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# BARBADOS

## GENERAL SITUATION AND TRENDS

### Socioeconomic, Political, and Demographic Overview

**B**arbados, the easternmost Caribbean island, extends over 430 km<sup>2</sup>, over mostly flat terrain. Given the country's small size, it is difficult to define areas as urban or rural, but the most densely populated areas are found along the western, southwestern, and southern coasts.

The country has a good network of roads, and the international airport has several daily flights to major cities around the world. The population also is well served by a system of private and public transportation. Because the island lies within the hurricane belt, each year there is increased vigilance from June through November. The Central Emergency Relief Organisation is responsible for disaster preparedness and response.

Barbados has a democratic system of government with parliamentary elections held every five years. The parliament consists of a nominated 21-member Senate and an elected House of Assembly of 28 members.

During 1992–1995, Barbados's economy recovered from the recession that began in 1989, showing growth in real output and in international reserves, as well as improvements in the balance of payments. In fiscal year 1991–1992, the Government introduced an 18-month stabilization program, designed to restore balance to the country's finances and external accounts.

Real gross domestic product in 1992 had fallen to US\$ 395.5 million, due to the recession in 1989. In 1993, however, real output had risen to US\$ 401.9 million, reaching US\$ 428.4 million by 1995. The main sectors of the economy that contributed to this growth were tourism, manufacturing, wholesale and retail trade, and business and general services.

Tourism recorded real growth during the period, with annual revenues from this sector rising from US\$ 56.8 million to US\$ 65.4 million between 1992 and 1995 and with indicators

such as average length of stay and hotel and bed occupancy rates showing increases. Growth in cruise passenger arrivals outstripped the long-stay arrivals.

The first surplus in three years on the current balance of payments was recorded in 1992; it was sustained during 1993–1995, largely through the performance of manufacturing for the export market and tourism.

The rate of inflation, recorded at 6.2% in 1992, dropped to 0.1% in 1994, but rose again 1.9% in 1995. Increases in the prices of food and beverages and housing in 1995 were partially offset by declines in the price of transportation and household operation and supplies.

In April 1993, the Government, trade unions, and social partners negotiated the first protocol on prices and incomes, which froze public- and private-sector wages and contained the price of goods and services.

Government current expenditure increased from US\$ 543.1 million in 1992/1993 to \$616.2 million in 1995/1996. Current revenues increased from \$502.2 million to \$574.5 million in the same period. Capital expenditure each year from 1992–1993 to 1994–1995 was about \$22 million and rose to \$58.5 million in 1995–1996. Government expenditure as a percentage of GDP, however, had declined from 26% in 1993 to 23% in 1995. The fiscal deficit net of amortization, which was \$25.9 million in 1992/1993, had declined to \$10.6 million in 1995/1996.

The labor force increased from 132,100 in 1992 to 136,800 by 1995. The unemployment rate reached its highest rate (24.3%) in 1993, during the implementation of the structural adjustment program; by 1995, unemployment had fallen to 19.7%.

The literacy rate in Barbados, estimated at 95%, is one of the highest in the Caribbean. Education at the primary and secondary levels is compulsory until age 16.

In 1990, there were approximately 75,170 households in Barbados and 70,693 (94%) of them had piped water. The other 6% had easy access to public water-supply facilities.

More than 75% of households have telephones, and telecommunication services are readily available, and more than 90% of households have electricity. According to the Statistical Service's Continuous Household Survey, in 1996 the average household size was 3.5 persons; the 1990 census revealed that women headed 44% of households.

During 1992–1995, the population grew at an annual rate of less than 1%. For the last decade, the population's demographic profile has changed, with an increasing proportion of elderly persons. In 1995, approximately 12% of the population was older than 65 years old, and 23% was under 15 years. By 1995, the mid-year population was estimated at 265,173: 47.9% were males and 52.1% females; however, there were 19.4% more females than males in the age group 65 years and older. Life expectancy at birth is 72.9 years for males and 77.4 years for females. Birth registration is complete—more than 98% of babies are delivered in hospital, and births are required to be recorded immediately.

### **Mortality Profile**

The crude death rate has remained fairly constant over the past four years, around 9 per 1,000. During the 1992–1995 period, the total number of deaths was 9,692. In 1995, the five leading causes of death were as follows, in descending order of importance: cardiovascular disease (393–398; 410–429), 18.8% of deaths; malignant neoplasms (140–208), 17.2%; cerebrovascular disease (430–438), 13.7%; diabetes mellitus (250), 10.0%; and other diseases of circulatory system (440–459), 3.9%. In 1995, the five leading causes of death in children under 5 years old represented 3% of all deaths. In the age group over 45 years old, 905 deaths (41%) were attributed to heart related causes and 373 (13.3%) to neoplasms of the genitourinary tract and digestive organs. Remaining deaths were attributed to various other causes. These data are in keeping with an aging population with a lifespan over 75 years.

## **SPECIFIC HEALTH PROBLEMS**

### **Analysis by Population Group**

#### *Health of Children*

In 1995, the infant mortality rate was 15.2 per 1,000 live births and the neonatal death rate was 11.3 per 1,000 live births. Infant and neonatal death rates varied little between 1992 and 1995.

Neonatal deaths account for 75% of all infant deaths and 54% of neonatal deaths are in the age group under 1 day old.

The leading causes of death in children under 5 years of age were certain conditions originating in the perinatal period, followed by congenital anomalies, pneumonia, and AIDS.

The number of children under 1 year old who die from AIDS has remained relatively constant, but since AZT is now being given to pregnant women who are HIV-positive, this number may decrease. Even though diseases of the respiratory system were not a leading cause of death, they were the second most common cause of hospitalization among children under 5 years old; prominent in this group of diseases is asthma, reflecting the increasing prevalence of this disease, which is estimated at 12% among the general population.

Over the last four years, the percentage of newborns with low birthweight (<2,500 g) fluctuated between 9% and 11%, signaling a need for the health system to target mothers who give birth to underweight babies for follow-up services. Malnutrition in childhood is uncommon and so is an infrequent cause for hospital admission.

For 1992–1995, the mortality rate for children 1–4 years old was 0.4 per 1,000 children of this age; for the age group 5–14 years old, it was 0.2 per 1,000.

#### *Health of Adolescents*

Health services for adolescents (age group 10–19 years old) are provided at the government-operated polyclinics; clinic-based family life education and school outreach programs also are provided. These programs aim to improve family life and reduce teenage pregnancy and child abuse.

Data from the Government Statistical Department indicate that there was a consistent reduction in births to adolescent mothers. During the period under review, births to adolescent mothers were 13.9% of all births in 1995, down from the 1977 high of 23%. This decline coincided with a strengthened adolescent health program, the implementation of family life education programs in schools, and an expansion of the adolescent peer-counseling program run by the Barbados Family Planning Association.

Substance abuse is an issue of much concern in this age group. Marijuana and cocaine are the substances most abused. In 1994 and 1995, between fifteen and twenty 20-year-old men received treatment for simultaneous use of both drugs. It is believed that, owing to the stigma attached to attendance at the Psychiatric Hospital's Rehabilitation Unit, the services were underused. No intravenous drug use was reported.

In the period under review, several programs were geared to improving family health. In the 1990 census there were 70,460 persons in the 15–29 age group, representing 27% of the total population. Increased violence and deviant behavior in this age group have been causes of concern. Reports indi-

cate that most people who participate in drug rehabilitation programs conducted by the Ministry of Health started using illegal drugs between the ages of 13 and 16.

### *Health of Adults*

Lifestyle is critical to the health of adults (20–60 years old). The population's disease profile shows an increase in the incidence of noncommunicable diseases from age 45 years on.

Much attention was given to women in this age group. For the last 40 years, the birth rate has significantly dropped, going from 34 per 1,000 in 1955 to 13.4 per 1,000 in 1995. Family planning clinics were established in all public clinics between 1993 and 1995.

Legal abortions represented 2.8% of the leading causes for hospitalization in 1995, compared with 3.9% in 1992. There were five maternal deaths in the 1992–1995 period (3.3 per 10,000 live births), as compared with 14 in the 1988–1991 period (8.4 per 10,000 live births).

### *Health of the Elderly*

Coping with problems among the elderly (age group 60 years old and older) is one of the health care system's major challenges. Noncommunicable diseases such as arthritis, hypertension, and diabetes mellitus continue to be the main health disorders among the elderly. The leading causes of death in this age group were heart disease and cardiovascular disease. The most common disabilities affecting the older adult were blindness and impaired vision.

In Barbados, the elderly have unrestricted access to primary health care, which is available at the polyclinics, and to secondary care that is available at Queen Elizabeth Hospital and the psychiatric hospital. Five Geriatric/District Hospitals mainly provide inpatient care for the elderly; they have a combined bed capacity of 744 and an annual average occupancy rate of 95.5%. Excessive demand for geriatric care in public institutions forces these hospitals to operate at maximum capacity. According to statistics from Queen Elizabeth Hospital's Social Services Department, in August 1996 there were 604 persons on the waiting list for admission to the Geriatric Hospital. As a way to solve the problem of insufficient beds in public geriatric institutions, in 1995 the Government allocated several beds at the Queen Elizabeth Hospital to elderly persons who did not need acute medical or nursing care. An expansion of care for the elderly is one of the components of the IDB-funded health rationalization study.

The Government is committed to allowing the elderly to continue to live within their communities. Attempts to deinstitutionalize the elderly and return them to their own homes,

however, have not always been successful because not enough support systems and programs have been available in the country. The Government also is exploring ways to provide domiciliary care for the elderly.

### *Workers' Health*

There is no evidence of child labor in Barbados because the Compulsory Education Act that requires children ages 5–16 years to attend school is strictly enforced; Student Attendance Officers investigate reports of children who are absent from school for two weeks.

Information on informal sector employment was not available, but the Ministry of Labour, Community Development, and Sports is currently conducting a study of that sector.

Women represented an increasing proportion of the economically active population, accounting for 48.2% of the labor force in 1992 and 49.3% in 1995. In 1992, 80% of employed women worked in service industries. The effects of the work environment on women's health need to be investigated, particularly in those establishments where chemical substances are used and where adequate lighting is required; the agricultural sector also should be studied.

In May 1996 at a Regional Multipartite Conference on Workers' Health, held in Barbados, a draft Regional Workers' Health Plan was presented and discussed. Its components included: health and human development, health systems and services development, health promotion and protection, environmental protection, and disease prevention and control.

The Government is currently considering legislation on health and safety in the workplace, which will replace the 1982 Factories Act. The Barbados Employers Confederation encourages its members to promote workers' health by making workplaces healthy, through such measures as establishing smoke-free offices, measuring air quality, providing exercise facilities, and sponsoring seminars on health issues at the workplace; employee assistance programs also are available at some work sites.

### *Health of the Disabled*

The Children's Development Centre is a unit within the Ministry of Health that provides physical, psychological, and emotional support for disabled persons, offering such services as occupational therapy, physiotherapy, behavioral therapy, speech therapy, audiological testing, and counseling.

There are currently 1,417 persons with disabilities registered with the Centre, 924 men and 493 women. The age group 1–12 years old was most affected with mental retarda-

tion and development delays, accounting for greater percentages of the classified diagnoses.

In 1992, the Barbados Council for the Disabled, working with the Barbados Chapter of Partners in Appropriate Technology for the Handicapped (PATH), developed a long-range project designed to bring about more and better services for children and young adults with disabilities by involving parents. Since then, the Council established education programs to sensitize the general public regarding the disabled and has helped to advance the process of national planning for physical and mental disabilities. A national policy for persons with disabilities began to be formulated in 1994, and a task force commissioned by the Ministry of Labour, Community Development, and Sports was established to propose legislation to facilitate the integration of the disabled into national life. The Ministry of Health was a member of the task force, and the proposals are currently under consideration by the Ministry of Labour, Community Development, and Sports.

## Analysis by Type of Disease or Health Impairment

### Communicable Diseases

**Vector-Borne Diseases: Dengue Fever.** In an epidemic in 1995, 2,076 cases of dengue fever were reported, 870 of which were laboratory-confirmed. The outbreak was concentrated in the country's south and southwest, and the group most affected were women 15 to 39 years old, who are more economically active and make up almost half of the country's labor force. There were two cases of dengue hemorrhagic fever and one death. Type 2 and Type 4 were the circulating serotypes during this epidemic. Dengue fever appears to be endemic, as cases are being reported throughout the year.

**Vaccine-Preventable Diseases.** Barbados was declared free of poliomyelitis in 1994; no cases of polio have been notified in more than 10 years. The last case of diphtheria was reported in 1980. One case of whooping cough was reported in 1993 and one in 1995. Two cases of tetanus were reported in 1993, two in 1994, and none in 1995. All of the cases of tetanus occurred in elderly persons.

The last case of measles was reported in 1991. In 1996, there was an outbreak of rubella, with 229 suspected cases notified; 3 cases of rubella were notified in 1993 and 16 in 1995. No cases were reported in 1994. Of the suspected cases, 83 were laboratory-confirmed, 15 of which occurred in pregnant females. A surveillance system for congenital rubella was implemented to track the outcome of these pregnancies and plan any necessary intervention strategies for dealing with the babies. The cost-effectiveness of an immunization program for at-risk mothers is being examined.

Two cases of *Haemophilus meningitis* were reported in 1993, five cases in 1994, and one case in 1995. *Haemophilus influenzae* is being considered for inclusion among the EPI diseases for which vaccination would be made available.

In 1993, one case of meningococcal meningitis was reported; it was believed to be imported but the epidemiological linkage was not clearly demonstrated. Immediate contacts were treated with Rifampicin.

**Cholera and Other Intestinal Diseases.** No cases of cholera have been reported in Barbados. The diarrheal disease surveillance system reported 1,606 cases of diarrhea in 1993, 1,549 cases in 1994, and 2,099 cases in 1995. Fifty-three cases of gastroenteritis were reported in 1993; the corresponding figures for 1994 and 1995 were 37 and 102, respectively. An increase in circulation of viral pathogens and the improved active surveillance systems are factors in the rise of reported cases of diarrheal diseases in the last year.

In 1993, the Public Health Laboratory reported 8 cases of hookworm infestation on stool samples submitted for analysis; the corresponding figures for 1994 and 1995 were 15 and 10, respectively. In 1993, 15 cases of *Trichuris* infestation were reported; 14 were reported in 1994 and 8 in 1995. Two cases of Ascariasis were reported in 1993 and no cases were reported in 1994 or 1995.

**Chronic Communicable Diseases: Tuberculosis and Leprosy.** In 1993, two cases and two deaths of tuberculosis were reported; eight cases and six deaths were reported in 1994 and six cases in 1995. One case of leprosy was reported in 1993; no cases were reported in 1994 or 1995.

**Acute Respiratory Infections.** In 1993, 21 cases of bronchopneumonia were reported in the age group under 5 years old; there were 12 and 13 cases reported in 1994 and 1995, respectively.

Asthma is a significant cause of morbidity, with a prevalence rate of 12%. The Accident and Emergency Department of Queen Elizabeth Hospital records an average of 8,000 to 10,000 attendances every year.

**Rabies and Other Zoonoses.** No cases of rabies were reported in the 1993–1995 period. Of the 31 leptospirosis cases reported in 1993, 6 died. In 1994 there were 17 cases and 4 deaths, and in 1995, there were 34 cases and 8 deaths. Barbados has the only leptospirosis laboratory in the subregion, which performs diagnostic work for other Caribbean territories; the laboratory also provides training for these other territories.

**AIDS and Other STDs.** Although sexually transmitted diseases are not notifiable by law, basic figures obtained from

government clinics show a decline in syphilis and gonorrhea between 1992 and 1995.

Sexual contact is the predominant mode of HIV transmission, accounting for approximately 98.9% of total cases in the adult population. Perinatal transmission accounted for 4.2% in 1995. Of the 95 cases diagnosed in 1995, two occurred in the age group under 5 years old; 5 occurred in this age group in 1994.

In 1993, 59 males and 29 females were diagnosed as having AIDS; in 1994, the figures were 92 males and 27 females; and in 1995, there were 76 males and 19 females.

Of 3,053 blood donors tested for HIV in 1993, 10 were positive. The figures for 1994 and 1995 were 9 out of 2,830 and 9 out of 2,824, respectively. Of 2,904 blood donations tested in 1996, 6 (0.2%) were positive for syphilis (VDRL); 13 (0.4%), positive for hepatitis B; 8 (0.3%), positive for hepatitis C; and 22 (0.8%), positive for HTLV1.

#### *Noncommunicable Diseases and Other Health-Related Problems*

**Cardiovascular Disease.** In 1993, there were 593 (3.9%) hospital admissions for heart disease, out of a total of 16,980. Diabetes mellitus accounted for 422 of admissions to the Queen Elizabeth Hospital in 1993. For both diseases and for the same year, the age group over 45 years old accounted for more discharges from the Queen Elizabeth Hospital than any other age group.

**Malignant Tumors.** In 1993 there were 804 hospital admissions for malignant neoplasms, distributed in the following sites: 47 stomach; 41 colon; 128 prostate; 46 cervix; 103 female breast; and 43 trachea, bronchus, and lung. Benign neoplasms of the uterus accounted for 493 admissions and hyperplasia of prostate, 81.

The most common cancer site in women 15 years old and older was breast, followed by the cervix. About 10,000 Pap smears are performed every year. A 1995 KAP survey showed that 90% of the at-risk population had been screened in the preceding five years; the survey also showed that those at greatest risk (women aged 55–70) were not being adequately screened. In men, cancer of prostate is the most frequent cancer site, accounting for 82 deaths in men 45 years and older.

**Accidents and Violence.** Accidents and violence accounted for 3,131 admissions (16.8% of total) in 1993. From 1992–1995, admissions due to accidents, falls, and motor vehicle accidents accounted for most admissions to Queen Elizabeth Hospital. There were fewer admissions for accidents caused by fire.

Certain highly vulnerable groups such as women, young men, children, and the elderly, suffer disproportionately from violence. The 1982 Family Law Act continues to provide protection for women and children. Studies of child abuse in Barbados confirm that sexual violence against children, especially incest, is increasing and dealt with as a priority.

Many young men suffer serious physical injury from armed confrontations (stabbing, gunshot, and cutlass wounds). Use of guns and cutlasses is a serious problem, and recent statistics show that it costs Queen Elizabeth Hospital \$1,500 per day to treat a person suffering from such wounds. Armed confrontation has become a public health epidemic that is putting a strain on the health budget and has become a high public health priority. The Ministry is currently developing strategies to deal with violence.

**Behavioral Disorders.** In 1995, there were 1,107 admissions to the Psychiatric Hospital; in 1991, there were 1,181. The mental health care system provides outpatient services, day care programs, specialized professional services (social work, psychology, psychotherapy, occupational therapy, and workshops), and consultation services at Queen Elizabeth Hospital and at the medical clinic at Her Majesty's Prison.

## **RESPONSE OF THE HEALTH SYSTEM**

### **National Health Plans and Policies**

The Government of Barbados views health care as a fundamental right of all Barbadians. It is responsible for ensuring that basic conditions for healthy living exist and for creating an atmosphere that fosters healthy choices. To this end, the Government aims to provide comprehensive health care to all its citizens at an affordable cost to the country and to ensure that environmental concerns are considered in all aspects of national development. Further, the Government is committed to ensuring that all citizens have access to clean drinking water, proper sanitation, and a safe environment free from health hazards.

The Ministry of Health, through its Environmental Engineering Division, regulates and monitors the environmental impact of development projects with respect to water quality, solid and liquid waste disposal, air quality, noise pollution, and the control and disposal of hazardous chemicals. The Ministry of Health's Sanitation Service Authority is responsible for the collection and disposal of domestic household garbage.

The Public Health Inspectorate—staffed by environmental health officers—is the main mechanism for monitoring domestic environmental quality. Food safety and the control of communicable diseases fall under this division.

The Government has begun to implement a solid waste management plan that will encompass waste minimization, waste recycling, and waste reuse. Inadequate financing continues to significantly constrain environmental quality programs; maintaining environmental quality will incur increasing recurring costs, and new programs will require significant additional capital.

In keeping with the Declaration of Alma Ata, emphasizing "health for all by the year 2000," primary health care has remained an integral part of the country's health care delivery system and of the community's overall social and economic development. A community approach to primary health care and better utilization of governmental and nongovernmental organizations are being emphasized.

Services at government facilities are free of cost at the point of delivery. Private health services also are offered and are mainly used by those who can afford to pay.

The Ministry's priority programs, which are in keeping with the goals and targets of the Caribbean Cooperation in Health initiative, are committed to improving the conditions of vulnerable, high-risk population groups such as the elderly, the disabled, women of childbearing age, children, adolescents, the physically challenged, and the mentally ill.

Nutrition programs geared at improving the nutritional status of the Barbadian population have continued in the polyclinics, at the community level, and within the schools. The family planning and family life education programs have been strengthened and are now in place at all of the polyclinics.

The Ministry of Health continues to view health promotion and education as a critical component of its primary health care strategy and to collaborate with NGOs to promote healthy lifestyles. Health promotion programs such as those operated by the Barbados Youth Service and the Juvenile Liaison Scheme address illegal drug use among youth. Some NGOs, such as the Barbados Family Planning Association, the Barbados Cancer Society, the Heart Foundation of Barbados, the Kidney Association, the Association for Disabled Persons, and the Diabetic Association, are actively involved in providing services.

The Ministry of Health, insofar as its financial resources have permitted, has continued to arrange for personnel training both domestically and abroad.

The Government's policy regarding drugs and related items is to provide them free of cost at the point of services to clients seen by a government doctor. Under the Special Benefit Service, listed in the Barbados Drug Formulary also are free at the point of service to persons 65 years of age and over; children under 16 years of age; and persons being treated for hypertension, diabetes, cancer, asthma, and epilepsy. In 1995, the Government adopted a policy to distribute Zidovudine (AZT) to all pregnant women who were HIV-positive; a protocol was set out for mother and child.

Given the fact that the Government accounts for the larger share of spending in health, restrictions in government revenues have a significant and direct effect on health sector activity.

Data indicate that for the most recent seven years the Government of Barbados has committed an average of 18% of its revenues to the Ministry of Health. This level was maintained even during the difficult economic period between 1988 and 1993, when the country's GDP fell from 3.5% to 0.04%, after a brief spike to 5.6% in 1992, and its fiscal deficit ballooned from 4% of GDP in 1988 to 7.2% in 1990, before falling back to 2% by 1993.

### *Health Sector Reform*

As a way to improve health care quality, enhance delivery efficiency, contain costs, increase equity in access, and strengthen public/private collaboration, the Government commissioned a study on the rationalization of the health sector as a whole. The results of this IDB-funded study, which is near completion, will be used to improve existing services so they can better meet the needs of the community. Although the study will examine all areas of the health sector and recommend strategies for effective and efficient allocation of programs and facilities, it will focus on three major areas.

First, chronic care, rehabilitation, and health promotion will be assessed, with a view to rationalizing care for the elderly, the disabled, and persons with chronic diseases and conditions and psychiatric care. A review of current health promotion and education efforts will lay the foundation for addressing lifestyle health choices and changes into the 21st century. Second, primary, secondary, and tertiary care will be studied to evaluate how these health services might function in the future, in light of a greater demand for high-cost technology, an aging population, an increase in chronic health problems, and constraints on public financial resources. Finally, the health sector's efficiency will be analyzed as a way to provide cost and service information for developing or modifying health care policies and ensuring their financial sustainability.

The Government also is contemplating reforms of other sectors that provide health-related services. A Green Paper on Housing is expected to become national policy for ensuring the provision of adequate shelter and financing home ownership for all.

## **Organization of the Health Sector**

### *Institutional Organization*

The Government operates Queen Elizabeth Hospital (a large secondary and tertiary care facility), a network of four

district hospitals for geriatric care, a main geriatric institution, a mental health hospital and a half-way house, two small rehabilitation institutions for the physically and mentally handicapped, an AIDS hostel, a development center for disabled children and adolescents, and a nutrition center.

A nationwide network of eight polyclinics provides a wide range of preventive and curative services, as well as limited rehabilitative services. These polyclinics and four satellite stations provide traditional public health services such as maternal and child health, family life development, communicable disease control, community mental health, chronic disease programs; dental health, nutrition, and general practice. These services also cover environmental health, which includes food hygiene, mosquito and rodent control, building development control, atmospheric and chemical pollution monitoring and control, monitoring and control of water quality, monitoring and control of sewage disposal, solid waste disposal, the maintenance of cemeteries, and the licensing and control of stray dogs.

The Government also operates the Barbados Drug Service, a WHO Collaborating Center that controls the importation and distribution of essential drugs in the country, thus ensuring that Barbadians receive affordable quality drugs and pharmaceuticals.

The private sector is well developed, with about 100 general practitioners operating singly or in multiple practice; consultants (senior doctors working in government hospitals or polyclinics) also have private practices. There is only one small private hospital in the country—Bayview Hospital—with fewer than 30 beds, representing under 4% of the country's total acute bed capacity. Private sector health services and facilities also include 18 homes for long-term care, as well as pharmaceutical, laboratory, diagnostic, dental, psychiatric, and physical therapy services.

Staff at all levels are well trained and continue to receive regular updates. All of the polyclinics are supplied with the necessary equipment for the delivery of quality health care. There is a referral system between clinic, hospital, and other support services.

The Ministry maintains autonomy over the health services. The decision on how money is to be spent lies within the Ministry, but the Ministry of Finance appropriates the overall budgetary allocation. And while the Government exercises some independent control over health professionals with regard to health service legislation, physicians and nurses maintain involvement in health policy dialogue through their own trade union.

In order to improve health, the health sector must work with other public sector agencies, the private sector, civic organizations, community groups, and citizens. The Ministry of Health, the private sector, and other government ministries collaborate on several activities, such as the vector control ed-

ucation program, "World Health Day," "World Environmental Day," and "World AIDS Day."

**Health Services Delivery.** Health service delivery falls into the following seven program areas: primary health care; 24-hour acute, secondary, tertiary and emergency care; mental health care; care for the elderly including rehabilitation services; drug service; assessment services and rehabilitative care; and health promotion. Primary health care services encompass maternal and child health; family life development, including family planning and ophthalmic and dental care for schoolchildren; care for the disabled, pregnant women, and the elderly; general medical care with clinics for hypertension, diabetes, and sexually transmitted diseases; nutrition; pharmaceutical services; and community mental health and environmental health care.

The Chief Medical Officer is responsible for all matters affecting public health and medical services on the island, advising the Minister of Health and Environment on these matters; the Chief Medical Officer also plays an integral role in health planning and health infrastructure development. Two Senior Medical Officers support the work of the Chief Medical Officer, and a team approach is applied for each program area.

Each polyclinic is managed by a Medical Officer, who functions as a clinician and an administrator, heads a team of clinical medical officers and public health nurses, and works closely with the Public Health Inspectorate. Additional staff comprises pharmacists, community nutrition officers, dental officers, and other ancillary personnel. An administrator, a clinician, support medical staff, and other ancillary staff similarly run other institutions.

The major problem at the primary health care level is the shortage of staff resources, especially at the clinical level. This results in longer waiting periods and the inability to offer services at some of the polyclinics after 4:30 p.m. and on weekends.

At the secondary care level, the Government operates the Queen Elizabeth Hospital, a 547-bed facility that offers 24-hour acute, secondary, tertiary, and emergency care. The hospital houses more than 90% of the country's acute care beds; clinical services include accident emergency and outpatient and inpatient care in surgery, medicine, pediatrics, obstetrics and gynecology, pathology, radiology, radiotherapy, rehabilitation therapy, ophthalmology, and ear, nose, and throat. The hospital's diagnostic equipment includes a CAT scan and ultrasound and modern radiotherapy equipment. A cardiac catheterization unit was established in 1993, and by the end of 1996 had performed 50 open-heart surgeries and 242 cardiac catheterizations.

Mental health care is provided by the government owned psychiatric hospital, which has 627 beds, and at the 8-bed

unit at Queen Elizabeth Hospital. The Psychiatric Hospital offers the following services: acute psychiatric care, including child and adolescent care; long-stay psycho-geriatric care; forensic psychiatric care; care for the subnormal; and addiction services. Community mental health services include a district nursing service that follows up persons who have been discharged from the hospital, and a primary community mental health program offered from the polyclinics.

#### *Organization of Health Regulatory Activities*

The country has a comprehensive health legislation. The Health Services Act and its regulations, which were enacted in the late 1960s and early 1970s, cover all areas that fall under the jurisdiction of the Ministry of Health and the Environment. The Ministry has undertaken to improve the legislation for effective administration of the health services, the regulation of related public activity, and the services given to the public. Among laws to be reviewed and amended are: the Dental Registration Act; regulations regarding alternative medicine; food hygiene and restaurant regulations as they relate to street vending operations, random testing of food-handlers for foodborne illnesses, and mandatory training of food-handlers; the Mental Health Act and all related legislative instruments that affect mental health, such as housing; and the General Nursing Council Act, regarding the enforcement of the regional examination and registration for nurses. In addition, the solid waste management plan, the regulation of private hospitals and nursing homes, regulation of organ donation and organ transplant, the development of a national oil spill contingency plan, registration of medical specialists, and the establishment of criteria for general fitness to practice medicine will all be part of the review and reform process.

**Certification and Practice of Health Professions.** Several pieces of legislation regulate the registration, licensing, and governance of health professionals through the establishment of councils. There are councils for medical, dental, general nursing, pharmacy, and paramedical professions. The last one, which encompasses such professions as physiotherapists, occupational therapists, chiropractors, and laboratory technologists, may be amended to include nutritionists, acupuncturists, and osteopaths.

**Food Safety.** Barbados has specific health regulations designed to control food safety, and public health inspectors who issue licenses to all food establishments enforce these regulations. Currently, these regulations are under review, so that food handlers will only be issued their annual licenses after undergoing several training sessions. Legislation dealing

with the licensing and control of the increasing number of itinerant vendors also is being reviewed.

## **Health Services and Resources**

### *Organization of Services for Care of the Population*

**Health Promotion, Health Settings and Environments, Social Communication.** Health promotion is viewed as a strategy for protecting and improving public health through the encouragement of individual and collective initiatives and actions. Barbados regards health promotion as key in achieving "health for all by the year 2000" by promoting healthy lifestyles; involving community residents in the delivery of their own health care, especially preventive care; and creating an environment that makes it possible to live a healthy life.

The country has no formal health promotion program. Various groups working in advocacy and support activities emphasize different components, but the links among these groups are often weak, resulting in poor communication and duplication of efforts. The Government acknowledges the need for better links and for strengthening the role of the Ministry of Health and the Environment as coordinator and facilitator.

In October 1993, Barbados participated in a PAHO-sponsored subregional workshop on health promotion designed to develop a cadre of health educators who could help integrate health promotion principles and strategies into health programs and projects. As an outgrowth of this workshop, in 1997 a national consultation on health promotion will bring together multisectoral private- and public-sector groups to develop a common framework for understanding and advancing health promotion in Barbados.

The Ministry of Health sees public relations, information, and communications as important aspects of policy and strategy, and attaches importance to ensuring that the public is informed about the principles, policies, and achievements of the Ministry, as well as the Ministry's position on any issue. The Government Information Service assists the Ministry in maintaining effective channels of communication with all identifiable public within the nation as a whole.

**Programs for Disease Prevention and Control.** Special clinics have been established at the polyclinics for diabetes mellitus, hypertension, and STDs.

A national AIDS Program was established in 1988 to implement projects aimed at reducing HIV transmission and providing care and support to persons who were HIV-infected or affected by the disease. The program uses a multisectoral approach. To date, the program has organized workshops to sensitize public and private sector policymakers; identified community members who are working in AIDS education and

care, as a way to establish a national network; trained doctors to deliver lectures/presentation on HIV/AIDS; established a 9-bed residential care facility for homeless persons with AIDS; and trained primary and secondary school teachers to educate students about HIV.

The Ministry of Health's Vector Control Division routinely conducts mosquito surveillance throughout the country, targeting high risk areas; *Aedes aegypti* indices, which help to identify target areas for intervention, are reported weekly. The services of the Vector Control Division integrate central strategies with those of the Public Health Inspectorate services. Identified foci are treated with larvicides and insecticides where indicated; in addition, thermal fogging of areas for greater coverage is ongoing, and areas where greatest mosquito activity or dengue fever occurrence is reported are targeted.

The Rodent Control Unit in the Vector Control Division distributes rat bait free of charge to all residents through the polyclinics. The Ministry of Agriculture and the Barbados Agricultural Society also supply rodenticide to the business sector, plantations, and estates. Government facilities including the seaport and airport are included in the Rodent Control Unit's programs and are baited at regular intervals.

Dengue fever is a notifiable disease and is passively reported. Since 1995, an active surveillance program was put in place to facilitate the early detection of an outbreak. The public health inspectorate's efforts included education programs, surveillance of the disease by geographic mapping of cases (suspected and confirmed), and surveillance of the mosquito index within the various catchment areas. In addition, in March 1995, a national clean-up campaign was launched to reduce potential breeding sites for *Aedes aegypti*. The campaign covered the private and public sectors, and removed more than 1,500 truckloads of solid waste from various locations throughout the country.

The country's Expanded Program of Immunization includes vaccination for polio, diphtheria, pertussis, tetanus, measles, mumps, and rubella. The program has attained a coverage of 93% of the eligible population (i.e., infants reaching their first birthday). In order to ensure adequate immunization coverage for EPI target diseases, the need for immunization was publicized to all the population, immunizations were made a legal requirement for school entry, and a computerized tracking system for all births was set up.

**Epidemiological Surveillance Systems and Public Health Laboratories.** Barbados has no physical epidemiological unit, but one of the Senior Medical Officers has been designated national epidemiologist; he is assisted by five deputies who are public health inspectors trained to investigate diseases at the community level.

The country has developed and implemented an active surveillance program for diarrheal disease, acute flaccid

paralysis, acute febrile rash illness, and, more recently, congenital rubella syndrome. There is one public health laboratory located at the largest polyclinic, which performs tests in bacteriology, parasitology, and urinalysis.

Between 80% and 90% of essential drugs are available on location at most facilities, and the remainder can be made available at the Barbados Drug Service.

**Drinking Water Services and Sewerage.** The Barbados Water Authority (BWA) is the statutory corporation responsible for providing potable water to the citizens of Barbados. BWA conducts water quality monitoring (surveillance) programs for groundwater supply in conjunction with the Public Health Inspectorate. In 1995, the Authority commissioned a study on water loss that identified leaks throughout the island and recommended ways to minimize water losses. It is estimated that 90% of the groundwater resources are already committed, and are being utilized for public and private abstractions.

The Government acknowledges the importance of preserving the country's ecosystem, by improving sewage disposal along the densely populated tourist service areas on the south and west coasts and in Greater Bridgetown. The Bridgetown Sewerage Project was completed, and the contract for the construction of the sewage treatment plant for the south coast sewerage project was awarded in August 1995; several million Barbados dollars are expected to be spent in the construction. The sewerage project for the west coast is in its final design stage.

**Management of Municipal Solid Waste Services.** Concern over the increase in the generation of solid waste and the subsequent high incidence of illegal dumping practices has led the Ministry of Health and the Environment to give high priority to integrated solid waste management. In 1997, the Ministry was expected to complete the construction of a modern landfill that is destined to have a life-span of 10 to 15 years. In addition, the Government will also increase its monitoring of these dumps and prosecute anyone disposing of waste illegally.

**Environmental Quality.** The Environmental Engineering Division of the Ministry of Health and Environment is responsible for environmental protection. Its main functions include ensuring that buildings conform to public health standards; monitoring and controlling freshwater and marine water quality; monitoring and controlling noise pollution; recognizing, evaluating, and controlling air pollutants; managing disposal sites for derelict vehicles, blood, grease, asbestos, and night soil; monitoring and controlling derelict buildings and vehicles; monitoring the operations license regulations of public swimming pools; evaluating and carrying

out corrective measures for dealing with workers' health; monitoring and controlling waste disposal, including hazardous waste; conducting public education programs on environmental matters; advising and assisting the Ministry of Health in all environmental engineering matters; and applying relevant provisions of the Health Services Regulations.

**Food Protection and Control.** The Ministry provides food handling courses for its institutions and for the hotel industry. Since 1995, food handling training has been structured as programs or clinics organized for certain health institutions and several hotels.

**Food Assistance Program.** The school-meals program for primary school students is heavily subsidized so as to make daily meals affordable to almost all children. The Welfare Board, the Barbados Red Cross Society, church-based organizations, and other NGOs provide food assistance to the needy. In the public sector, the National Assistance Board assigns home helpers to prepare meals and take care of the elderly who live alone. The National Advisory Committee on AIDS facilitates a food bank program by soliciting donations for persons with AIDS.

#### *Organization and Operation of Personal Health Care Services*

**Ambulatory Services, Hospitals, and Emergency Services.** Ambulatory visits are made to a variety of public sector facilities and programs, including primary and specialist care, outpatient clinics and services offered weekly at Queen Elizabeth Hospital, the polyclinics and their associated outpatient clinics and district outreach activities, outpatient clinics and district activities at the Psychiatric Hospital, two general practice clinics associated with the University of the West Indies, and the clinics at the Barbados Defence Force and Glendairy Prisons.

More than one-half of medical visits to public ambulatory care facilities were made at polyclinics and their satellite outpatient clinics, and the overwhelming majority of dental visits for children, pregnant women, and the elderly (95%) were made there as well. These findings are consistent with the Government's continuing emphasis on general access to primary care through strategically located clinics. During 1995, there were 596,571 ambulatory visits, of which 60% were to polyclinics. In the same year, oral health visits accounted for 620,808 outpatients, 95% of them in polyclinics.

The private sector supplies most of the ambulatory services each year, although trend data on private sector utilization of ambulatory services are not available. The private sector surpasses public clinics as a provider of medical/surgical ambulatory services only by a modest margin (55% vs. 45%,

respectively, in 1995), and it overwhelmingly outdistances them as a provider of dental services, because free dental care is available at the polyclinics only on a limited scale—to children under the age of 18, pregnant women, and elderly persons under certain circumstances. In short, the adult population is financially responsible for its own dental care.

Visits for medical services (740,647) in the private sector are largely made up of visits to private practice physicians (97%). However, some nongovernmental organizations also provide services: for example, the Family Planning Association provides clinical services, the Heart Foundation offers cardiac rehabilitation services, and the Cancer Society and the Diabetic Association offer disease screening and management services.

The two largest components of outpatient service at Queen Elizabeth Hospital are the specialist clinics and the Accident and Emergency Department. While utilization of the department has remained relatively stable since 1988 (between 50,000 and 57,000 attendances), utilization of the specialist clinics has increased to 63% since that year. This increase could be due to the expansion of the population in Queen Elizabeth Hospital's catchment area. However, utilization of the Sir Winston Scott Polyclinic, which is in the same catchment area, has actually decreased. The previously mentioned study on the health sector's rationalization is expected to explain the discrepancy.

**Auxiliary Services for Diagnosis and Blood Banks.** More than 1.25 million individual laboratory tests were completed in Barbados in 1995, amounting to approximately 5 tests per person per year; 81% of all tests were performed at the two public laboratories at Sir Winston Scott Polyclinic and Queen Elizabeth Hospital. Four private laboratories on the island together account for one-fifth of the national laboratory testing. The blood bank routinely screens donor blood for HIV, hepatitis B, hepatitis C, HLTV1, and syphilis.

As a way to renew the strategy for health in diagnostics, laboratory capacity is being strengthened to facilitate dengue testing, more health promotion and education materials are being produced, the collaboration of NGOs, churches, and other community groups is being enlisted, and the infrastructure to deliver the support services for individuals in need is being further developed.

**Specialized Services.** Specialized services in obstetrics and gynecology; ears, nose, and throat; ophthalmology; invasive cardiology; renal dialysis; gerontology; radiotherapy; radiology; mental and physical rehabilitation; and oral and maxillofacial surgery are available in both the public and private sectors. Other specialist services include an AIDS hostel, a Soroptomist Village for the elderly, and the privately run substance abuse foundation.

### *Inputs for Health*

**Drugs.** The drug supply service has been generally successful in maintaining a continuous supply of formulary drugs and related items in the country. The Barbados Drug Service procures its drugs from the one local drug manufacturer, and more extensively from market sources in the U.S.A, Canada, South America, and Europe.

**Immunobiologicals and Reagents.** Vaccines are bought through the PAHO Revolving Fund. Reagents for use in the laboratory and diagnostic procedures are readily available; most are imported.

### *Human Resources*

According to the Ministry of Health's Statistical Records, in 1994, Barbados had the following numbers of health personnel, by category: 355 doctors, 48 dentists, 898 nurses, 2 sanitary engineers, 9 veterinarians, and 970 technologists and assistants.

Continuing education is promoted as an integral part of personnel development and as a means of keeping the various disciplines updated. In 1988, the Ministry of Health prepared a five-year development training plan to meet its requirements. Much emphasis has been placed on in-service and local training, especially in priority areas such as geriatric nursing, radiography, orthopedics, environmental impact assessment, health planning, and hospital management.

Queen Elizabeth Hospital is a teaching hospital and is used by the University of the West Indies Faculty of Clinical Medicine and Research for preclinical training or internships for medical graduates. The internship is a carefully supervised and monitored system of continuing medical education.

The Barbados Community College School of Nursing provides similar apprenticeships for nurses. A wide range of allied health professionals such as public health inspectors,

medical records clerks, medical laboratory technicians, pharmacists, and occupational therapy assistants receive training at the College.

In general, the numbers in medical and nursing professions have reached an equilibrium, in that enough are produced to meet the needs of the country; this is particularly true in the medical arena. The Government is being forced to revisit the issue of medical student sponsorship because of the rapid growth in Barbadians seeking to enter the medical profession and Queen Elizabeth Hospital's strained finances. However, in light of the growing need for social support and rehabilitative services, some of the paramedical professionals such as nutritionists, physiotherapists, chiropodists, and x-ray technicians are still needed.

### *Research and Technology*

Health research and technology development both within and outside the Ministry, particularly at the University of the West Indies, have been undertaken in chronic noncommunicable diseases such as obesity, hypertension, and diabetes and their complications. Other research projects that have been undertaken by the Ministry within the period dealt with major causes of morbidity and mortality such as AIDS and cancer, including the risk factor survey and a knowledge attitude and practice (KAP) study relating to a cervical cancer control project. The Faculty of Medical Sciences at the University of the West Indies has already undertaken extensive research in the areas of hypertension and diabetes. Collaboration between the Ministry and the University has led to the setting up of a diabetes model clinic and the preparation of guidelines for the clinical management of diabetes. Funding for research remains the main constraint to improving health research and technology, but government initiatives such as the Chronic Disease Research Centre, should lessen the impact of financial constraints. Donations for this center are expected from private sector enterprises.