PUERTO RICO

GENERAL SITUATION AND TRENDS

Socioeconomic, Political, and Demographic Overview

Puerto Rico is a commonwealth associated with the United States of America; as a result, political, social, and economic events that occur in that country have a direct impact on the island. Since 1992, when the newly elected administration began its term in the United States, both Puerto Rico and the United States have developed plans for health reform that have prompted several social and economic changes. In order to adapt the island's social reality to these changes and trends, the Government of Puerto Rico has established a new public policy and strategies relating to health.

The highest rate of real economic growth for the 1990–1995 five-year period was registered in 1995. The gross product that year rose 3.4%, compared to increases of 3.3% in 1993 and 2.5% in 1994. Various factors helped to accelerate the island's economic growth rate in 1995, including increases in consumer spending, government consumption, and gross domestic fixed capital formation. However, the latter investment was partly offset by an increase in the negative balance of net sales of goods and services to the rest of the world.

The Government of Puerto Rico continued to apply its New Economic Development Model, whose economic, social, financial, regulatory, institutional, and human resource strategies were determining factors in the economic recovery. Among the advances achieved were the creation of 40,000 jobs, employment growth in the manufacturing sector (the first such increase since the 1990–1991 period), and an increase in jobs created under the aegis of the Economic Development Administration in the manufacturing sector. In addition, civil servant salaries and wages rose as a part of the wage fairness program. The tourist industry also experienced growth, as evidenced by the fact that both the number of people registered in hotels and their expenditures increased, as did the number of available hotel rooms. The Government played a significant role in the growth of the construction industry, particularly through investments in infrastructure works such as roads, electricity and telephone lines, and prison facilities.

During fiscal year 1995, financial reforms to reduce tax rates were approved, which was expected to increase the amount of disposable personal income in the next fiscal year. In addition, within the framework of the Government's privatization policy, the sale of the Shipping Authority was finalized and the privatization of hotels and companies such as the Sugar Corporation and Lotus Pineapple Company continued. During the period, Puerto Rico opened trade offices in Chile, Costa Rica, the Dominican Republic, Mexico, and Panama to promote the island's exports.

The real growth in the United States's economic production benefited Puerto Rico, as there was greater demand for manufactured products; this, in turn, led to an 11.1% monetary increase in Puerto Rican exports to the United States. In addition, domestic economic activity and higher income on the island had an effect on imports. Many of these imports (75.6%) were capital goods, raw materials, and intermediate products, which helped to increase Puerto Rico's productive capacity and meet the demand for raw materials for industrial use. In fiscal year 1995, the gross domestic product (GDP), in current prices, rose to US$ 42,363,700, which represented an increase of 7.2% with respect to the previous year.

Owing largely to the economic recovery, personal income increased 5.5% in 1995, surpassing the previous year's figure (4.1%). Total personal income amounted to US$ 27,016,700, compared with US$ 25,609,300 in the previous year, for an absolute increase of US$ 1,407,400. This increase translated into a rise in per capita personal income and in average family income. At current prices, per capita personal income was US$ 7,296 in 1994–1995, higher than the previous year, when it was US$ 7,009.

In fiscal year 1995, the total number of employed persons, according to a Survey of the Department of Labor and

Human Resources, averaged 1,051,000, which reflects an increase of 40,000 jobs with respect to the previous year. The level of employment measured by this survey excludes agricultural workers and self-employed persons, who total 896,000 people. The increase in jobs resulted in a reduction in the number of unemployed people, which was 168,000. That year the unemployment rate was 13.8%.

The U.S. Federal Government participates actively in the island's economy through net disbursements. These consist of net federal transfers to individuals and to the public sector, as well as the net operating expenditures of the federal agencies that are active in Puerto Rico. The net disbursements of the U.S. Federal Government have increased over time. In fiscal year 1995, they totaled US$ 6,367,100, representing an increase of US$ 430.8 million (or 7.3%) with respect to 1993–1994. These disbursements account for 22.4% of the island's gross domestic product. The increase registered in 1994–1995 exceeded the average rate of growth over the 1990–1995 five-year period, which was 5.4%.

The basic unit used to analyze the geographic distribution of the population of Puerto Rico is the *municipio,* or county (the island is divided into 78 *municipios*). Each *municipio* is made up of an urban or semiurban nucleus (city, town, or village) and may include both urban and rural areas.

The population density has been increasing: in 1990 there were 396.9 inhabitants per km^2, but by 1995 this figure had risen to 416.0 inhabitants per km^2; it is estimated that by the year 2000 the population density will be 432.7 inhabitants per km^2. The population of the *municipio* of San Juan, the capital of Puerto Rico, accounted for 12.2% of the island's population in 1995, with a population density of 3,643.7 inhabitants per km^2. The next largest *municipio,* Cataño, had 3,068.8 inhabitants per km^2. Two of the *municipios* with the lowest population density in 1995 were Maricao (50.3 inhabitants per km^2) and the island *municipio* of Culebra (54.7 inhabitants per km^2).

According to preliminary estimates of the Bureau of the Census, an office within the Puerto Rico Planning Board, as of 1 July 1995, the total population of Puerto Rico was 3,720,018, which represents an increase of 34,288 people (0.9%) with respect to July 1994. The cumulative increase over the previous five years was 192,918 persons. The population growth rate was 17.9% (1.7% per year) in the 1970s and 9.9% (1.0% per year) in the 1980s. In the 1990–1995 period, the annual average growth rate was 1.1%.

As of 1 July 1995, the female population totaled 1,918,499, which amounts to an increase of 17,684 (0.9%) with respect to 1994. The male population, which totaled 1,801,519, grew by 16,604 with respect to the previous fiscal year. The total population of Puerto Rico in 1994 was 3,685,730 people.

For many years, migration has been one of the demographic variables that has most affected Puerto Rico's population dynamics. The bulk of the migration is between Puerto Rico and the United States: Puerto Ricans frequently migrate to the mainland and then return to the island, a phenomenon known as return migration. This results in a continuous flow of migrants in both directions, facilitated by the fact that, as United States citizens, Puerto Ricans need no passports or visas to enter the United States.

Net migration in Puerto Rico in fiscal year 1980, was –16,101 persons, whereas in 1994 it was +26,853. According to preliminary data for 1995, a negative net balance of 1,326 people was registered, the lowest since fiscal year 1971, when the figure was –2,525 people.

In 1994, 33,200 marriages were registered, 62 fewer than in 1993. The rate of marriages per 1,000 population aged 15 years or more was 12.3 in 1994, compared with 12.6 in 1993. A total of 13,724 divorces were registered, which represents a rate of 5.1 per 1,000 population aged 15 years or more. In 1993, the divorce rate was 5.4.

The birth rate, which was 24.8 per 1,000 population in 1970, dropped to 18.8 in 1985 and to 17.5 in 1994. With regard to the specific fertility rate, the available data reveal a falling trend during recent decades in all age groups of mothers, except those aged 15–19. In the group aged 20–24 years, for example, the specific fertility rate in 1970 was 187.7 births per 1,000 women, but this rate fell to 138.0 in 1992; in the group aged 25–29 years, the corresponding rates were 179.4 and 122.0, respectively. In the group aged 15–19 years birth rates have fluctuated: the specific fertility rate in this group was 71.9 births per 1,000 women in 1970, 76.3 in 1980, 63.5 in 1985, and 73.3 in 1992.

Morbidity and Mortality Profile

The Ongoing Health Study is a field study of the Evaluation Division of the Office of the Undersecretary for Planning, Evaluation, and Statistics of the Department of Health. It is based on the guidelines of the National Health Interview Survey (NHIS) of the National Center for Health Statistics, a branch of the United States Department of Health and Human Services. The survey gathers statistical data on hospitalization, physician and dentist visits, acute and chronic morbidity, and days of restricted activity. The sample of dwellings used is a subsample of the group of workers of the Statistics Division of the Department of Labor and Human Resources. The population under study consists of noninstitutionalized civilians in Puerto Rico.

Data from the survey reflected a total of 5.5 million chronic disorders in 1992. This figure indicates a rate of 154.4 chronic disorders per 100 population, equivalent to 1.5 disorders per person per year, which means that one person reported suffering one or more chronic disorders in the four weeks imme-

diately prior to the interview. The rate begins to increase at 6 years of age and reaches a peak of 429.4 disorders per 100 people in the group aged 65 years and over.

In 1992, as in previous years, diseases of the circulatory system were the leading cause of morbidity, with rates of 25.6 per 100 population; next, in terms of frequency, were diseases of the respiratory system (20.7), diseases of the musculoskeletal system and connective tissue and endocrine diseases (both with rates of 12.5), and diseases of the digestive system (10.6). The rate of chronic disorders in women was higher than that in men (174.0 per 100 women, compared with 133.6 per 100 men).

In 1992, according to data obtained from a sample of Puerto Rico's noninstitutionalized civilian population of Puerto Rico during two quarters of the year, the estimated incidence of acute morbidity was 4.5 million disorders. Women showed a higher rate (138.9 per 100 women) than men (113.9 per 100 men). The incidence of acute disorders tends to vary with age. Children under 6 had the highest rate of acute illness (229.1 per 100 population per year); the lowest rate was found in the groups aged 45–64 and 25–44 years (99.0 and 129.9 per 100 population per year, respectively). Diseases of the respiratory system accounted for the highest rate of acute illness in 1992 (55.8 per 100 population), followed by infectious and parasitic diseases, injuries, and diseases of the digestive system (25.9, 8.9, and 7.8 per 100 population, respectively).

All births, deaths, marriages, and fetal deaths that occur in Puerto Rico are registered at local offices of the Population Registry located throughout the island. Death registries are very complete, and causes of death are certified by physicians: 52% by family doctors, 37% by physicians who base their certification on the results of autopsies and medical records or other tests, and the remaining 11% by physicians who utilize other sources of information.

Mortality has remained relatively stable: in 1970 the rate was 6.6 per 1,000 population; in 1980, it declined to 6.4 and remained at 6.5 during the first four years of the 1980s; subsequently it rose to 7.0 in 1987 and continued to increase until reaching levels of 7.9 in 1993 and 7.7 in 1994. An important factor that explains the increase in this rate is the natural aging of the population and the rapid growth of older age groups. Another factor in the rise in mortality is the increase in the diseases that are the leading causes of death.

In 1994, 28,444 people died from all the causes (16,707 men and 11,737 women). In that same year, heart disease (rate of 157.7 per 100,000 population) and malignant neoplasms (116.6 per 100,000 population) were the two leading causes of death, together accounting for 35.6% of all deaths.

Diseases of the heart continue to be the leading cause of death. Some 5,814 people died from this group of causes in 1994 (3,169 men and 2,645 women), while 4,298 died from malignant neoplasms (2,516 men and 1,782 women). Together, cardiovascular diseases (including heart disease, cerebrovascular disease, hypertensive disease, and atherosclerosis) were responsible for 8,401 deaths, representing 29.5% of the total.

Among women, there were 1,782 deaths from malignant neoplasms; the most frequent form was breast cancer, which was the leading cause in this group of causes and accounted for 294 deaths (6.8%), followed by colon cancer, which caused 153 deaths (3.6%). Among men, 2,516 deaths from malignant neoplasms occurred; prostate cancer was the most frequent, causing 505 deaths (11.7%), followed by cancer of the trachea, bronchus, and lung, which caused 386 deaths (9.0%).

As in the previous years, diabetes mellitus ranked third as a cause of death, accounting for 1,868 deaths, or 6.6% of all deaths in 1994; of these, 1,028 were women. In 1993 diabetes mellitus caused 1,876 deaths.

The fourth leading cause of death was AIDS. A total of 1,549 deaths from this cause were reported: 1,210 (78.1%) males and 339 (21.9%) females.

Cerebrovascular disease was the fifth leading cause, accounting for 1,428 (5.0%) deaths. This cause ranked fourth in 1993, when it accounted for 1,443 deaths (5.1%).

SPECIFIC HEALTH PROBLEMS

Puerto Rico's social transformation over the last 50 years has brought with it a significant increase in longevity and life expectancy. It is expected that this trend will continue and that by the year 2030 some 15% of the population will be 65 or over. This and other trends, such as the transition from a rural agricultural society to an urban industrial society, have led to changes in the patterns of morbidity and mortality. The epidemiological profile has changed. Chronic degenerative diseases now coexist with acute infectious diseases, and the prevalence of cardiovascular diseases and cancer is high. Alcohol and tobacco use have become more common; the population has grown more sedentary; the diet is often poor, with a high fat and protein content; and illegal drug use is on the rise.

Analysis by Population Group

Health of Children

In 1992, children under age 6 had the highest rates of acute illness (229.1 per 100 population per year), and the incidence was highest among the youngest in this age group. The patterns are similar in males and females. Children under 6 years old also had the highest incidence of common cold and influenza (83.5 per 100 children per year) and other infections

of the respiratory system (37.2 per 100 per year). This age group also experienced a greater number of episodes of dysentery and gastroenteritis, with a rate of 24.9 per 100 population. As for diseases of the digestive system, a rate of 3.1 episodes of non-specific gastroenteritis and colitis per 100 children under 6 years of age was reported.

In 1994, there were a total of 738 deaths in this age group, or 11.5 per 1,000 live births (557 neonatal and 181 postneonatal). The leading causes of infant mortality were conditions related to prematurity and low birthweight (215 deaths), congenital anomalies (142 deaths), respiratory distress syndrome (92 deaths), conditions originating in the perinatal period (24 deaths), and accidents and injuries (ICD-9, E800–949) (18 deaths).

In the under-1 age group, 30 deaths occurred, and the leading cause was accidents (9 deaths). Among 2-year-olds, 16 children died, and the principal cause was heart disease. Among 3-year-olds, 21 children died, and malignant neoplasms were the leading cause, and among 4-year-olds, 9 children died, and the leading cause of death was accidents.

In 1994, 53 children aged 5–9 years old died, for a rate of 16.0 per 100,000. The leading cause of death was accidents (13 deaths, rate of 3.9), followed by AIDS and diseases of the nervous system, which caused a total of 8 deaths each (rate of 2.4). Among males, the leading cause of death was accidents, which accounted for 11 deaths (6.5 per 100,000), followed by diseases of the nervous system and sensory organs, which caused 6 deaths (rate of 3.6). Among females, the leading cause of death was AIDS, which accounted for 5 deaths (rate of 3.1), followed by congenital anomalies, which accounted for 3 deaths (rate of 3.1).

Abuse and neglect of minors are critical issues in Puerto Rico. During the 1994–1995 period, the Department of Family Services reported a total of 48,705 cases of child abuse, 30,388 due to some type of neglect and the other 18,317 to some type of mistreatment (this includes exploitation; institutional, emotional, physical, or multiple types of abuse; and sexual harassment). Of all the cases reported, 11 children died. In 1995, 49,913 cases of neglect and abuse were reported.

Health of Adolescents

In 1994 it was estimated that there were 355,355 adolescents aged 10–14 years and 341,902 aged 15–19 years. For both groups, the principal health problems were accidents, homicide (especially drug-related homicide), and pregnancy. That year, 452 young people in those age groups died. The general death rate was 29.0 per 100,000 in the group aged 10–14 years and 102.1 in the group aged 15–19 years. The two leading causes of death for the younger adolescent group were accidents, which accounted for 37 deaths (rate of 10.4), and homicide, which accounted for 14 (rate of 3.9). In the group aged 15–19 years, the leading causes of death were also homicide, which accounted for 187 deaths (rate of 54.7), and accidents, which caused 83 deaths (rate of 24.3). The order varies slightly by sex.

According to a risk survey conducted by the Centers for Disease Control and Prevention in public and private schools throughout the island during the first quarter of 1995, sexual activity among adolescents has increased compared to 1992. In that year, 30% of the young people enrolled in grades 9–12 were sexually active, while in 1995 the percentage was found to be 36.35%. In the 1995 survey, 8.4% of those surveyed reported having had four or more sexual partners and only 39.1% had used condoms during their most recent sexual encounter. The exact number of adolescent pregnancies is unknown, but a steady rise in the birth rate among mothers under 20 years of age has been noted since 1988, when 17.2% of all births were reported among adolescents. In 1994, of 64,325 births, 12,779 (19.9%) were to mothers under the age of 20 (444 were to mothers under 15 and 12,335 were to mothers aged 15–19 years). Of these 12,779 births, 8,165 were to unwed mothers (63.9%). Of the children of adolescent mothers, 1,215 (9.5%) had low birthweight (< 2,500 g) and 204 (1.6%) had very low birthweight (< 1,500 g).

Health of Adults

In 1994, 2,195,594 people, or 59% of the population, were between 15 and 59 years of age; 1,050,395 were male and 1,145,199, female.

Of the 64,325 births that occurred in 1994, 63,854 were to mothers between 15 and 49 years of age. Within this group, most births were registered in the subgroup aged 20–24 years (20,469 births and a specific fertility rate of 133.8). During the same period, one out of every four pregnant women did not receive prenatal care until the third trimester. In 1994, 1.2% (764) of women did not receive any prenatal care. This led to higher maternal and infant morbidity and mortality. It is difficult to identify and provide timely treatment for conditions originating as a result of late prenatal care, which may affect both the mother and the child. The maternal mortality rate was 7.8 per 100,000 live births, the lowest since 1990. Three of the five maternal deaths that occurred in 1994 were of women in the 20–24 age group.

The most recent survey of reproductive health was conducted between November 1995 and July 1996. This study, which analyzed a representative sample of 5,944 women aged 15–49, revealed that one in four (22.5%) was not using any contraceptive method. The three most frequently utilized methods were female sterilization (45.2%), oral contraceptives (9.7%), and male condoms (6.4%). The least used were

Norplant (0.1%); vaginal methods, including sponges, jellies, creams, and foams (0.2%); and intrauterine devices (1.0%). The natural family planning method was used by 6.2% of the women interviewed.

Of the 28,444 deaths registered in 1994, 7,981 (28.1%) occurred in the population aged 15–59 years. In the group aged 15–24, there were 862 deaths (729 men and 133 women), which represents 3.0% of total deaths. Of these deaths, 435 (50.5%) were due to homicide and 199 (23.1%) were the result of accidents.

In the subgroup aged 25–49 years, 4,598 people died (16.7% of the total), 3,439 men and 1,159 women. Slight variations were noted between the sexes with regard to the leading causes of death. Among men in the subgroup aged 25–29, the leading causes of death were homicide (156) and AIDS (111), while among women, AIDS (56) was the leading cause, followed by accidents (16). The leading cause of death among men aged 30–39 years was AIDS (507), followed by accidents (195). Among women in that age range, the leading causes were AIDS (156) and malignant neoplasms (53). For the subgroup aged 40–44 years, the leading cause of death among men continued to be AIDS (238), followed by diseases of the digestive system (72), while among women, malignant neoplasms (69) were the leading cause, followed by AIDS (46). The leading causes of death among men aged 45–49 years were AIDS (159) and heart disease (85). Among women in this group, the leading causes were malignant neoplasms (86) and heart disease (48). In the 50–59 age group, 2,521 people died (1,682 men and 839 women), and the two principal causes of death for both sexes were heart disease and malignant neoplasms.

Health of the Elderly

In 1994, according to data from the Planning Board, 13.2% of the population of Puerto Rico was 60 or more years of age. Of the total of 487,381 people aged 60 or more, 224,055 were men and 263,326, women. The health situation of this age group is influenced by normal aging processes, as well as by injuries or diseases. Diseases of the circulatory system, diseases of the musculoskeletal system and connective tissue, endocrine diseases, and diseases of nutrition and metabolism were the chronic disorders that prevailed in this age group in 1992. In that year, a total of 19,493 people died. The leading causes of death were diseases of the heart (ICD-9, 390–398, 402, 404–429), malignant neoplasms (140–208), and diabetes mellitus (250). Other important causes of death included chronic liver disease and cirrhosis (571), hypertensive disease (401, 403), cerebrovascular disease (430–438), and chronic obstructive pulmonary disease and related disorders (490–496).

The Population and Housing Census of 1990 found that 66,187 elderly people lived alone, which is 19.4% of this age group. Analysis by *municipio* indicates that between 14.0% and 24.9% of the elderly lived alone. In almost all the *municipios,* there was a higher percentage of women than men living alone. These data are particularly important for planning health and other services for this population. The principal sources of income for the elderly population are social security, pensions, and public assistance. According to the Department of Family Services, 18,202 elderly people participated in the Economic Assistance Program during fiscal year 1990, and 22,432 participated during fiscal year 1993–1994.

Family Health

The Government of Puerto Rico has launched several assistance programs for needy families, which are administered by various agencies. One is the Department of Family Services, whose mission is to facilitate and promote the development of families who face social, economic, and/or physical disadvantages so that they can contribute to and benefit from the progress of Puerto Rican society. The Office of the Undersecretary for Public Assistance administers programs of the Department of Family Services designed to provide economic assistance to families that lack enough resources to meet their basic needs. This assistance is channeled through programs that provide food and nutritional assistance, economic assistance, and clothes and shoes for schoolchildren, as well as the electricity subsidy program and the energy crisis subprogram. These programs offer services for children, persons with physical and mental disabilities, the elderly, the homeless, and families in general.

According to data from the 1990 census, in that year 435,665 families participated in the program for nutritional assistance; in 1994 the number rose to 490,813. The total value of the assistance provided in 1994 was US$ 995,824,899. That year, 23% of the families served were headed by women.

The Health Department within the Office of the Undersecretary for Health Promotion and Protection has several programs aimed at the maternal and child population, as well as programs for older persons. The Division of Maternal and Child Health prepares manuals to facilitate the implementation of procedures and regulations concerning the various activities of the program: family planning, prenatal and postpartum care, high-risk delivery and neonatal care, health maintenance for children and adolescents, school health, and care for pregnant adolescents. The managers of the divisions of maternal and child and adolescent health participate with other health programs in the preparation of special protocols on topics such as counseling before and after HIV-testing and administration of AZT to pregnant, HIV-positive women and

their children. These manuals and protocols are distributed and discussed with regional primary care providers.

Workers' Health

In fiscal year 1994–1995, the State Insurance Fund Corporation, the agency responsible for covering medical care (including hospitalization and supply of drugs) for workers who suffer work-related accidents or illnesses, reported that 75,823 claims were filed out of a total of 1,051,000 employed persons. The public sector reported 31,646 cases and the private sector reported 44,177. The amount of compensation paid totaled US$ 159.5 million. In that fiscal year, 30,077 certificates of disability were issued, 688 (2.3%) for permanent disability.

The injuries that gave rise to the largest number of claims were contusions (13,691), injuries to the back (12,318), and cuts and lacerations (8,047). The number of claims filed by sex was 31,889 for women (42.1%) and 43,934 for men (57.9%).

Health of the Disabled

The Office for the Protection of Persons with Impediments (OPPI) is the government agency responsible for safeguarding the rights of the population with physical, mental, or sensory impairments. This Office attends to problems, needs, and claims of this group through the provision of guidance, referrals, legal advisory services, protection, and intercession. It also intervenes in the fields of education, health, housing, employment, transportation, recreation, and culture.

The State Council on Developmental Deficiencies is concerned with persons aged 5 and older who have serious chronic disorders, such as mental retardation, epilepsy, autism, spina bifida, deafness, blindness, serious emotional disorders, and Down's syndrome. The Council seeks to increase employment opportunities for these people and promote the organization of community activities aimed at preventing, identifying, and treating developmental disorders in children (early intervention).

According to data from the statistical compendium of OPPI (1993), in 1990 there were 704,407 people in Puerto Rico with some type of disability, including some 140,881 with visual impairments and 176,102 with developmental problems. OPPI calculates the total number of people with disabilities by means of an empirical methodology based on a model that uses population data from the census. The definitions of disability used in the 1990 Population and Housing Census focus mainly on the relationship between disability and the capacity to work.

Data obtained through the Maternal and Child Health Program of the Office of the Undersecretary for Health Promotion and Protection from pediatric centers that serve children with special health needs indicate that the number of persons under 21 seen in these centers has increased. In 1993–1994, 15,363 people received care, while in 1994–1995, the number was 21,335. Of the 21,335 children with special needs served in that latter fiscal year, 11,620 were 6 years of age or under, 8,864 were between 6 and 17, and 851 were 18 or over.

According to data from the last census, these pediatric centers cover 1.5% of the children in Puerto Rico and 27% of the children who need services. The most frequent problems treated in the centers are delayed psychomotor development, cerebral palsy, neural tube defects, speech and language disorders, and cleft palate.

Data from the Department of Education reveal that mental retardation and specific learning disorders are the most common conditions diagnosed among persons between 6 and 21 years of age. Hearing impairments account for 2.2% of all the disorders treated and visual impairments, for 1.5%. In 1994, the Department of Special Education served a total of 37,278 children and young people aged 6–21 years.

The Office of the Undersecretary for Family Services within the Department of Family Services administers a program whose purpose is to help blind, disabled, and elderly adults achieve greater well-being and, wherever possible, become self-sufficient and productive members of their families and communities. The Office offers housekeeping services, foster homes, day care, and prosthesis and orthesis services. In 1993–1994, of the 70,261 people served, 3,163 (4.5%) were disabled.

Analysis by Type of Disease or Health Impairment

Communicable Diseases

Vector-Borne Diseases. In 1993, the Dengue Control Program established an active surveillance system that made it possible—through a communication network linking nurse-epidemiologists, physicians in public and private hospitals, and environmental health workers—to immediately investigate any increase in the incidence of suspected cases.

In a 1994 epidemic outbreak of dengue, 24,252 suspected cases were reported and 5,390 cases were laboratory confirmed, 3 of them fatal. The outbreak was due mainly to the widespread use of water storage containers and tanks by large segments of the population, caused by water shortages and rationing during much of 1994. A general state of alert was declared, and mass media campaigns were developed to provide educational information and guidance on the management and maintenance of stored water.

In 1995, 2,046 cases of dengue were confirmed by laboratory testing; in 1996, 1,804 cases were confirmed. The pres-

ence of dengue-3 virus has not been detected since 1977. In recent outbreaks, serotypes 1, 2, and 4 have been identified.

Vaccine-Preventable Diseases. In a re-emergence of measles, the highest number of cases was recorded in 1990, when 1,805 cases (51.3 per 100,000 population) and 12 deaths were reported. In 1993, 355 cases were reported (10.1 per 100,000 population), of which 254 (72%) occurred in preschoolers (0–5 years) and 116 (33%) occurred in infants (under 12 months of age). In order to interrupt the transmission of measles by 1996, the Health Department launched a Measles Elimination Program, an island-wide collective effort that included a mass vaccination campaign, increased surveillance, and control of outbreaks. The mass vaccination campaign of 1994 succeeded in covering 77% of the target population (children aged 6 months to 5 years). The strategy adopted was based on PAHO's recommendations for measles elimination. In May of that year, Puerto Rico participated in a national coverage study (estimated population based on 64,336 births), achieving 87% coverage (four doses of the triple vaccine against diphtheria, tetanus, and pertussis [DTP], three doses of oral polio vaccine [OPV], and one of the vaccine against measles, mumps, and rubella [MMR]). In July 1994, the initial phase of the National Immunization Registry was implemented.

In 1994, 2 cases of tetanus were reported, 3 of whooping cough, 2 of mumps, 3 of meningitis (due to *Haemophylus influenzae* type B), 415 of hepatitis B, and 46 of measles. That same year, two deaths from tetanus, both of males, were reported. No deaths from diphtheria, pertussis, or measles were reported.

In 1992, with the adoption of Law 59, which created the Hepatitis B Immunization Program, the hepatitis B vaccine began to be administered to employees in the public and private sectors at high risk from occupational exposure. As of 30 June 1995, 110,224 doses had been administered in the public sector and 17,681 in the private sector.

In 1992, a hepatitis B perinatal growth protocol was established with a view to offering early treatment to infected mothers and vaccination of the children of identified mothers. In 1993 the hepatitis B vaccine was included in the vaccination series for children under age 1, and the age of coverage is to be increased successively every year. The ultimate objective is to cover the entire population aged 0–18 by the year 2000.

Cholera. Puerto Rico has had no reported cases of cholera in the twentieth century.

Chronic Communicable Diseases. The incidence of tuberculosis has shown slight variations over the years: 312 cases were reported in 1992 (rate of 8.9 per 100,000 population), 257 cases in 1993 (7.3 per 100,000), 274 cases in 1994 (7.8 per 100,000), 263 cases in 1995 (7.5 per 100,000), and 222 cases in 1996 (6.3 per 100,000). The distribution by sex was as follows: in 1994, 73.4% of the cases occurred in males and 26.6% in females; in 1995, 65% occurred in males and 35% in females; and in 1996, 72% of the cases were in males and 28% in females. In 1996, 90% of the cases were the pulmonary form of the disease. During that same year, the distribution of cases by age group was as follows: 6.3% in the group aged 0–14 years, 1.4% in the group aged 15–19 years, 39.2% in the group aged 20–44 years, 15.3% in the group aged 45–54 years, and 33.8% in the group aged 55 and over. The age of 4% of tuberculosis patients is unknown. Mortality from tuberculosis was 1.7 per 100,000 population in 1994, 1.6 in 1995, and 1.7 in 1996. The incidence of multidrug resistance in the reported cases was 11 cases in 1994, 8 in 1995, and 4 in 1996.

From 1994 to 1995, an increase was seen in the percentage of tuberculosis cases in people who are also infected with the human immunodeficiency virus (HIV). In 1993, in accordance with the definition of AIDS established that year by the United States Centers for Disease Control and Prevention (CDC), 72 of 257 tuberculosis patients had AIDS (28.0%). In 1994, 81 of 274 tuberculosis patients had AIDS (29.6%); in 1995, 57 of 263 (18.0%); and in 1996, 60 of 222 cases (27.0%).

Acute Respiratory Infections. According to a study conducted by the Basic Sampling Division of the Department of Health on acute disorders, the estimated incidence of acute morbidity in the noninstitutionalized civilian population in 1992 was 4.5 million episodes. The highest incidence was for diseases of the respiratory system, with a rate of 55.8 episodes per 100 population. The most frequent respiratory disorders were the common cold and influenza (39.7 per 100 people), other diseases of the respiratory system (10.7), and acute bronchitis (3.2). Among children under age 6, the most frequent diseases were the common cold and influenza and other diseases of the respiratory system, with rates of 83.5 and 37.2 per 100 children per year, respectively. The rate of common cold and influenza in the population aged 65 and over was 47.7 per 100 population.

A study of the prevalence of chronic disorders found 737,435 episodes of acute respiratory disease (rate of 20.7 per 100 people) in 1992. The most frequent were asthma (309,403 episodes) and respiratory allergies (234,596 episodes). Among males, 362,529 episodes of respiratory disease were registered. The group aged 6–16 had the highest prevalence (108,283 episodes) and asthma was the most common disorder (66,720 episodes). Females suffered 374,906 episodes of respiratory disease and women aged 25–44 were most frequently affected (112,034 episodes); again, asthma was the most frequent disorder (152,125 episodes) and the largest concentration of episodes occurred in the group aged 6–16 (40,601), followed by the group aged 25–44 (35,647). Respira-

tory allergy was the most frequent disorder in the group aged 25–44 (43,022).

In 1994, as in 1993, pneumonia and influenza (1,187 deaths, 639 in males and 548 in females) and obstructive pulmonary disease (1,186 deaths, 643 in males and 543 in females) were the seventh and eighth leading causes of death, respectively (together accounting for 2,373 deaths).

Rabies and Other Zoonoses. The Office of the Undersecretary for Environmental Health is charged with controlling or eliminating environmental factors that pose a health threat to Puerto Rican residents. One of its programs is the zoonoses program, which seeks to prevent the transmission of animal diseases to man, especially rabies. During fiscal year 1994–1995, 5,908 animals were vaccinated against rabies, a figure that surpassed the number programmed by 11%. In that same period, 211 suspected cases of animal rabies were investigated and 51 animals tested positive, as a result of which rabies treatment was administered to 51 people.

AIDS and Other STDs. In 1994, AIDS was the fourth leading cause of death in Puerto Rico, accounting for 1,549 deaths, with a mortality rate of 42.0 per 100,000 population. Of the 1,549 deaths, 1,210 (78.1%) were of males and 339 (21.9%) were of females. However, AIDS is the leading cause of death for both men and women in the 25–49 age group. As of December 1994, 16,109 cases of AIDS had been confirmed; of that number, 11,400 patients (71%) had died. According to more recent data, as of 30 April 1997 there were 19,625 confirmed cases, with 12,752 (65%) deaths. Of the total number of diagnosed cases, 19,261 occurred in adults and adolescents and 364 occurred in the pediatric population. Forty-five percent of those affected were between 30 and 39 years of age and 23% were between 40 and 49. The primary risk factors were drug use in males (56%) and heterosexual relations with an HIV-infected partner in women (57%). The incidence of AIDS declined 27% from 1993 (89) to 1994 (65). At present, there is no HIV/AIDS registry in Puerto Rico.

The incidence of primary and secondary syphilis declined 34% from 1993 to 1994 (13 and 9 cases per 100,000 population, respectively). The incidence of gonorrhea declined 5% from 1993 to 1994 (15 and 14 cases per 100,000 population, respectively). In contrast, five times more *Chlamydia* infections were reported in women in 1994 than in 1993 (109 and 19 cases per 100,000 population, respectively).

Noncommunicable Diseases and Other Health-Related Problems

Nutritional Diseases and Diseases of Metabolism. Diabetes mellitus is an important cause of morbidity, disability, and mortality in Puerto Rico. The Vital Statistics Report for 1994 indicates that it is the third leading cause of death, outranked only by heart disease and malignant neoplasms. In 1994, 1,868 people died as a result of diabetes mellitus (1,028 females and 840 males). This disease ranked among the first five causes of death of males in the 55–59 age group, with 60 deaths and a rate of 87.3 per 100,000 population, and it accounted for the greatest number of deaths (139) in the group aged 70–74, with a rate of 329.4 per 100,000 population. Among women, it figured among the first five causes of death in the group aged 45–49 years, accounting for 19 deaths (17.7 per 100,000 population), and its importance is increasing. In the group aged 85 and over, diabetes accounted for 211 deaths, with a rate of 1,060.7 per 100,000 population. In 1983, mortality from diabetes mellitus was 31.0 per 100,000 population; in 1994, the rate was 50.7 per 100,000 population—an increase of 63.5% in 10 years.

According to a study by the Basic Sampling Division on chronic conditions of Puerto Rico's noninstitutionalized civilian population, 5,496,140 suffered from some chronic disorder in 1992. The group of diseases comprising endocrine, nutritional, and metabolic disorders ranked fourth, affecting 443,452 persons. A total of 206,644 people suffered from diabetes mellitus. The most diabetics were found in the group aged 45–64 (91,763), followed by the group aged 65 and over (77,152). Among males, 86,592 had diabetes mellitus, and the highest prevalence was observed in the group aged 45–64 (41,269). Among females, 120,052 were diabetics, and the disease also was most prevalent in the 45–64 age group (50,494 diabetics), followed by the group aged 65 and over (47,882).

Puerto Rico's Department of Health estimates that the prevalence of diabetes, including both diagnosed and undiagnosed cases, in the adult population is 13.98%. According to the National Institute of Diabetes and Digestive and Kidney Diseases, 10.9% of Puerto Ricans who reside in the United States of America have diagnosed or undiagnosed diabetes.

Cardiovascular Diseases. According to data on chronic morbidity from the Basic Sampling Division, diseases of the circulatory system were the most frequent disorders in this category in 1992, affecting a total of 909,409 persons. Of these diseases, hypertensive disease (400,293 cases) and heart disease (160,807 cases) were most prevalent. The group aged 45–64 had the highest number of cases of hypertensive disease (192,103), while the group aged 65 years and over had the greatest number of cases of heart disease (72,188).

Among women, diseases of the circulatory system were most common (569,927 cases), and hypertensive disease was most prevalent (226,863 cases). The group aged 45–64 years was most affected, followed by the group aged 65 years and over. Among men, a total of 339,482 suffered from diseases of the circulatory system, and hypertensive disease was most

prevalent (173,430 cases). Again, the group aged 45–64 was most affected (89,053 cases).

In 1994, cardiovascular diseases, including heart disease, cerebrovascular disease, hypertensive disease, and atherosclerosis, caused 8,663 deaths (4,589 males and 4,074 females), which was 30.4% of all deaths in that year, yielding a mortality rate of 235.0 per 100,000 population. Mortality from heart disease was the highest (157.7 per 100,000 population). Of 5,811 deaths from heart disease, 3,169 were of males and 2,642 of females. For both sexes, ischemic heart disease caused the most deaths (3,372–1,895 males and 1,477 females). Among men, heart disease becomes the leading cause of death in the group aged 50–54 and among women, in the group aged 65 and over.

Malignant Neoplasms. According to a study conducted by the Basic Sampling Division, in 1992 a total of 14,982 malignant neoplasms were reported. The most affected age groups were those comprising persons 45 years old and over, for both males and females. Of the 6,652 cases of malignant neoplasms in the male population, 5,425 occurred in the group aged 45 years and older. Among women, 8,330 cases were reported, 7,693 in the group aged 45 years and older.

Malignant neoplasms were the second leading cause of death in Puerto Rico in 1994, accounting for a total of 4,298 deaths. The most frequent cancer sites were the digestive organs and the peritoneum (1,426 deaths in 1994), the genitourinary organs (866), and the respiratory and intrathoracic organs (657). Within the last two categories, malignant neoplasms of the trachea and lung caused 569 deaths (386 male deaths and 183 female deaths), while prostate cancer caused 505 deaths of men. Of the 866 persons who died from malignant neoplasms of the genitourinary organs, 623 were males and 243 were females. The most frequent cancer site in men was the prostate and in women, the placenta and uterus (64 deaths) and the ovaries (54 deaths). Among women aged 35–64, malignant neoplasms were the leading cause of death. After age 65 they dropped to second place, while among men they became the second leading cause of death after 50 years of age.

Accidents and Violence. In 1994, accidents were the sixth leading cause of death, accounting for 1,313 deaths (1,006 males and 307 females). Of all deaths due to accidents, 48.1% are attributed to motor vehicle accidents (631); of these deaths, 144 were of persons aged 15–24 and 117 were of persons aged 25–34 years.

Homicides were the ninth leading cause of death in 1994. A total of 1,017 deaths were attributed to this cause (931 males and 86 females), which yields a mortality rate of 27.6 per 100,000 population. Homicide is among the first three causes of death in group aged 10–14 and in the group aged 35–39. Of the 1,107 homicide victims, 816 (65.6%) were between 10 and 39 years of age and of this group, 759 were males.

Of 355 suicide deaths registered in 1994, 320 were males and 35 were females. Suicide figures among the first five causes of death in men aged 10–39 (141 deaths). In the group aged 40 and over, 202 people committed suicide.

Behavioral Disorders. In 1994, the Program for Treatment of Alcohol Abuse within the Substance Abuse and Mental Health Services Administration (ASSMCA) treated 7,391 people who tended to share several characteristics. In 1995, it was found that the persons treated by the Program generally were single persons between 25 and 54 years of age who were employed full-time and had had some schooling; 59.3% indicated that they had been incarcerated, 61.7% had not been treated previously, 36.0% had received treatment, and 2.3% gave no information in this regard.

In 1994, of all the people treated (7,391), 7,042 were males (95.3%) and 349 were females (4.7%). The largest percentage of males treated fell into the 35–44 age group (32.2%); the next largest percentage were in the group aged 45–54 (24.1%), and the third largest percentage were in the group aged 25–34 (23.0%). These groups account for 83.3% of all the cases treated (79.3% were males and 4.0% were females). In both males and females, the group aged 35–44 was most likely to be treated repeatedly for excessive consumption of alcohol (33.8%), followed by those aged 45–54 (24.9%), and those aged 25–34 years (24.6%).

In 1994, a total of 36,604 people were treated in ASSMCA facilities for drug addiction (87.8% males and 12.2% females). ASSMCA has six specific programs to address this problem, and its facilities range from evaluation and rehabilitation centers to mobile clinics. “Drug-free” programs also have been developed for minors and adults.

The mental health services follow a biopsychosocial approach that takes into account biological and psychological aspects of human behavior, as well as its social dimension, based on the relationship of the individual with his or her immediate environment. Seven mental health institutions and 12 outpatient care centers operate on the island. In 1994, 4,109 more people than in the previous year were treated in the outpatient services, of which 3,658 were treated in mental health centers. Of the total number of patients treated in mental health facilities (102,117), 95.8% received outpatient care. Of these, 54,937 were male (53.8%) and 47,108 were female (46.2%).

According to a study by the Basic Sampling Division on chronic morbidity, 264,798 of the individuals interviewed had suffered some form of mental illness in 1992. Neurosis was the most frequent disorder (193,383 cases). The age group with the largest number of cases of mental illness was the group aged 45–64 (106,255), followed by the group aged

25–44 (77,285). Among men there were 128,481 cases of some type of mental disorder and among women, 136,317. In both sexes, neurosis was the most common disorder and the groups aged 45–64 and 25–44 were most frequently affected.

Oral Health. Although Puerto Rico's legislature was the first in the world to make fluoridation of water mandatory, and despite the fact that fluoridation is the most cost-effective means of preventing dental caries, in recent years the practice has been stopped due to lack of funding. Studies are being conducted with a view to reinstating it.

In 1994, 68 people died from malignant neoplasms of the oral cavity. According to the Ongoing Health Study (Basic Sampling), in Puerto Rico there were 3.5 million dental visits among the noninstitutionalized civilian population in 1992 (1.0 visits per person). This rate was the same as that recorded in 1989. The rate of visits per person per year was 1.2 for the female population and 0.8 for the male population. The group aged 45–64 had the highest rate of dental visits (1.3 per person per year), followed by the group aged 6–24 (1.1 visits per person per year). There is a direct correlation between income level and number of visits per person. The highest rate per person per year (1.5) was registered among persons with an annual income of US$ 20,000 or more, while the lowest rate was found among those earning less than US$ 5,000 per year (0.6).

RESPONSE OF THE HEALTH SYSTEM

National Health Plans and Policies

In recent years, health care costs in Puerto Rico have skyrocketed, as they have elsewhere in the world. Curbing this increase and ensuring that every Puerto Rican receives good and reasonably priced health care are at the core of current health reforms. The model now in effect also seeks to have the Department of Health delegate responsibility for the delivery of services to the private sector—the aim being to eventually have a single health care system—while maintaining responsibility for ensuring that the population receives appropriate health services. The model emphasizes a preventive approach, including education and promotion of healthy lifestyles, in order to minimize long-term costs for hospitalization and treatment of catastrophic illness.

In order to provide better health services, the Government has made it a top priority to restructure the health regions and their levels of care, as a way to avoid duplication. Its strategies include the establishment of national and regional interdisciplinary working groups to prepare and implement a model for the evaluation of the regions, preparation of normative guidelines that establish which services are to be provided at each level, streamlining and improvement of the system for referral of patients among health care system levels, and utilization of health facilities at the various levels and community organizations as key instruments for mass health education campaigns.

Health Sector Reform

The new model for health service delivery to the indigent seeks to improve the accessibility and quality of services in a framework of equity and social justice. Once the model has been fully implemented, it is expected to eliminate many of the barriers that hinder access at the various levels of the health care system (primary, secondary, and tertiary).

As of October 1997, 61 of Puerto Rico's 78 *municipios* in Puerto Rico (78%) had been brought into the health sector reform process, and health insurance coverage had been extended to more than 1 million indigent persons. It is expected that another 14 municipios will have been included by the end of fiscal year 1997–1998. Unlike in 1994–1997, when leasing was used to try and privatize health institutions, the current model envisages the sale of health institutions to the private sector.

One of the principal goals of health sector reform is to control the costs associated with the delivery of health services. This goal can be reached by providing universal access to necessary medical care, controlling the costs of care, restructuring the service system, establishing and maintaining a high level of quality in the services provided, developing primary level services with emphasis on disease prevention and health promotion and protection, and ensuring that all beneficiaries pay a reasonable amount for their health care in accordance with their income.

The government insurance plan covers services that are necessary to maintain good physical and mental health, namely, outpatient care, medical and surgical services, hospitalization, dental care, laboratory services, and drugs. Insurance cost and the deductible amounts are determined according to the beneficiaries' ability to pay. Beneficiaries are entitled to select a health care provider from a network of providers in their area of residence.

The incorporation of the new public policies on health into the operations of the Department of Health and its Health Facilities and Services Administration is considered a priority. The strategies for accomplishing this include preparation, organization, and dissemination of information on prevention of the most common diseases; design and implementation of educational programs, emphasizing chronic diseases and lifestyles; and creation of mechanisms to enable Puerto Ricans to actively participate in caring for and maintaining their own health. Among activities under way are the identifi-

cation of volunteer organizations and their guidance services, and the identification of barriers that impede access to Health Department's services.

Another high priority is the strengthening of technical and administrative capabilities for the delivery of optimal services for the prevention and treatment of AIDS. The strategies envisaged for this purpose include putting in place mechanisms for analyzing, monitoring, and evaluating plans for risk reduction and education, in order to measure their progress; identifying factors that reduce effectiveness or efficiency; determining the need to continue, refine, reduce, reorient, or expand operations; expanding facilities of regional immunology centers; identifying community leaders who could collaborate in AIDS prevention; and identifying the physical and psychosocial needs of HIV-infected women of childbearing age and HIV-infected children and their family members.

Priority also is being assigned to the strengthening of health services in order to ensure that people age 65 and older receive regular health care services. The strategies in this area include analysis of existing community resources that provide specific services to this age group, coordination of these services, and organization of health promotion, health education, and disease prevention activities.

Another priority area involves improving the availability and quality of mental health services at the primary care level. The strategies consist of equipping facilities for the provision of basic mental health services, creating positions and recruiting the necessary personnel for every center that provides such care, and developing a continuous mental health care system in the framework of the Substance Abuse and Mental Health Services Administration.

Organization of the Health Sector

Institutional Organization

Law No. 101, known as the Health Facilities Law, establishes that the Department of Health shall be the sole public authority responsible for planning health services. In order to fulfill this responsibility, the Department of Health designed a regionalization scheme, which it began to implement in 1958. The first region to be designated was the area served by the Bayamón District Hospital, which included the San Juan metropolitan area and 16 *municipios.* In 1960, the rest of island was divided into five regions, each with a population of between 350,000 and 900,000. The three levels of care included in this scheme were the local health centers (primary care), the regional hospitals (secondary and tertiary care), and the Río Piedras Medical Center in the metropolitan area (specialized care).

In 1970, the existing system was restructured and the island was divided into three regions: northeast, south, and west. The medical centers in Río Piedras, Ponce, and Mayagüez were designated as base hospitals for each of these regions, respectively. In 1977, the geographic and functional aspects of the regionalization scheme were again modified. The new system, which remains in effect today, comprises seven regions (Metropolitan Area, Bayamón, Arecibo, Mayagüez, Ponce, Caguas, and Fajardo) and two subregions (Aguadilla, in the region of Mayagüez, and Humacao, in the region of Caguas), which in turn have been subdivided into 16 areas.

Various linked levels of care have been established, which makes it possible for users to receive the care they need as quickly and effectively as possible. The primary level is the gateway into the health system, to which every person has direct access and from which referrals are made to higher levels. The services are accessible to the population and are oriented toward prevention and treatment of the diseases that have a high probability of affecting people at some time during their lives.

The primary level has emergency and ambulatory services, as well as facilities and equipment for the treatment of disease in diagnostic and treatment centers, family health centers, and public health clinics and units. Health promotion and protection and disease prevention activities are stressed. These activities are complemented by health education and combined with treatment and rehabilitation activities.

The secondary level is responsible for treating health problems that occur relatively infrequently in isolated individuals but whose prevalence is significant in population groups of more than 25,000 people. Early detection of disease is emphasized. Medical care is intermittent and patients access this care through referral from the primary level, to which the secondary level offers support services. Secondary level services are provided in subregional and area hospitals, which, in turn, have outpatient and inpatient services in the basic medical specialties (internal medicine, obstetrics and gynecology, and pediatrics). At this level, surgical, ophthalmologic, and other procedures can be performed, and radiology and clinical laboratory services are always available.

The tertiary level concentrates on infrequent diseases, the prevalence of which can only be predicted in populations across several *municipios.* This level requires costly specialized services, complex technology, and highly skilled professionals. The regional specialized and semi-specialized hospitals provide services at this level. The Mayagüez, Ponce, and Río Piedras medical centers and the Cardiovascular Center of Puerto Rico and the Caribbean offer highly specialized services.

The growth of the population in various areas of the island, coupled with extensive use of health services, has affected their accessibility and quality. Under the new model, the regional offices have been maintained but their functions

have changed radically in order to focus more on health promotion and protection. Rather than operational functions relating to direct provision of health care to the population, the offices are now carrying out normative functions, and the strategy of healthy communities and "total wellness centers" are being applied as instruments of social participation. The importance of forming alliances among the various levels is also being emphasized.

The Department of Health has implemented several strategies to achieve the integration of administrative components, both at the central and regional levels. Administrative Order 99/104, issued in June 1995, seeks to integrate areas with similar functions and reduce the size of the government apparatus.

Health Legislation

Health sector reform requires changes in the existing legal framework. At the central level, committees have been created expressly to advance decentralization and to eliminate obsolete regulations. The new approach to privatization also has required that the law on privatization of health care facilities be amended, in order to permit the sale of such facilities to the private sector and to incorporate other privatization models.

Organization of Health Regulatory Activities

Health Services Delivery: Facilities and Standards of Care. The Office of the Undersecretary for Regulation and Accreditation of Health Facilities (SARAFS) is the agency within the Department of Health responsible for the regulation and quality control of health services and the operation of health facilities in Puerto Rico. In addition to the Office of the Undersecretary, it includes the Office of Administration, the Division for Certification of Need and Suitability, the Drug and Pharmacy Division, the Laboratory Division, the Division of Health Institutions, the Medicare Coordination Division, and the Division of Medical Emergencies. The Drug Bioequivalence Board also comes under this Office. It monitors the adoption of state and federal laws and standards that regulate health services; provides advice and guidance to the general public on the regulations applicable to health services; and develops and reviews laws, regulations, standards, and related procedures. Among its more specific responsibilities is the enforcement of regulations, procedures, executive orders, and memoranda issued by regulatory and fiscal agencies and entities with the public administration system and the Regional Office of the United States Health Care Financing Administration (HCFA).

The Division for Certification of Need and Suitability evaluates requests for expansion of services, purchase and sale of health facilities, contract extensions, remodeling, capital investment, and acquisition of highly specialized medical equipment. It guides and advises persons who plan to offer a health service on the applicable laws, regulations, and bidding processes. It also investigates complaints relating to possible violations of laws and regulations, and the Division's staff testify as needed in administrative and legal proceedings. Its principal mission is to promote the orderly planning of health services and institutions in order to meet the needs of the population, control the costs of services, and ensure the availability of services where they are needed.

The Drug and Pharmacy Division is responsible for providing guidance and information and granting licenses to establishments where drugs, medications, pharmaceutical products, and chemical products are manufactured, produced, packaged, sold, and distributed. It also carries out inspections in these establishments and maintains the Puerto Rico Drug Registry.

The Laboratory Division carries out yearly inspections, and licenses clinical and pathology laboratories and blood banks. It also monitors the processing of clinical analyses in physician's offices.

The Division of Health Institutions inspects health services. It is responsible for inspecting and licensing the 282 health institutions, including hospitals, diagnostic and treatment centers, convalescent homes, mental health centers, vocational rehabilitation centers, public health units, social rehabilitation centers, and medical institutions for the mentally retarded.

The Medicare Coordination Division carries out inspections and certifies health care facilities that participate in the Medicare Program offered under the Federal Social Security Law of the United States, by means of a contract between the HCFA and the Department of Health.

The Division of Medical Emergencies regulates, inspects, plans, and develops services in the area of emergency medicine. Together with the Public Service Commission, it also regulates the operation of ambulances. All ambulance operators must be licensed by the Public Service Commission after passing a training course offered by the Department of Health.

Certification and Practice of Health Professionals. The Office for Regulation and Certification of Health Professionals is in charge of all regulations relating to the practice of the health professions, administration of professional examinations, licensing and certification, registration of licenses, and license renewal every three years upon fulfillment of the continuing education requirement, as established by law. The Office includes boards of examiners for regulated health professionals and a registry of professionals. It provides the boards with the administrative services they require.

Health Services and Resources

Organization of Services for the Care of the Population

Control of Environmental Quality (Water, Air, Soil, Housing, and Chemical Safety, Including Hazardous Waste). Within the framework of the political relationship between Puerto Rico and the United States of America, various federal and state agencies are responsible for the regulation and control of activities relating to environmental protection. At the federal level, the main agency is the United States Environmental Protection Agency. At the local level, primary responsibility rests with the Environmental Quality Board, an agency under the Office of the Governor. Other public corporations and agencies in Puerto Rico that play an important role in this area are the Department of Health, the Department of Natural and Environmental Resources, the Solid Waste Authority, and the Aqueduct and Sewer Authority.

The Environmental Quality Board was created in 1970. Its functions are to adopt rules and prepare regulations, carry out investigations, impose sanctions, initiate legal and administrative actions, and establish requirements for the issuance of permits related to its programs for the control of ground- and surface water contamination and air, soil, and noise pollution. In addition, it is empowered to take necessary action in environmental emergencies, such as oil and chemical spills; for this purpose it administers the funds provided under the law establishing the Environmental Emergency Fund.

The Solid Waste Authority is a public corporation created in 1978. Among other functions, it is empowered to provide technical and economic assistance to the municipal governments for the management and proper disposal of solid waste. If necessary, it is authorized to operate facilities for the disposal of such waste.

The Department of Natural and Environmental Resources was created in 1972. Among other functions, it is responsible for the enforcement of laws concerning forests, water, mines, caves, caverns and sink holes, sand, stone, and gravel. In addition, it has primary responsibility for the management of coastal resources and wildlife conservation in Puerto Rico. The Monitoring Board within the Department, together with the inspectors of the Environmental Quality Board and the Health Department and members of the Puerto Rican police force, are key resources for the operation of the programs designed to ensure compliance with applicable legal provisions in this area.

The Aqueduct and Sewer Authority is a public corporation that is responsible for drinking water supply to communities and administration of sanitary sewerage systems. In addition, it controls the discharge of water to public treatment systems and, when necessary, requires prior treatment. The Department of Health maintains active monitoring of drinking water quality in public water systems. In 1974, the Congress of the United States approved a law known as the Safe Drinking Water Act, which makes the Environmental Protection Agency responsible for the establishment of minimum national standards on drinking water contaminants. These standards determine the maximum allowable concentrations of radioactive substances, organic and inorganic chemicals, pesticides, herbicides, and bacteria in drinking water. The law applies to all water systems that have at least 15 service connections or that regularly serve at least 25 people.

The Law on Protection of Drinking Water in Puerto Rico was adopted in July 1977. In keeping with the provisions of this law, in December 1977 the Secretary of Health issued Regulation No. 42, which has been amended twice. This Regulation sets allowable levels for drinking water contaminants in all public water systems of Puerto Rico. In coordination with the Environmental Quality Board, the Environmental Protection Agency administers the National System for the Elimination of Contaminant Residues in Puerto Rico, which seeks to control the discharge of contaminants into the island's bodies of water. In addition, the Environmental Protection Agency plays an important role in monitoring the management and disposal of hazardous solid waste, as well as in investigation of sites that are contaminated with hazardous substances and design, planning, and implementation of necessary sanitation activities.

Food Protection. The Department of Health has delegated responsibility for food quality control to the Office of the Undersecretary for Environmental Health. In order to prevent unsafe food from becoming a public health problem, several programs have been put in place, including programs on hygiene in food service establishments, hygiene in the processing and handling of milk products, and hygiene in food factories, warehouses, and meat markets.

Health Promotion. The Department of Health is changing its orientation from basically curative activities toward an approach that stresses health promotion. The Office of the Undersecretary for Health Promotion and Protection has a preventive medicine program that carries out health promotion and disease prevention activities in keeping with the objectives of Health for All by the Year 2000. To foster public interest in these activities, mass media campaigns have been developed and talks, workshops, and health fairs have been organized. In addition, collaborative working groups (coalitions) have been formed and given the necessary organizational, technical, and leadership capacity to enlist support from representatives of public and private agencies, businesses, and the mass media in order to join forces to achieve the goals of the program. The activities are aimed at the general public and are carried out in public places such as shopping centers, primary health care facilities, universities,

workplaces, isolated communities, hotels, nursing homes, hospitals, schools, and churches.

Epidemiological Surveillance System and Public Health Laboratories. Reporting of infectious diseases by health professionals to the Epidemiology Program is governed by Law No. 81, enacted in March 1912. The Program offers technical and medical assistance at the three levels of the health care system. Trained nurse-epidemiologists, who work at the primary and secondary care levels in each *municipio,* compile and submit weekly reports in their respective health regions on numbers of cases of communicable diseases. At the regional level, a nurse-epidemiologist and an epidemiologist organize and process the data from the *municipios* and communicate them to the Epidemiology Division at the central level. The Division, in turn, coordinates the collection of all epidemiological information, which is then transmitted by modem from regional computers to be analyzed, interpreted, and redisseminated to each of the lower levels.

The Epidemiology Program collaborates directly with the CDC in the collection, analysis, and dissemination of epidemiological surveillance data and reporting of acute outbreaks of infectious disease. The CDC provides the program with advisory and support services and it establishes standards for the disease prevention and control methods used in Puerto Rico. With the support of the CDC, the program provides advisory services to public and private hospitals in all the health regions of Puerto Rico, conducts epidemiological research, and carries out educational activities and training in disease prevention and control.

During outbreaks, the Epidemiology Division works in coordination with the Environmental Health Program and the Institute of Health Laboratories. In the event of a dengue outbreak, the Epidemiology Program collaborates with the CDC Dengue Laboratory located in San Juan.

The Institute of Health Laboratories has five operational programs: the Program for Proficiency Testing of Clinical Laboratories, Program on Alcohol Toxicology, the Program for Certification of Health Laboratories, the Program for Epidemiological Support Laboratories, and the Program for Environmental Health Laboratories.

Drinking Water and Sewerage Services. The Puerto Rico Aqueduct and Sewer Authority administers 208 water systems that supply approximately 97% of the island's population. The remaining 3% is supplied by other means. Seventy-four percent of the urban population is connected to sewer systems (26% have septic tanks), and 80% of the rural population has basic sanitation services, including latrines. The Aqueduct and Sewer Authority reports all drinking water quality problems to consumers.

Solid Waste Disposal. According to estimates of the Solid Waste Authority, in 1994 some 2 million tons of solid waste were generated on the island. The vast majority of this waste was disposed of in municipal dumps. Only a small proportion (7% of the total) was recovered for recycling.

Food Aid Programs. A strategic priority of the Department of Health is the prevention of nutritional risk factors, especially those associated with chronic degenerative diseases, through preventive services offered to vulnerable groups. Among the measures adopted by the Department during fiscal year 1994–1995 were the adoption of a public policy to promote breast-feeding and the provision of advisory services and execution of surveys on nutritional matters. During that period, enrollment in the Federal Supplemental Nutrition Program for Women, Infants, and Children (WIC), administered by the United States Government, reached 197,663, which represented an increase of 40,000 participants with respect to the previous year. The dissemination of information about the services offered under the program was improved through nutritional guidance campaigns aimed at physicians, hospitals, and pediatric clinics. In coordination with other agencies, the referral processes were facilitated, and the identification of eligible mothers increased 2%. In addition, several shelters and institutions for the homeless were identified and the delivery of services to this segment of the population was coordinated.

The Department of Family Services, through the Office of the Undersecretary for Public Assistance, carries out the Program for Nutritional Assistance. This program was established in July 1982 for the purpose of offering economic assistance to low-income families for food supplements and emergencies. During fiscal year 1993–1994, the program served an average of 490,813 families monthly. The total amount of funds distributed was US$ 1,002,817,928 (US$ 2,043.18 per family).

The Food Distribution Program aims to distribute food donated by the U.S. Department of Agriculture to people with low or no income, in order to provide them with a balanced diet. The food is distributed to the beneficiaries of the Economic Assistance Program, residents of public housing projects, and impoverished communities identified by the Program for Economic and Social Rehabilitation. In 1993–1994, a total of 182,326 families participated in this program.

Organization and Operation of Personal Health Care Services

Outpatient, Hospital, and Emergency Services. The health care delivery system includes public, private, and privatized public institutions. Facilities that provide primary

care services must be accredited, in accordance with Law No. 101 and Regulation No. 52. According to data from the Office of the Undersecretary for Regulation and Accreditation of Health Facilities (SARAFS), in 1997 Puerto Rico had 68 hospitals, 24 of them public (including privatized public hospitals) and 44 private hospitals. Of the public hospitals, 16 are general hospitals, 3 are specialized, 4 are psychiatric hospitals, and 1 is a federal hospital. Of the private facilities, 38 are general hospitals, 4 are specialized, and 2 are psychiatric. The 24 public hospitals have a total of 5,464 beds, of which 3,930 are available beds; 3,811 of these are in use. The private hospitals have a total of 6,614 beds, of which 6,239 are available beds and 5,818 are in use.

According to the Annual Report on Institutional Statistics, in fiscal year 1993–1994 the public sector registered, at its three levels of service delivery, a total of 2,952,491 visits to outpatient clinics, 2,093,294 visits to emergency rooms, an average hospital stay of 5.33 days, and a bed occupancy rate of 67.17%. At the tertiary level, the average stay was 5.83 days and the bed occupancy rate was 70.26%.

Human Resources

Professionals who provide health services in public and private institutions must have completed a formal course of study in a school or university recognized by the Government of Puerto Rico and must meet the requirements for continuing education stipulated under Law No. 11.

Of the 6,269 physicians who were practicing in 1989–1992, 3,377 worked in the public sector and 1,283 in the private sector, 1,601 had their own private practices, and 8 worked on a volunteer basis. There were 6,707 general nurses in the public sector and 5,252 in the private sector. Of the 7,394 licensed practical nurses, 4,406 worked in the public sector and 2,807 in the private sector, 175 were self-employed, and 6 worked on a volunteer basis. In 1989–1992, 55% of the general nurses, 59.6% of the licensed practical nurses, and 53.9% of the physicians worked in the public sector, while 43.1% of the general nurses, 38.0% of the licensed practical nurses, and 20.5% of the physicians worked in the private sector.

Training of Health Workers. Health workers receive formal training through educational programs within or outside Puerto Rico. These programs must be recognized by the local regulatory authority. The island currently has schools of medicine, nursing, pharmacy, medical technology, and allied health professions (physical therapy, occupational therapy, speech and language pathology, and others), as well as internships in nutrition and dietetics, a graduate school of public health, and graduate programs in psychology and other areas. In addition, there are intern and residency programs in various medical specialties and technical schools and associate degree programs in other health-related disciplines.

Labor Market for Health Professionals. Traditionally, the public sector has provided most employment opportunities for health professionals, but the reform of the health system has changed this. As it gradually takes over health care delivery to the indigent, the private sector is recruiting more professionals. In addition, the growth of the health insurance market has created new job opportunities for health professionals. As service contracts are being established in the various regions where health reform is being implemented, professionals are beginning to move to new sectors. In addition, the Department of Health, in order to fulfill its core functions, requires professionals skilled in policy analysis and public policy-setting.

Research and Technology

Research and technology activities are carried out by university centers in coordination with the Department of Health. Research projects are conducted under agreements with the CDC and others are subsidized with federal funds from the United States Government, especially in the area of treatment of patients with HIV and AIDS.

Expenditures and Sectoral Financing

Between 1986 and 1995, health care expenditures grew at an annual rate of 6.0%. Although annual growth rates appear to have declined (7.1% in 1992, 5.6% in 1993, 2.9% in 1994, and 5.0% in 1995), health care spending has nevertheless increased at a faster rate than inflation in almost every year of this decade. In 1995–1996 the operating budget of the Department of Health and the Health Facilities and Services Administration totaled US$ 1,035,788,933.

As of December 1996, 1,033,777 people had purchased health insurance plans at a total cost of US$ 608 million.