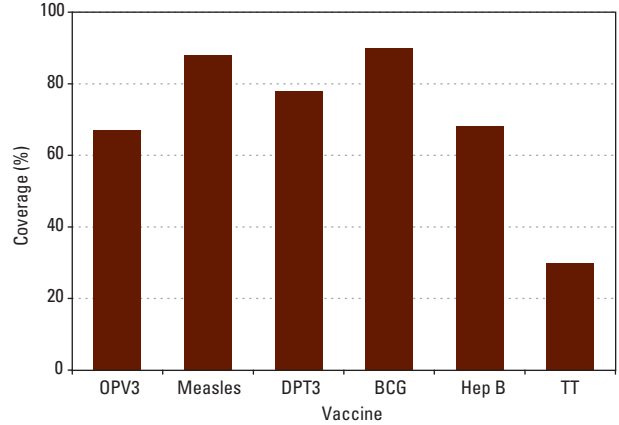


FIGURE 5. AIDS incidence, by sex, with male-female ratio, Dominican Republic, 1994–2000.

